

EXISTENCE VALUE, PREFERENCE SATISFACTION, AND THE ETHICS OF SPECIES EXTINCTION

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Abstract: *Existence value* refers to the value humans ascribe to the existence of something, regardless of whether it is or will be of any particular use to them. This paper argues that existence value based on preference satisfaction should be taken into account in evaluating activities that come with a risk of species extinction. Two main objections are addressed. The first is that on the preference satisfaction interpretation, the concept lacks moral importance, since satisfying people's preferences may involve no good or well-being for them. However, existence value can be based on a restricted version of the preference satisfaction theory, which is not vulnerable to the skeptical arguments about the link between preference satisfaction and well-being. The second objection is that even if preference satisfaction can be linked to well-being, understanding existence value in terms of individual preference satisfaction is incoherent, since existence value reflects disinterested preferences that involve no benefits to the individual. However, the fact that existence value may involve disinterested preferences does not threaten the coherence of the concept, but suggests that it does not fit smoothly into the 'utilitarian' or 'welfarist' framework it is commonly considered within. A pluralistic normative approach based on prima facie duties can be an alternative to standard utilitarian-style approaches for considering existence value in concrete cases involving a risk of species extinction, such as deep sea mining.*

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Introduction

The current loss of biodiversity around the world is in large part due to human activity including deforestation, urbanization, agriculture, and mineral exploitation. Extinction rates are currently 100–1,000 times higher than the background natural rate.¹ In this paper, the problem of anthropogenic species extinction is considered from an ethical perspective. The *value* that species are thought to have is crucial to their moral consideration. The question of the value of a species can be approached from an anthropocentric or non-anthropocentric perspective, i.e. we can ask about the value it has for humans, or the value it has independently of human desires or preferences. Moreover, it can be approached from a use or non-use perspective, i.e. we can ask whether it is useful or potentially useful for some particular human purpose, or whether it is valuable for some reason not related to use. In this paper, I consider the concept of *existence value*, which refers to the value humans ascribe to the existence of something, regardless of whether it is or will be of any particular use to them. The main research question is to what extent and under which conditions existence value should be used in evaluating activities that come with a risk of species extinction.²

Existence value has been extensively discussed, but the concept has not received sufficient philosophical treatment. Methodological questions concerning how to determine and aggregate environmental values, including existence and other non-use values, have been widely discussed in the literature on environmental economics,³ as well as in related fields such as conservation biology.⁴ The role that different environmental value concepts can play in policy making has also been discussed by several authors.⁵ However, a systematic philosophical investigation of existence value is lacking in the literature.⁶ This gap in the literature is unfortunate, given the serious ethical questions raised by existence value in the environmental context. I endeavor to fill out parts of the gap in the current text.

I focus on a preference-based conception of existence value, which can be found in the influential *Millennium Ecosystem Assessment* framework for considering ecosystem services.⁷ Roughly, the idea behind this conception is that humans have preferences for the existence of things, and that satisfying such preferences may be good for them. This conception allows for a discussion of the role and importance of human preferences and preference satisfaction in moral deliberations about the environment, which is interesting from a philosophical and ethical perspective. Moreover, the dominating position the preference-based conception has in the discourse of ecosystem services suggests that it should be carefully scrutinized.⁸

I discuss two main objections against preference-based existence value in the moral context. The first is that understood in terms of preference satisfaction, existence value lacks

moral importance since there is no (morally significant) link between preference satisfaction and actual well-being. The second is that even were there to be such a link, it does not extend to existence value, insofar as existence value reflects disinterested preferences. With regard to the first objection, I argue that we should base the concept of existence value on a restricted version of the preference satisfaction view, which is not vulnerable to the skeptical arguments about the link between preference satisfaction and well-being, and which is compatible with other major views on well-being. With regard to the second objection, I argue that the fact that existence value involves disinterested preferences does not threaten the coherence of the concept, but suggests that existence value involve preferences that do not fit smoothly into the ‘utilitarian’ or ‘welfarist’ framework that is commonly used to consider the concept.

On the basis of this discussion, a concept of existence value is developed which is based on a restricted preference satisfaction theory and three kinds of preference: self-regarding, other-regarding and non-anthropocentric. I argue that this concept should be taken into account in evaluating activities that come with a risk of species extinction.

The final part of the paper deals briefly with the question of the importance of existence value in concrete cases. The main purpose is to show that taking existence value into consideration does not require a utilitarian approach or adherence to ‘welfarism’, i.e. the view that individual welfare ‘is the only thing with final or ultimate ethical value, the only state of affairs which we have moral reason to promote for its own sake’.⁹ I suggest that an alternative approach is to consider existence value within a pluralistic normative framework based on the concept of prima facie duties.

The discussion of the importance of existence value in concrete cases uses the example of *deep sea mining*. Deep sea mining involves retrieving minerals such as copper, gold, silver and zinc from the ocean floor at great depths in ecologically complex and biologically rich environments. Deep sea mining is relevant because it is considered to involve a risk of species extinction.¹⁰ We have very little knowledge of many of the species thought to be at risk, and to that extent cannot say much about their actual or potential use-value. This makes the case an interesting testing ground for the concept of existence value.

