Protecting Nature for the Sake of Human Beings

It is often assumed that to say that nature should be protected for the sake of human beings just is to say that it should be protected because it is a means to one or more anthropocentric ends. I argue that this assumption is false. In some contexts, claims that a particular natural X should be protected for our sakes mean that X should be protected, not because it is a means to anthropocentric ends, but because it is part of something about human life that is of value: because, that is, its value is anthropocentric and constitutive rather than anthropocentric and instrumental. It follows, I suggest, that one does not need to endorse the non-anthropocentric claim that nature should be protected for its own sake in order to challenge the instrumentalist notion that it should be protected simply because it is a means to anthropocentric ends (as, say, a provider of ecosystem services). To make my case, I consider the UK Government’s failed attempt to sell off England’s publicly-owned forests.

Those who believe that nature should be protected both for its own sake and for ours sometimes disagree about which sorts of reasons it is prudent to emphasise. Traditionalists maintain that appeals to nature’s value as a service provider for human beings are unlikely to prove successful in the long run. For example, Douglas J. McCauley claims that if ‘we mean to make significant and long-lasting gains in conservation’, we will need to stop placing so much weight on appeals to the value of ecosystem services and return to ‘the protection of nature for nature’s sake’.1 On the other side of the fence, advocates of what has become known as the ‘new environmentalism’ doubt whether such non-anthropocentric appeals will

persuade the sorts of people conservationists need so urgently to persuade – businesspeople, say, and policymakers.² For instance, Mark R. Tercek and Jonathan S. Adams argue that prudent conservationists will emphasise that nature should be protected not simply ‘for its own sake’ but also for ours: because, that is, it provides us with so many valuable ecosystem services.³ Tony Juniper, former Vice Chair of Friends of the Earth International, agrees. ‘For decades’, he writes, ‘campaigners have fought for the protection of nature for its own sake, and while there has been notable progress... the overall trends have not been encouraging.’ Better, he suggests, to devote our efforts to ‘the valuation of ecosystem services’.⁴ An all-star line-up of scientists and conservationists, including Gretchen Daily and Paul R. Ehrlich, take a similar line in an editorial for Conservation Biology. The fundamental question can, they maintain, be simply stated: ‘will we achieve greater conservation success by protecting nature for its own sake or for our own sake?’ The latter, they contend, is the ‘way forward’:

Nature for nature’s sake resonates only with the already converted. Business interests, farmers, and the billion humans living in rural poverty remain unwilling or unable to move. We need these people as partners in conservation, and ecosystem-service approaches provide a means of motivating and enabling them.⁵

⁴ ‘We must put a price on nature if we are going to save it’, The Guardian, Friday 10 August 2012.
This is one of the most prominent and heated debates in the environmental sector. Yet it is rarely noticed that all parties to it tend to share a common conception of what it means to protect nature for the sake of us humans. Both traditionalists and new environmentalists typically assume that to say that nature should be protected for our sake simply is to say that it should be protected because it is a means to one or more anthropocentric ends – because, as the point is often put, it provides us with valuable ecosystem services. In the following, I challenge this assumption. I argue that although the claim

(A) Nature should be protected for the sake of human beings,

could, in some contexts, mean

(B) Nature should be protected because it is a means to one or more anthropocentric ends,

it could, in some contexts, mean

(C) Nature should be protected because it is part of something about human life that is of value.

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6 A good place to begin, in tracking the progress of the debate, is with the responses to McCauley’s paper ‘Selling out on nature’ – and McCauley’s responses to those responses (see Nature 443 (2006), pp. 749-50).

7 Often, but not always. For instance, not all of those who argue that nature ought to be protected on account of its scientific value frame their case in terms of ecosystem services. See, for example, Sahotra Sarkar, Biodiversity and Environmental Philosophy: An Introduction (Cambridge: Cambridge University Press, 2005), pp. 102-3.

8 I say ‘in some contexts’ rather than ‘in other contexts’ since in some contexts the meaning of claims to the effect of (A) will be ambiguous between (B) and (C).
It follows, I suggest, that one does not need to endorse the non-anthropocentric claim that nature should be protected for its own sake in order to challenge the notion that it should be protected simply because it is an effective means to certain anthropocentric ends. That instrumentalist notion can, I maintain, be challenged on broadly anthropocentric grounds. One can argue that nature should be protected, not just because it is a means to one or more anthropocentric ends - not just because it provides certain ecosystem services, for instance - but because it is, in a sense I shall explain, part of our lives.