Conceptual framework

An interesting conception of existence value can be found in the *Millennium Ecosystem Assessment* (MA).¹¹ MA was coordinated by UNEP (United Nations Environment Programme), and is an important framework for considering ecosystem services, a concept of

growing importance in environmental policy.¹² The framework has formed the background for numerous environmental assessments and analyses. Recently, it was used as a basis of an environmental analysis by Earth Economics of what aspires to become the world's first deep sea mining project for copper minerals: the Solwara 1 project, headed by the Canadian mining company Nautilus Minerals Inc. and located in the Bismarck Sea, off the coast of Papua New Guinea.¹³

Ecosystem services are described in the MA as the products and benefits obtained from and provided by ecosystems.¹⁴ The MA groups ecosystem services into four broad categories according to how they benefit humans: 1) *provisioning goods and services*, which provide physical goods and materials, 2) *regulating services*, which provide regulation of e.g. climate and water quality, as well as keep disease organisms in check, 3) *supporting services*, which include primary productivity (natural plant growth) and nutrient cycling (e.g. carbon cycles), and are the basis of the vast majority of food webs and life on the planet, and 4) *cultural services*, which are functions that allow humans to interact meaningfully with nature.¹⁵

Existence value is placed under the heading of *cultural services* – together with aesthetic, recreational and spiritual values, as well as medicinal, educational and scientific values. Existence value is distinguished from these other cultural values by being understood as a *non-use value*. While *use value* stems from the satisfaction or well-being that people might get – directly or indirectly – from the use of nature or natural resources (including such things as ecosystems and biodiversity), non-use value does not involve using something in nature for any particular purpose. Non-use value is not to be confused with 'option value', which according to the conceptual framework of the MA is the value we place on something that is not currently in use, but that might be used for some defined purpose in the future (such as biological material for medicinal use).¹⁶

The MA suggests that existence value is to be understood as a 'utilitarian' concept, based on 'a principle of human preference satisfaction (welfare)'.¹⁷ The idea seems to be that an agent may get 'utility', or an increase in welfare, from having a preference for the existence of something satisfied. No explanation is given in the MA of how the distinction between use value and non-use value is to be understood with respect to preference satisfaction. However, this can be clarified with reference to a distinction between intrinsic and extrinsic preferences.

Let me first say something about how I understand 'preference' and 'preference satisfaction' in this context. In the context of choice, 'preference' is commonly taken to refer

to a stated or revealed ranking or rating. In a discussion of value and well-being, however, it is natural to understand preferences to refer (more substantively) to the wants and desires of individuals.¹⁸ That is how I understand the concept of a preference here. Apart from the preference itself, a preference implies a preferring *subject*, which can be a human being or some other creature capable of having preferences, and a preferred *object*. The object of a preference can be either a thing, expressed in terms of *preference for*, or a situation (event, state of affairs, or the like), expressed as *preference that*.¹⁹ In the context of existence value, it is natural to presume that what is preferred is a certain situation, namely that some X exists.²⁰ On the situation interpretation, moreover, we can say that a preference that X is (roughly speaking) *satisfied* if and only if X actually holds.²¹ Following philosophical convention, I will refer to preferences regarding particular situations as ‘local’, while preferences regarding situations in a broader sense, such as a life or part of a life, will be referred to as ‘global’.²²

Extrinsic preferences are characterized by the subject or agent preferring something not for its own sake, but because of some ‘extrinsic’ reason – or, as von Wright puts it, characterized by the fact that ‘a non-circular reason can be given for *why x* is preferred to *y*’.²³ I can prefer a hammer over a rock because it is more useful for hammering nails. But in that case, I do not prefer the hammer for what it is in itself, i.e. not for its intrinsic properties. I prefer it for an extrinsic reason, namely its usefulness. Intrinsic preferences, on the other hand – which are what mainly preoccupy us in this paper – involves preferring something for its own sake, and not because of its usefulness or relation to other preferences.

With this rough understanding of preferences and preference satisfaction in mind, let us now consider some basic challenges faced by existence value as conceived of in terms of human preference satisfaction. We will revisit the ‘utilitarian’ aspect in the final section.

The moral importance of preference satisfaction

The main objection to preference-based existence value in the moral context is that preferences and preference satisfaction lack moral importance.²⁴ What can it mean for something to have moral importance? As we have seen, existence value is connected to the idea of promoting human well-being (or welfare). The general idea that human well-being is good or has intrinsic value,²⁵ and that promoting it (or pursuing it, striving for it, or the like)²⁶ is morally important, is fundamental to much of the ethical literature in the western tradition (from Aristotle’s conception of *eudaimonia* to modern philosophers such as James Griffin and Derek Parfit).²⁷ I will take this general idea as my starting point. The assumption is that if

preference satisfaction can be linked to well-being in the relevant way, this is an important step towards establishing the moral importance of (preference-based) existence value.

The preference (or desire) satisfaction theory is one of the major theories of well-being.²⁸ The core idea is that getting or achieving what we want is intrinsically important for our well-being, or for how well our lives go. This may be intuitively plausible. However, many authors argue that we should be suspicious of the idea that well-being consists in having preferences satisfied. A common line of argument is to point out that some preferences seem to be at odds with our self-interest or welfare. As Alexander Sarch puts it in a recent article:

In some cases, our preferences are based on faulty information. In other cases, even when not misinformed, we prefer things that intuitively would not enhance our welfare. For instance, when our preferences are manipulated or otherwise not formed autonomously, their satisfaction does not always seem to enhance well-being [...].²⁹ Moreover, even when our preferences are autonomous, we might still prefer things that intuitively do not make a positive contribution to welfare – as in certain cases of self-sacrifice or masochism.³⁰

These cases suggest that it is problematic to take the satisfaction of preferences as such to indicate well-being. However, this view is compatible with the view that well-being can consist (at least partly) in the satisfaction of preferences of a certain kind. For instance, we can say that only the satisfaction of what John Broome calls ‘high grade’ preferences, i.e. preferences that pass some test of quality,³¹ should be taken to indicate well-being.³²

To be sure, such a test of quality can be difficult to develop in a general manner. But it would presumably not be an impossible task to set up some criteria for existence value. Taking into consideration the problems cited above as well as the well-known problem of *morally* objectionable preferences (e.g., sadistic ones), they could *inter alia* include that preferences should be well-informed, non-adaptive, and not in conflict with common or widely accepted moral standards (e.g., should exclude sadistic preferences). Although it would be difficult to admit *only* high-grade preferences into our evaluations or deliberations on matters of species extinction/protection, it would presumably not be impossible to ensure that at least most preferences taken into account are approximately of this sort. Though not a perfect solution, it is preferable to excluding *all* consideration of preferences on the ground that some of them may not be high-grade.

However, some authors are not content with excluding preferences that are *objectionable* in some way from their conception of well-being, but hold the more radical

position that there can be *no (non-contingent) relation at all* between preference satisfaction and well-being. In a recent article, Hausman and McPherson invoke Derek Parfit's argument against the so-called Unrestricted Desire-Fulfillment Theory of well-being (or prudential value) to show that the claim that well-being can consist in the satisfaction of preferences (understood in terms of desire-fulfilment) is implausible.³³ Parfit's argument proceeds by way of an example:

Suppose that I meet a stranger who has what is believed to be a fatal disease. My sympathy is aroused, and I strongly want this stranger to be cured. We never meet again. Later, unknown to me, this stranger is cured. On the Unrestricted Desire-Fulfillment Theory, this event is good for me, and makes my life go better. This is not plausible. We should reject this theory.³⁴

Hausman and McPherson take Parfit's argument to suggest that there can be no more than a contingent relation between preference satisfaction and well-being (or *feeling satisfied*).³⁵ It is important to notice, however, that Parfit's argument is directed against an *unrestricted* desire-fulfillment theory, which says that whenever a desire is fulfilled, this increases well-being. But in the context of existence value, there is no need to assume an unrestricted theory of preference or desire satisfaction. Existence value, as we have defined it above, is based on the presumption that the subject (A) knows or is aware that the object of her preference (X) exists. Hence, we need not assume that we can have preference satisfaction without knowing or being aware of it. All we need to claim is that insofar as (1) A prefers X, (2) X holds (the preference is satisfied in the 'situational' sense), and (3) A is aware that X holds³⁶, this will involve a form of well-being for A – on the condition that the preference is prudentially high grade.

In other words, we can hold a *restricted* view that says that to the extent that our preferences are high grade, and as long as we are aware that they are satisfied when they are, well-being can consist in having such preferences satisfied. This view does not imply that well-being consists *only* or *always* in having preferences or desires satisfied. That is, the restricted view can be combined with the view that well-being can also consist in the fact that certain objective goods obtain – i.e. with so-called *objective list* theories – or in pleasurable experiences, i.e. with *hedonistic* theories.³⁷ (On such a mixed view, we could say that other things being equal, it is *better* if these goods and experiences are also desired; and, perhaps, *best* if X is both pleasurable, desired, and on the positive objective list).³⁸

To sum up, the discussion in this section suggests that the skeptic, insofar as she wants to deny that there is any (non-contingent) relation whatsoever between preference satisfaction and well-being, has to do a better job than merely providing a list of objectionable preferences and to questioning the plausibility of the unrestricted desire-fulfillment theory (which I agree is implausible). If there are no better objections, we can safely hold on to the (intuitively plausible) view that there is a link between (high-grade) preference satisfaction and well-being (given certain restrictions).

Before we conclude about the moral importance of the link between preference satisfaction and well-being, a final objection should be considered. It could be held that even if there is a connection between preference satisfaction and well-being, it is so 'minimal' as to have no important role to play in the moral context. In short, it could be maintained that only the satisfaction of preferences regarding 'basic needs' (such as security and subsistence),³⁹ and perhaps possibilities (or structural 'capabilities')⁴⁰ to for example move and speak freely, or for democratic participation, have moral standing. Such needs and capabilities, it can plausibly be argued, are more appropriately considered within a rights framework than a preference satisfaction framework. Therefore, there is no need to consider preferences.