**Clarification 1: Protecting Nature**

Not everyone likes talk of nature, so not everyone will accept the distinction between what should be done for nature’s sake and what should be done for ours. In particular, some will object that that distinction encourages the false notion that human beings are not parts of nature. What sense can there be, they will ask, in distinguishing between what should be done for nature’s sake and what should be done for ours when we humans are natural through and through?[^9]

Such objections usually presuppose that the category of nature includes everything that is not supernatural. And maybe human beings really are parts of nature, in that sense of ‘nature’. Yet when people distinguish between what should be done for nature’s sake and what should be done for ours, they are rarely, if ever, using the term ‘nature’ in this sense. They are typically using it to denote those parts of the biosphere whose current states are not for the most part the intended products of human actions – musk oxen and tundra, for

[^9]: See, for instance, the claim that once we have put a stop to the ‘crude and abusive slicing of reality into… the natural and the human’, we will be forced to abandon ‘ecological thinking… that simplistically opposes nature’s interests to humans’ interests.’ Bruce Wilshire with Ron Cooper, ‘Nature and Nurture: A Non-Disjunctive Approach’, in B. Foltz and R. Frodeman (eds.), *Rethinking Nature: Essays in Environmental Philosophy* (Bloomington: Indiana University Press, 2004), pp. 302-313, at p. 304.
instance, rather than microwaves and bowling alleys. It is, admittedly, another question whether it is legitimate to draw any such distinction between the human and nonhuman parts of the biosphere. Steven Vogel and other nature-sceptics argue that it is not.\textsuperscript{10} There is not enough space to articulate, still less respond to, their arguments here. So I will have to ask readers to assume, for argument’s sake, that a distinction, if only a rough and ready one, can legitimately be drawn between those parts of the biosphere that are largely nonhuman, in the sense sketched above, and those of its parts that are ‘human’.\textsuperscript{11}

In referring to the protection of nature, moreover, I do not just mean the preservation of wild nature in a pristine state, untouched by human hand. Rather, I mean the prevention of any part of nature (in the sense sketched above) from being harmed, damaged or used up (and not just so that it can be harmed, damaged or used up at some later date). On this conception, then, the protection of nature could involve the safeguarding of orchards, hedgerows, heaths and other cultural landscapes.

**Clarification 2: Acting for Nature’s Sake**

Consider, next, claims to the effect that one should perform some particular action for the sake of A. Such claims are ambiguous. On the one hand, they might be taken to imply that A


\textsuperscript{11} There is no need, however, to assume that that distinction must amount to a dualism. That is to say, there is no need to suppose that the human and nonhuman parts of the biosphere are entirely different substances or in some other way radically different. Nor, accordingly, is it necessary to suppose that the relevant distinction is sharp. On the contrary, according to any plausible view of what it means to be natural, naturalness admits of degrees. In what follows, I work with a broad conception of ‘natural’, according to which something can count as natural even if its current state is to some extent the intended product of human actions. So nature, on my account, includes entities such as hedgerows, heaths and forest plantations, and not just remote stretches of taiga, deep sea vents and other comparatively wild parts of the world.
is an entity with a good of its own which would be promoted by performing the relevant action.\textsuperscript{12} For instance, the claim ‘We should go to Florida for the sake of Aunt Clara’ might be thought to imply that a trip to Florida would be good for Aunt Clara because it would please her, or improve her health or in some other way promote her well-being. On the other hand, claims to the effect that one should perform some action for the sake of A can be understood more broadly. They can be taken to imply that A is something that is of value, though not necessarily something that has a good of its own. Take ‘We should go to Florida for the sake of convenience’. There is no need to suppose, bizarrely, that convenience has a good of its own. On a broad understanding of ‘for the sake of’, it is enough to suppose that convenience is merely of value. In the following, I adopt the broad understanding of what it means to perform an action for the sake of A. Consequently, I do not suppose that the claim

One should φ for the sake of X

entails that

X has a good of its own.