Granted that basic needs and capabilities should be considered in terms of rights and duties, and that preferences have little relevance with regard to such needs and capabilities, it is problematic to say that no preferences other than those concerning basic needs or capabilities can have moral importance. The 'smaller things' in life arguably make up a substantial part of our well-being. Consider my (local) preference for Jim Jarmusch films over Hollywood blockbusters. On the basis of my arguments so far, we have reason to believe that getting this (presumably) high-grade preference satisfied is good for me. If we find the well-being of individuals morally important, it follows that the satisfaction of such preferences has moral importance. Next, consider my (global) preference for leading a certain type of life, for instance the life of an academic philosopher. If we agree that high-grade preference satisfaction can have moral importance, I cannot see any reason why this sort of preference should not be granted such importance (under the right conditions).⁴¹

Assuming that human well-being is morally important and worth promoting, we can conclude that there are cases (other than those concerning basic needs and capabilities) where preference satisfaction (as a source of well-being) should be promoted. To the extent that existence value with regard to species extinction is such a case, there are reasons to promote it.⁴²

Disinterested preferences

Even if we grant that high-grade preferences matter morally, we can still ask whether the kind of preferences involved in existence value are conducive to well-being. In the context of a critique of preference-based contingent valuation (CV) methods to measure existence value, Mark Sagoff claims that the view that existence value implies benefits to individuals in the form of preference satisfaction involves a ‘logical problem’. Allegedly, the problem arises because existence value implies ‘disinterestedness’, and thus may provide no direct or even indirect benefit to the individual: ‘If the individual supports the policy option for disinterested reasons, the benefits CV is supposed to measure are not there’.⁴³

Leaving aside for now the question of measurement (I will discuss it briefly in the final section), Sagoff’s objection seems to assume that there is a contradiction between doing something for ‘disinterested reasons’ and getting benefits in the form of preference satisfaction from it. It is not entirely clear what Sagoff means by ‘disinterested reasons’ here. However, his objection seems to be a version of Sumner’s disinterestedness-objection to desire theories, so I will take it to mean roughly what Sumner says – namely, that disinterested preferences involve no ‘anticipated payoff for oneself’.⁴⁴

Taken in this way, it is not obvious what the logical problem is. Suppose that I prefer to support a policy of protecting an endangered species over another policy providing no such protection. That the species is protected can then *in fact* benefit me by satisfying my preference. But my preference for protecting it need not have been formed on the basis of self-interest. As Sumner himself points out, ‘we are capable of finding enjoyment or satisfaction in doing good to others’.⁴⁵ In other words, we need to distinguish between the preferences we have, and our reasons or motivations for having those preferences. If I prefer that X, getting my preference satisfied can be good for me – even though my reason for preferring X is not that it will be good for me (to satisfy my preference) that X.

It may be (assuming that it makes sense to speak in this atomistic way) that the gain in well-being I get from having disinterested preferences satisfied can be less than the loss of well-being resulting from letting the interests of others come first – so that in the end I will be worse off. But that does not show that there is a contradiction or a logical problem involved. It only shows that there can be both gains and losses involved, and that the loss can be greater than the gain.

To the extent that Sagoff’s claim is directed against the widespread assumption in cost-benefit analysis and neo-classical economics that all preferences are, ultimately, entirely self-regarding – i.e. that our motivation for ascribing existence value is solely the satisfaction

of our own preference, not the welfare of others – it is fairly obvious that he has a point. It seems a mistake to assume that existence value is always and only a reflection of individual, self-regarding preferences. It is highly plausible that existence value can reflect concerns about the well-being of others, the justice of our actions, whether our actions and attitudes express certain virtues, and so forth. The claim that our preferences are often other-regarding is moreover supported by empirical research.⁴⁶ Although this does not mean that existence value cannot also involve self-regarding preferences – in the sense that I prefer the existence of a species because the situation in which the species exists is best for me – it points to the need for methods that can take into account other-regarding aspects of existence value.⁴⁷

Finally, it can be pointed out that when we say that species have existence value, this may have little or nothing to do with the value we think the existence of the species has for humans. As Sagoff notes, one can prefer to protect the existence of a species not because it benefits ourselves or other people, but because we think it is worthy of moral consideration or respect in its own right.⁴⁸ This is (of course) plausible. But again, it does not imply that existence value cannot involve benefits to individuals in the form of preference satisfaction, as Sagoff seems to suggest. It only means that the preference may not be self-regarding (and this need not exclude individual benefit, as we have seen).

There are nevertheless good reasons to consider non-preference-based values in the context of species extinction. As has been argued for decades by environmental philosophers, making the value of non-human nature fully dependent upon human needs, preferences or desires can be morally problematic. At least for individual non-human beings, it is plausible that they have a ‘good of their own’, and so have a form of objective or ‘inherent’ value, in the sense of a value independent of human preferences.⁴⁹ I will suggest some ways in which objective (non-preference-based) values can be considered in conjunction with subjective or preference-based values (such as existence value) in the final section.

Three kinds of preference

Based on the discussion so far, let me now try to systematize the different aspects of the concept of existence value. I have suggested that existence value can reflect self-regarding preferences. That is, I think it makes sense to say that I prefer the existence of X because it will be better for me that X exists (and that it can in fact be good for me to have this preference satisfied). Moreover, the argument made by Sagoff and others that existence value may reflect social or shared values is convincing for reasons explained above. On this basis, I

propose that the concept of existence value can be taken to involve (1) *self-regarding* preference (what I want to be the case for my own sake), and (2) *other-regarding* preference (what I want to be the case for the sake of society or other people).

As we have seen, preferences for preserving species regardless of the effect this has on human welfare can arguably be reflected in the concept of existence value. Against this background, I propose that existence value can also involve (3) *non-anthropocentric* preference – understood in the context of existence value as a preference one may have for the existence of something, regardless of its effects (or lack of effects) on human welfare or well-being.

Our other-regarding preferences can, I have argued, at least in an indirect way affect our well-being. The same goes for non-anthropocentric preferences. I may have preferences for the existence of species without any regard to human welfare, and it seems possible that satisfying such preferences can be at least indirectly (or derivatively) good for me. However, as noted above, satisfying such preferences may also involve a ‘sacrifice’ of well-being.⁵⁰ Hence, there is a need to separate aspects of existence value that fit within a classical ‘welfarist’ framework, based on self-interest or self-regarding preferences, from those that do not, such as other-regarding and non-anthropocentric ones. Even if this may be difficult to do in a perfectly consistent manner, it should not be impossible to maintain the separation in a rough sense, which can be adequate for practical purposes.

In any case, the fact that having other-regarding and non-anthropocentric preferences satisfied may not be conducive to the subject’s own well-being, and hence can imply challenges with regard to the measurement of existence value with methods such as CV, does not diminish the *moral* significance of the concept. That existence value may involve other-regarding and non-anthropocentric preferences rather suggests – unless one holds something like the radical view of ‘ethical egoism’ – a wider moral significance of the concept.

The importance of existence value

My main argument so far has been that (1) preference satisfaction can have moral importance, and (2) the preference satisfaction interpretation of existence value is coherent. However, I have not said anything specific about *how important* existence value is in the context of species extinction. How can we evaluate this? It can be difficult to do in a general manner. In the following, I will discuss it in relation to the case of *deep sea mining* (DSM). After pointing out some well-known problems with the standard ‘utilitarian’ approach, I will

suggest some alternative directions evaluation can take in cases involving existence value, such as DSM.

Defined as the area beyond the continental shelf, where water depths vary from 200 meters to 11,000 meters, the deep sea constitutes the world's largest biome and covers about 87 per cent of the ocean floor. The poorly documented deep-sea benthic ecosystems are thought to contain the deep ocean's largest reservoir of biomass and largest number of undiscovered species.⁵¹ Species residing in hydrothermal vent environments on the ocean floor are currently thought to be threatened by prospects of 'deep sea mining', which involves retrieving minerals such as copper, gold, silver and zinc from the ocean floor at great depths. Deep sea mining has at the time of writing this paper not been carried out on a commercial scale, but many companies have received licenses to explore,⁵² which raises concerns over the risk of species extinction.⁵³

An interesting fact about the DSM case is that there is great uncertainty about the species in question and the habitats and ecosystems they are part of.⁵⁴ Some mining sites considered for deep sea mining are located at depths of several thousand meters. We know very little about the species that live there – about ecological and biological factors, but also, and to some extent related to that, about their use- and option-value. However, given that there are reasons to believe that some of them may be at risk of extinction from DSM, it would be natural to ask whether we have reasons to protect them, even if they are of no direct use to us.

According to my arguments above, one reason for protecting them may be that people prefer that the deep sea species exist. How do we evaluate the strength of this reason? One approach, described in the MA as 'utilitarian', is to measure the preferences people have for the existence or protection of the species in monetary terms, by asking what they are willing to pay to protect them. The importance of these preferences will then be determined by how they compare to other economic values. This approach may have the virtue of theoretical simplicity. However, as has been pointed out by a great number of authors, it is difficult to put the approach into practice in a sound manner, given (among other things) that different types of preferences and values are often at play that can be hard to measure on a single scale or criterion such as monetary value. While self-regarding preferences for material gains from mining may be measured in economic terms, it is doubtful (or at least highly uncertain) whether the other-regarding or non-anthropocentric preferences people may have for the existence of a deep sea species can be adequately measured by asking how much they are willing to pay to protect them.⁵⁵

Moreover, if we take a pluralist view and assume that there are different ‘basic’ values and considerations at play as well – such as subjective (preference-based) values on the one hand, and objective (in the sense of non-preference-based) values, such as inherent value, on the other – then the utilitarian approach, to the extent that it assumes the complete commensurability of values, seems even more problematic.

I will not take a stand on whether some form of utilitarian or welfarist approach may be appropriate after all. But if we do not want to make the controversial assumption of commensurability – that is, if we want to start out from a more pluralistic view – what can we do? If we want to remain in the vicinity of decision theory, an alternative could be to use techniques based on Multiple Criteria Decision Making (MCDM), where options are ranked on the basis of multiple scales or criteria to generate information about relative weights.⁵⁶ Alternatively, we can take a more substantive normative approach. Let me suggest in general terms how this can be done.

We can, for instance, start out from the idea that the different values and normative factors involved are grounds for *prima facie* duties of relevant actors. These are duties that hold other things being equal, but that can be overridden – although not cancelled out – by stronger duties in particular cases.⁵⁷ Suppose we believe that public institutions have a *prima facie* duty to promote human well-being (including high-grade preferences). On the other hand, we also think they have a *prima facie* duty to protect nature (for its own sake). Against this background, existence value can be *one* factor in deciding what the actual or all-things-considered duty of the relevant actors should be. Its importance as a factor will depend on the strength of the relevant preferences.⁵⁸