\textsuperscript{12} Roughly, an entity has a good if and only if it is capable of being either benefited or harmed, and it has a good of its own if its good is not dependent on the desires, interests or good of any other entity. Hence a pencil does not have a good, since, while it can be damaged, it can be neither benefited nor harmed. A heart, by contrast, has a good, since some things (such as sedentary lifestyles and deep-fried pizzas) can harm hearts. However, since the good of a heart derives from the good of the organism to which it belongs, a heart does not have a good of its own. All organisms seem, by contrast, to have goods of their own, while the jury is still out on collectives such as lichen and termite colonies. For an exceptionally clear introduction to these issues, see Ronald L. Sandler, \textit{Character and Environment: A Virtue-Oriented Approach to Environmental Ethics} (New York: Columbia University Press, 2007), p. 77.
To clarify how I do interpret references to acting for nature’s sake, it may help to consider the following claim:

(D) Some particular natural entity, X, should be protected for the sake of nature.

(D) can be read in two ways, depending on how one interprets the term ‘nature’. In some instances, ‘nature’ will refer to X and nothing else. In such cases, (D) will therefore mean that X should be protected for the sake of X – that, in other words, protecting X is an end in itself. In other cases, ‘nature’ will refer, not to X, but to some other part of nature. In such cases, (D) will therefore mean that X should be protected for the sake of some other part of nature – some natural Y, perhaps, or some natural Z. In all of these cases, however, the implication is that nature should be protected for nature’s sake. Take the protection of prairie dogs. It might be said that protecting any particular normal adult prairie dog is an end in itself – because, for example, any normal adult prairie dog is what Tom Regan calls a subject-of-a-life. Alternatively, it might be said that we should protect prairie dogs for the sake of the ecosystems to which they belong (prairie dogs being keystone species in prairie ecosystems). Either way, the implication is that the animals should be protected for nature’s sake.

Clarification 3: Instrumental Value and Constitutive Value

Consider, next, claims to the effect that nature should be protected for the sake of something other than nature. Such claims imply that

(E) Nature is of value because of its relation to something else that is of value.

Begin by considering what the something in question might be. We noted above that those who ask whether nature should be protected for its own sake typically conceive of nature as the nonhuman part of the biosphere. So (E) could conceivably be taken to mean that nature is of value because it is of value to some community of material beings dwelling beyond our biosphere, such as the members of ‘the Culture’, the utopian society envisaged in Iain M. Banks’s science fiction novels. Alternatively – and more plausibly – some theists might take the phrase ‘something else’ in (E) to refer to God and/or His Plan. But that is not, of course, the interpretation most environmentalists favour. The vast majority of them would, I suspect, take the ‘something else’ in (E) to refer to something about human life that is of value. That is to say, they would take (E) to mean that

(F) Nature is of value because of its relation to something about human life that is of value.

What sort of relation? As we saw above, debates about whether nature should be protected for its own sake are typically couched in terms of ecosystem services. The key question is thought to be whether nature should be protected (a) for its own sake, or (b) because it provides us with valuable ecosystem services. Now talk of services implies a specific sort of relation. The claim that X provides a service to A implies that X makes a causal contribution to the achievement of some end that is of value to A. In other words, talk of services implies means-end relations.\(^\text{14}\)

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So claims to the effect of (F) are typically taken to mean that

(G) Nature is of value as a means to something about human life that is of value.

But that is not the only way that they could be interpreted. For (F) could also be taken to mean that

(H) Nature is of value because it is part of something about human life that is of value.

The general distinction, here, is between instrumental value and constitutive value. It is best illustrated with an example. So, to this end, consider the ornate fresco that Michelangelo was commissioned to paint on the ceiling of the Sistine Chapel in the Vatican City. In order to carry out his work, Michelangelo needed to construct – or supervise the construction of – some elaborate scaffolding. The scaffolding needed to be built for the sake of Michelangelo’s work. The scaffolding was of value, that is, because of its relation to something other than itself that was of value - namely, Michelangelo’s work. The specific relation here is one of instrumentality. The scaffolding was of value because it provided a means by which Michelangelo could achieve the end of painting the chapel’s ceiling. It was of instrumental value.

Now consider The Creation of Adam, the centrepiece of Michelangelo’s fresco. Michelangelo painted it, not as a stand-alone piece, but for the sake of the fresco as a whole. Accordingly, the value of The Creation of Adam partly depends on the centrepiece’s relation

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to something other than itself that is of value - namely, the entire fresco. Be that as it may, while The Creation of Adam no doubt has instrumental value (as, say, a generator of tourism revenue), it is also of value because it is part – probably an essential part – of the entire fresco. That is to say, its value is constitutive and not merely instrumental.