For example, suppose that a certain deep sea mining project can provide society with substantial amounts of copper, which is important for the development of renewable energy sources. At the same time, the project threatens a deep sea species. The species is considered to have negligible use- and option-value, which implies that from a *use* perspective, we have no (or – factoring in inevitable uncertainty – at least very weak) reasons to protect it. On the other hand, let us presume, the ‘good’ or inherent value of the (members of the) species is a *pro tanto* reason to protect it. It seems that in this case, we have reasons both to mine and not to mine, and it may not be clear what we should do. In this situation, if people’s preferences regarding the existence of the species are strong, then this consideration could provide a stronger reason not to mine. If preferences are weak, then existence value provides a weaker reason not to mine.⁵⁹

Of course, this general approach needs to be fleshed out further. The point is that there are viable alternatives to monistic, utilitarian-style approaches for considering existence value in particular cases. The sketched *prima facie* approach shows that one does not have to be a preference-utilitarian or a proponent of welfarism to take existence value seriously in the context of species extinction. We may instead, for example, be pluralists or pragmatists who recognize the value of human preference satisfaction in the moral context, but do not think that environmental issues can or should be solved by purely utilitarian or economic means.

Conclusion

This paper began by asking to what extent and under which conditions existence value should be used in evaluating activities that come with a risk of species extinction. I have argued that existence value can involve benefits for human individuals in the form of preference satisfaction. Assuming that human well-being should be promoted, this suggests that existence value should be taken into account in evaluating activities that come with a risk of species extinction.

I proposed that existence value can be understood to involve self-regarding as well as other-regarding and non-anthropocentric preferences. This suggests that the concept has moral significance beyond concerns for individual human well-being. It also suggests that the concept is ill-suited for consideration within a purely welfarist or utilitarian framework based on self-interested preferences. Using deep sea mining as an example, I sketched an alternative approach for considering existence value in concrete cases, based on the notion of *prima facie* duties. The approach can accommodate 'objective' values, such as inherent value, which may be an advantage from the perspective of environmental ethics.

Notes

¹ S. L. Pimm et al., “The Biodiversity of Species and Their Rates of Extinction, Distribution, and Protection,” *Science* 344, no. 6187 (2014); Gerardo Ceballos et al., “Accelerated Modern Human-Induced Species Losses: Entering the Sixth Mass Extinction,” *Science advances* 1, no. 5 (2015).

² Throughout the paper, ‘species extinction’ refers to ‘anthropogenic species extinction’. Although the concept of existence value is often used in the environmental context, it is also used for non-environmental topics, for instance in relation to preservation of cultural monuments. In this paper, the concept is discussed exclusively in the environmental context.

³ Recently by Sarah Parks and John Gowdy, “What Have Economists Learned About Valuing Nature? A Review Essay,” *Ecosystem Services* 3 (2013); Jasper O Kenter et al., “What Are Shared and Social Values of Ecosystems?,” *Ecological Economics* 111 (2015); Jasper O. Kenter et al., “Shared Values and Deliberative Valuation: Future Directions,” *Ecosystem services* 21 (2016).

⁴ E.g., James Justus et al., “Buying into Conservation: Intrinsic Versus Instrumental Value,” *Trends in Ecology & Evolution* 24, no. 4 (2009).

⁵ E.g., John O’Neill and C. L. Spash, “Conceptions of Value in Environmental Decision-Making,” *Environmental Values* 9, no. 4 (2000).

⁶ Some ethical and conceptual issues are discussed in Raymond J. Kopp, “Why Existence Value Should Be Used in Cost-Benefit Analysis,” *Journal of Policy Analysis and Management* 11, no. 1 (1992); Donald H. Rosenthal and Robert H. Nelson, “Why Existence Value Should Not Be Used in Cost-Benefit Analysis,” *Journal of Policy Analysis and Management* 11, no. 1 (1992); Jonathan Aldred, “Existence Value, Welfare and Altruism,” *Environmental Values* 3, no. 4 (1994); Robin Attfield, “Existence Value and Intrinsic Value,” *Ecological Economics* 24, no. 2 (1998).

⁷ Joseph Alcamo et al., *Millennium Ecosystem Assessment: Ecosystems and Human Well-Being: A Framework for Assessment* (Washington, DC: Island Press, 2003).

⁸ The dominating position of the preference-based conception is suggested both by the general dominance of preference-based value concepts in economics, and by the dominance of preference-based concepts in important frameworks such as the *Millennium Ecosystem Assessment*.

⁹ Leonard W. Sumner, *Welfare, Happiness, and Ethics* (Oxford: Clarendon Press, 1996), p. viii.

¹⁰ Cindy L. Van Dover et al., “Biodiversity Loss from Deep-Sea Mining,” *Nature Geoscience*, no. 10 (2017); ECORYS Nederland BV, Study to Investigate State of Knowledge of Deep Sea Mining. Final Report Annex 6 Environmental Analysis, (2014). Throughout the text, the term ‘risk’ is used broadly to refer to a an uncertain, unwanted event or the chance that an unwanted event may occur.

¹¹ Alcamo et al., *Millennium Ecosystem Assessment*.

¹² David N. Barton et al., “Ecosystem Services – from Concept to Practice? A Summary of Presentations at the Økosip Seminar, January 10th, Nina Trondheim – Nina Report 673,” (2011); Alcamo et al., *Millennium Ecosystem Assessment*.

¹³ Earth Economics, Environmental and Social Benchmarking Analysis of Nautilus Minerals Inc. Solwara 1 Project, (2015).

¹⁴ Alcamo et al., *Millennium Ecosystem Assessment*.

¹⁵ Alcamo et al., *Millennium Ecosystem Assessment*.

¹⁶ In the MA, it is not entirely clear whether non-use value and existence value are used synonymously, or whether existence value is seen as a kind of use-value. However, it is common to distinguish three types of non-use value: altruistic value, bequest value and existence value, e.g., Jasper O Kenter et al., “What Are Shared and Social Values of Ecosystems?,” *Ecological Economics* 111 (2015). My focus in this paper is on existence value only.

¹⁷ Alcamo et al., *Millennium Ecosystem Assessment*, 19. In this paper, I focus on positive concepts such as well-being, desire, pleasure, etc., and put aside their negative counterparts, such as ‘ill-being’, aversion, pain, etc. These negative concepts (obviously) have moral importance, but it is beyond the scope of the paper to deal adequately with both aspects.

¹⁸ Cf. Peter Singer, *Practical Ethics* (New York: Cambridge University Press, 2011).

¹⁹ Cf. Bengt Brülde, *The Human Good* (Göteborg: Acta Universitatis Gothoburgensis, 1998). Discussing the desire theory, Brülde argues that it is only the situation view (*desire that*) that has direct ethical relevance. The satisfaction of a *desire for* a thing – e.g., Janis Joplin’s desire for a Mercedes Benz in the song of the same name – has ethical relevance only indirectly either because having the desire may be, if unfulfilled, unpleasant, or because it corresponds to a number of *desires that* (e.g., the possible desire of the Joplin-character that being in a situation where she is the owner of a Mercedes will give her a certain social status, etc.). On this background,

Brülde argues, ‘a plausible conception of well-being do [sic] not have to take our *desires for things* into account’ (p. 169).

²⁰ Situations are complex and may involve several desires. For instance, my preference for the existence of a species, understood as a preference for a *situation* where the species exists (is protected, etc.), may involve a desire that the organisms will not suffer, that future generations may also enjoy the existence of the species, etc. The *preference* will then be for the situation ‘as a whole’, that is, as a ‘compound’ of the relevant desires.

²¹ In other words, one should not confuse ‘preference satisfaction’ with ‘satisfaction’ in the psychological sense (e.g., with *feeling* satisfied).

²² Cf. Derek Parfit, *Reasons and Persons* (Oxford: Oxford University Press, 1984); Brülde, *The Human Good*.

²³ Georg Henrik Von Wright, “The Logic of Preference Reconsidered,” *Theory and Decision* 3, no. 2 (1972): p. 142.

²⁴ Alternatively, moral standing or value.

²⁵ Alternatively, ‘final value’, in the sense that X is valuable as an end, or worth pursuing for its own sake.

²⁶ I will speak of ‘promoting’ for the sake of simplicity.

²⁷ Aristotle, *The Nicomachean Ethics*, trans. J.A.K. Thomson (London: Penguin, 1976); James Griffin, *Well-Being: Its Meaning, Measurement, and Moral Importance* (Oxford: Clarendon Press, 1986); Parfit, *Reasons and Persons*; Derek Parfit, *On What Matters: Volume One* (Oxford: Oxford University Press, 2011). *Eudaimonia* can be translated as ‘human flourishing’. I don’t think it is a mistake to say that ‘flourishing’ refers to well-being in the broad sense of ‘faring well’, ‘being well’, etc.

²⁸ The major theories of well-being (in the Anglophone tradition) are (1) desire-fulfilment or preference satisfaction theories, (2) hedonistic theories, and (3) objective (list) theories. See Parfit, *Reasons and Persons*; Griffin, *Well-Being*; Sumner, *Welfare, Happiness, and Ethics*; Brülde, *The Human Good*.

²⁹ Here, Sarch refers to Sumner, *Welfare, Happiness, and Ethics*. Cf. also Jon Elster, *Sour Grapes* (Cambridge: Cambridge University Press, 1983).

³⁰ Alexander F. Sarch, “Hausman and McPherson on Welfare Economics and Preference Satisfaction Theories of Welfare: A Critical Note,” *Economics & Philosophy* 31, no. 1 (2015): 142. See further David Owen Brink, *Moral Realism and the Foundations of Ethics* (Cambridge University Press, 1989); Ben Bradley, “A Paradox for Some Theories of Welfare,” *Philosophical Studies* 133, no. 1 (2007); Richard Kraut, “Desire and the Human Good,” *The American Philosophical Association Centennial Series* (2013); Chris Heathwood, “The Problem of Defective Desires,” *Australasian Journal of Philosophy* 83, no. 4 (2005).

³¹ John Broome, “Extended Preferences,” in *Preferences*, ed. Ulla Wessels and Christoph Fehige (Berlin: De Gruyter, 1998), p. 272.

³² Some argue that only the satisfaction of ‘ideal’ or ‘hypothetical’ preferences – for instance, preferences we would have if we were fully rational – can make our lives go better. However, I find it hard to understand how preferences we do not actually have can affect our well-being. I therefore concentrate on the satisfaction of actual preferences as a candidate form of well-being.

³³ Daniel M. Hausman and Michael S. McPherson, “Preference Satisfaction and Welfare Economics,” *Economics & Philosophy* 25, no. 1 (2009).

³⁴ Parfit, *Reasons and Persons*, p. 494.

³⁵ Hausman and McPherson, “Preference Satisfaction and Welfare Economics,” p. 10.