The general point is that X has instrumental value if and only if it brings about something that is of value, where the relevant ‘bringing about’ can be conceived of in causal terms. If X has constitutive value, by contrast, it has that value not (or not just) on account of its causal effects, but because, as Russ Shafer-Landau observes, it is part of ‘something that is itself worthy of our desire and interest’.16

Nature’s Value and Human Flourishing

As we saw, it is often assumed that to say that nature should be protected for our sakes simply is to say that it should be protected because it is a means to one or more anthropocentric ends. The assumption is that nature should be protected either for its own sake or for our sakes, where ‘for our sakes’ means ‘on account of its instrumental value – or service value - for us human beings’.17 But now we have a third option to consider: that


17 Granted, those who emphasise nature’s instrumental value for human beings often acknowledge that nature has what economists call non-use values, such as existence value. To say that X has non-use value for Person A is to say that A values X for reasons other than its usefulness or potential usefulness. Nonetheless, X is still taken to be of value because it is a means to the end of human well-being (which tends, in such contexts, to be conceived of in terms of preference satisfaction). For instance, to say that humpback whales have existence value for A is to say that A derives satisfaction, not from using the whales, but simply from
nature should be protected for our sakes because it is part of some valuable whole which counts as ‘human’ rather than ‘natural’.

How are we to interpret that third option? One possibility would be to suppose that the whole in question is *human flourishing*, conceived along Aristotelian lines as an entire life lived in a certain sort of way. Interpreted in this manner, our third option would therefore be that some parts of nature are of value because they are partly constitutive of certain dispositions or practices which are, in turn, components of human flourishing. This, I take it, is what Martha Nussbaum is suggesting when she claims that ‘a creature who did not care in any way for the wonder and beauty of the natural world’ would lack something that is constitutive of what it means to be human.\(^{18}\) Certainly, she includes ‘Being able to live with concern for… the world of nature’ in her list of ‘central human capabilities’.\(^{19}\) William J. Fitzpatrick provides an argument along similar lines. In his view, nature has constitutive value because ‘engagement with at least some range of natural things and places is… a core ingredient of human flourishing’\(^{20}\). For example, the life of someone who was unable to engage aesthetically with nature would, he maintains, be ‘significantly impoverished’.\(^{21}\)

These are bold claims. Both Nussbaum and Fitzpatrick seem to believe that some sorts of engagement with nature are *essential* to – or, as the latter puts it, *core* ingredients of -human flourishing. If nature is thought to encompass everything that is not supernatural, then such claims are trivially true. Whenever one engages with anything other than spirits, ghosts,
demons and the like, one is engaging with nature, in this sense. If, however, the concept of nature is construed more narrowly, as encompassing just those parts of the biosphere whose current states are not for the most part the intended products of human actions, then the claims of Nussbaum and Fitzpatrick are highly contentious. True, some sorts of engagement with the world around us are essential components of human flourishing. But why should only engagement with the *natural* world do? Suppose, with Fitzpatrick, that aesthetic appreciation counts as a kind of engagement with the world. It is hard to see how someone could flourish were they completely impervious to the aesthetic qualities of the world around them. But what of someone who could appreciate the aesthetic qualities of sculptures, paintings and other human artefacts but not those of natural entities, processes, places and events? It is not at all clear that such a person would be incapable of flourishing.\(^{22}\)

One could respond to this objection by arguing that although some individuals can flourish even if they care nothing for nature, a *society* composed entirely of such individuals could not qualify as ‘good’. So, for example, while John O’Neill concedes that ‘there are people who live flourishing lives with little or no contact with nature – for whom the need for the countryside is not felt’, he proceeds to argue that ‘a good society will be one in which there is expression of care for land and appreciation of the wonder and beauty of nature in the lives of some of its members, alongside those who pursue other goods.’\(^{23}\)

O’Neill’s claim is more plausible than the suggestion that engagement with nature is an essential component of human flourishing. But I will not defend it here. In what follows, I do not argue that nature is of value because some sort of engagement with it is an essential component of either the flourishing of human individuals or the ‘goodness’ of their societies.