³⁶ Griffin discusses a similar restriction, which he calls the ‘experience requirement’. He rejects this requirement because he thinks it turns the desire theory into a mental state theory, which he rejects. Griffin, *Well-Being*, p. 13. However, this is based on a confusion, see Sumner, *Welfare, Happiness, and Ethics*, pp. 127-28. One could specify the restriction further and say that the preference must be satisfied while we have it, i.e. it should be now-for-now, not now-for-then, etc. (see, e.g., Brülde, *The Human Good*). When I speak of preferences in the following, I refer to actual now-for-now preferences.

³⁷ Cf. note 29 above about the major theories of well-being.

³⁸ For an example of a mixed theory, see Brülde, *The Human Good*; cf. Parfit’s ‘compound view’ in *Reasons and Persons*.

³⁹ Henry Shue, *Basic Rights: Subsistence, Affluence, and Us Foreign Policy* (Princeton: Princeton University Press, 1996).

⁴⁰ E.g., Amartya Sen, *Inequality Reexamined* (Oxford: Clarendon Press, 1992).

⁴¹ About the ethical relevance of the desire to lead a life in accordance with a personal project, such as becoming a lawyer or understanding Plato’s theory of forms, cf. Bernard Williams, *Ethics and the Limits of Philosophy* (London: Routledge, 2006).

⁴² Who should promote it? In the current context, the relevant duty-holders are mostly of a collective sort, such as public institutions or bodies/groups of policy-makers. I assume they have duties to promote welfare. Individuals may have duties to promote the preference satisfaction of other individuals in some cases, but I do not make any assumptions about that here.

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- ⁴³ Mark Sagoff, "Environmental Economics and the Conflation of Value and Benefit," *Environmental science & technology* 34, no. 8 (2000): 1427.
- ⁴⁴ Sumner, *Welfare, Happiness, and Ethics*, p. 134.
- ⁴⁵ Sumner, *Welfare, Happiness, and Ethics*, p. 135.
- ⁴⁶ Katherine N. Irvine et al., "Ecosystem Services and the Idea of Shared Values," *Ecosystem Services* 21 (2016).
- ⁴⁷ Mark Sagoff, "Values and Preferences," *Ethics* 96, no. 2 (1986); Kenter et al.
- ⁴⁸ Sagoff, "Environmental Economics and the Conflation of Value and Benefit."
- ⁴⁹ Paul W. Taylor, *Respect for Nature: A Theory of Environmental Ethics* (Princeton: Princeton University Press, 2011); Eugene C Hargrove, "Weak Anthropocentric Intrinsic Value," *The Monist* 75, no. 2 (1992). Some environmental philosophers, such as Holmes Rolston, believe that a species itself can have a good of its own, and so a form of objective inherent value. See Holmes Rolston, *Environmental Ethics. Values in and Duties to the Natural World* (Temple University Press, 1989). For a critique of Rolston's view, see Ronald L. Sandler, *The Ethics of Species: An Introduction* (Cambridge: Cambridge University Press, 2012).
- ⁵⁰ Sumner, *Welfare, Happiness, and Ethics*.
- ⁵¹ UNEP, "Deep-Sea Biodiversity and Ecosystems: A Scoping Report on Their Socio-Economy, Management and Governance," (UNEP World Conservation Monitoring Centre, 2007); UNEP TEEB, "Why Value the Oceans: A Discussion Paper" (UNEP, 2012).
- ⁵² International Seabed Authorities, "Deep Seabed Mineral Contractors", <https://www.isa.org.jm/deep-seabed-minerals-contractors> (accessed 20.11.2017)
- ⁵³ Dover et al., "Biodiversity Loss from Deep-Sea Mining".
- ⁵⁴ ECORYS Nederland BV, State of Knowledge of Deep Sea Mining.
- ⁵⁵ Jasper O Kenter et al., "Shared Values and Deliberative Valuation: Future Directions," *Ecosystem services* 21 (2016); Mark Sagoff, "Some Problems with Environmental Economics," *Environmental Ethics* 10, no. 1 (1988).
- ⁵⁶ For state of the art surveys on MCDM, see Salvatore Greco, J Figueira, and M Ehrgott, *Multiple Criteria Decision Analysis: State of the Art Surveys*, 2 ed. (New York: Springer, 2005). It is disputed whether MCDM type approaches completely avoid the incommensurability problem. See, e.g., Martin Peterson, "On Multi-Attribute Risk Analysis," in *Risk: Philosophical Perspectives*, ed. Tim Lewens (London: Routledge, 2007).
- ⁵⁷ See, e.g., Shelly Kagan, *Normative Ethics* (Routledge, 2018); cf. William David Ross, *The Right and the Good* (London: Oxford University Press, 1930).
- ⁵⁸ The measurement of strength does not require a cardinal scale, such as monetary value. An ordinal scale can be used, for example, a scale from 'very weak' to 'very strong'. I leave methodological issues regarding the measurement of preferences aside here; but I assume that it will at least be possible to identify preferences, and that they can be measured adequately for at least some practical purposes. Methodological issues regarding the identification and measurement of preferences remains to be clarified.
- ⁵⁹ The question of how we should proceed if it is unclear how options compare all-things-considered is discussed in Espen D. Stabell, "Hard Environmental Choices: Comparability, Justification, and the Argument from Moral Identity," *Environmental Values* (forthcoming).