Instead, I suggest that in some cases nature is of value because it is – to put the point in very general terms - part of something about human life that is of value. And I then argue that this sort of value cannot be adequately conceived in the instrumentalist terms favoured by many conservationists. To develop my argument, moreover, I focus on a concrete case: the widespread opposition to the UK Government’s failed attempt to sell off England’s publicly-owned forests.

The Great Forest Sell-Off

Some background: On 28 October 2010, the Public Bodies Bill went for its first reading at the House of Lords. If it had become an Act of Parliament, the bill would have enabled the UK Government to sell off all of England’s publicly-owned forests. The facts soon got out, sparking a public outcry. Many feared that new, private owners would restrict access to forests or, worse, fell them for timber. Tens of thousands of people wrote in protest to their local Members of Parliament, more than 30 local campaigns sprang into life across the country, and an online petition against the proposed sell-off received over half a million electronic signatures.24

On 17 February 2011, Caroline Spelman MP, the Secretary of State for Environment, Food and Rural Affairs, told Parliament that a mistake had been made and that the clauses about forestry would be removed from the Public Bodies Bill. Exactly one month later, an Independent Panel on Forestry was set up to advise the Government about the future direction of forestry and woodland policy in England. On 19 May 2011, the Panel issued a formal ‘call for views’, which elicited over 42,000 responses. The Panel’s report was published in July 2012, and the Government published their response to it in January 2013. Owen Paterson

MP, Spelman’s successor, confirmed that the Government had backed down. ‘England’s Public Forest Estate’, he wrote, ‘will remain secured in public ownership’.  

For our purposes, it is the responses to the Panel’s call for views that are significant. Many respondents appealed to the instrumental value of forests: to their perceived role in mitigating climate change, preserving biodiversity, buoying up the national economy and so forth. Yet many claimed that forests provided a different sort of benefit. Here is a small sample:

‘Forests and woods… are part of our cultural heritage’.  
‘Forests and woods… are integral to our inherited beliefs and values… [and] part of our nation’s identity’.  
‘England’s trees, native woods, plantation forests, wood-pasture and parkland… are an essential part of the… social well-being of England.’ 
‘In some parts of England, forests and woods are an essential part of local landscape character, giving identity and a sense of place.’ 
‘People are very passionate about our forests in Norfolk and identify very strongly that woodlands are part of our local cultural heritage.’

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26 http://www.clive.coles.freeuk.com/FOTSResponse.htm (Save Sandlings Forest Campaign - accessed 11 November 2014)


‘Forests and woods… are part of our natural and cultural heritage’.  

‘I feel I am a part of the forest where I live, and the forest is a part of me and it is where I feel at home.’

There are, it is true, many different sorts of claims here. Some respondents appealed to national identity, others to cultural heritage, social well-being or their feeling of being at home. Yet many respondents, and all of those just quoted, seemed to feel that forests are of value not simply because they are effective means to other ends - not simply because they provide important services, for instance - but because they are parts of some valuable whole. Furthermore, in many cases – and, again, all of those just cited - the various wholes to which they appealed did not seem to fall into the category of nature (in the sense sketched above). To claim that forests should be protected because they are integral to our inherited beliefs and values, our national or cultural identity, our cultural heritage, our social well-being, our senses of place or of being at home – to claim that they should be protected for any of these reasons is not to appeal to the value of some nonhuman part of the biosphere. It is to appeal to something about human life that is held to be of value. It is to suggest that forests should be protected for our sakes: because, that is, they are of constitutive value to us.

30 www.norfolk.gov.uk/download/etd130711item10pdf (Norfolk County Council - accessed 11 November 2014)
33 It would take more work to determine what proportion of respondents felt this to be the case. But all I need to show to make my argument is that some respondents felt this to be the case.
humans. If ‘anthropocentric’ is understood broadly, to encompass our interests in such things as heritage, identity and feeling at home in the world, then such appeals are anthropocentric.\textsuperscript{34}

\textbf{One Way to Challenge the Ecosystem Services Framework}

Testimonies of the sort we considered in the previous section must be examined with a critical eye. Even if it is accepted that a certain testimony indicates that Person A \textit{takes} some natural X to have a certain sort of value, it will be a further question whether X \textit{really} has that sort of value. Still, it would be excessively sceptical to suppose that although some parts of nature are taken to have constitutive anthropocentric value, \textit{no} parts of nature really have that sort of value. It would be much more plausible to suppose that in at least some cases nature really is of value because it is part of something about human life that is of value.\textsuperscript{35}

The significance of this finding is as follows. Instrumentalist approaches to nature conservation are overwhelmingly dominant. The United Nations Environment Programme, the UK Government’s Department for Environment, Food and Rural Affairs, the US Government’s Environmental Protection Agency, Friends of the Earth, the World Wide Fund

\textsuperscript{34} Of the many accounts of ‘broad’ anthropocentrism, Bryan G. Norton’s is one of the most influential. (See, in particular, his defence of ‘weak’ anthropocentrism in ‘Environmental Ethics and Weak Anthropocentrism’, \textit{Environmental Ethics} 6, 2 (1984), pp. 131-148.) If, by contrast, anthropocentrism is taken to mean ‘human chauvinism, narrowness of sympathy, comparable to national or race or gender chauvinism’, then claims that forests should be protected because of their contribution to our heritage, national identities, etc. are not necessarily anthropocentric (see further, Mary Midgley, ‘The End of Anthropocentrism?’ In R. Attfield and A. Belsey (eds.), \textit{Philosophy and the Natural Environment}, Royal Institute of Philosophy Supplement 36 (Cambridge: Cambridge University Press, 1994), pp. 103-12, at p. 111).

\textsuperscript{35} It is, however, another question whether something that is of constitutive anthropocentric value is of value all things considered. Take the twenty thousand or so ‘holy rats’ which live in the Karni Mata Temple in the Indian town of Deshnoke. Since they are integral to certain religious practices, they would seem to be of anthropocentric constitutive value. But suppose, for argument’s sake, that they are responsible for the spread of disease amongst the priests and worshipers. If that were the case, it is not hard to see how the rats could be of negative value all things considered, despite their positive anthropocentric constitutive value.
for Nature – for these and many other environmental organisations, the protection of ecosystem services is a top priority. Within disciplines such as environmental economics, conservation biology and environmental science the rhetoric of ecosystem services is also pervasive. One analysis of the peer-reviewed literature on the topic revealed more than 1165 papers on ecosystem services, of which over sixty percent had appeared after 2003. And that analysis was conducted back in 2007.\(^{36}\)

Given the dominance of service-focused approaches, it is unsurprising that people tend to assume that to protect nature for our sakes just is to protect it because it is of instrumental value to us. Now if that assumption were true, then it might seem that conservationists seeking to criticise this kind of instrumentalism would have just one option: to argue, with McCauley and other traditionalists, that nature is of value for its own sake and not just because of its usefulness - and potential usefulness - for us humans. I do not mean to dismiss such non-anthropocentric arguments: on the contrary, I believe they need to be made. Yet, as we have seen, there is another option. Instrumentalist approaches to nature conservation can be challenged on broadly anthropocentric grounds. It can be argued that conservationists ought, in some cases, to consider the constitutive value nature has for people. That line of argument could, it is true, be taken in a number of different directions. One option would be to argue that people have certain moral rights concerning those places that are integral to their sense of who they are.\(^{37}\) Another would be to appeal to Bryan G. Norton’s account of those cases in which people choose to protect for their successors ‘the distinctive values that unify them with their place’.\(^{38}\) There is not enough space to develop either of


\(^{37}\) This is one of the reasons Amnesty International gives for respecting Aboriginal peoples’ rights to their ancestral lands (see http://www.amnesty.org.au/indigenous-rights/comments/26216 - accessed 11 November 2014).

\(^{38}\) *Sustainability* (Chicago: University of Chicago Press, 2005), p. 399. Norton argues that such ‘sense-of-place’ or ‘constitutive’ values ‘can be defined only in terms independent of
these lines of argument here. For present purposes, it is enough to note that no such argument could be satisfactorily expressed in terms of nature’s actual or potential usefulness. When nature matters to us because it is a part of our lives, its value cannot be adequately expressed in such instrumentalist terms.

economic calculation’ (ibid. 431). I would add that they cannot be adequately conceived in any sort of instrumentalist framework. So I would argue that nature’s constitutive values could not be adequately conceived in terms of, say, service-provision, even if, as some conservationists concede, not all of nature’s services can be priced. (See Kai M. A. Chan, T. Satterfield and J. Goldstein, ‘Rethinking ecosystem services to better address and navigate cultural values’, Ecological Economics 74 (2012), pp. 8-18, at p. 14.)