

Conceptualizing Irreconcilable Disagreements in the Nature Futures Framework

Elliott Woodhouse

AUTHOR ACCEPTED VERSION

Full published version available at: <https://doi.org/10.1177/09632719261437695>

Please Cite as:

Woodhouse, E. (2026). Conceptualizing irreconcilable disagreements in the nature futures framework over intrinsic and instrumental values. *Environmental Values*.
<https://doi.org/10.1177/09632719261437695>

Abstract:

1. The Nature Futures Framework (NFF) is a tool, adopted by IPBES, used to design scenarios which explicitly trade-off three ways of valuing nature: instrumental, intrinsic, and relational. In its current format, the NFF is depicted as a triangle, with each value perspective occupying the extreme corner node, and a smooth continuum of potential perspectives along each edge.
2. In this paper I question whether a continuum/gradient is the proper way to understand the relationship between these value-perspectives. Looking specifically at the axis between the Intrinsic and Instrumental value nodes, this paper looks in depth at debates and insights from the environmental philosophy and ethics literature and gives three reasons for thinking that a continuum does not adequately capture how these irreconcilable values are thought to relate.
3. Additionally, I argue that graduated depiction in the NFF has been made plausible through a contestable translation of the discussion from “values” to “policy/scenario preferences” that relies heavily on a presumed immutable connection between value and preference. This can run the risk of scenario designers making problematic revealed preference assumptions.
4. Recognizing the incommensurability of these values has implications for how we employ the NFF. I consider two methods for revising the NFF in light of these critiques, including a three-step framework using the NFF for eliciting value-preference connections that can be used in scenario design.

Keywords: Nature Futures Framework, Convention of Biological Diversity, KMGBF, Scenarios and Models, Intrinsic Values, environmental ethics, global biodiversity framework, IPBES.

S1 - Introduction – The Development of the Nature Futures Framework.

The Kunming-Montreal Global Biodiversity Framework commits its signatories to working towards the vision of a world “*Living in Harmony with Nature*” by 2050 (KMGBF Section F). Achieving this vision has been argued to entail “transformative change” (IPBES 2019; 2025) in the way that societies envision their relationship to the natural and non-human world. This envisioning process has in turn been argued to require the development of new sets of scenarios, pathways, and plans, which can be used to chart, model, and catalyze the changes needed to reach a world in line with the KMGBF vision (Balvanera et al., 2017; Bennett et al., 2016; Peterson et al., 2018). However, a central challenge in developing these “scenarios” - “representations of possible futures for one or more components of a system... including alternative policy or management options”¹ - is the nature of the target-space of the KMGBF vision. Unlike the Paris Agreement goal of “keeping warming well below 2°C” (Paris Agreement, 2018), what “living in harmony with nature” looks like will differ from person to person, culture to culture, and society to society, owing to the fact that there is scant agreement over what the proper or desirable relationship to nature is.

In recognition of this challenge, IPBES, the scientific advisory to the Convention on Biological Diversity called for the development of new methods for scenario creation which could better reflect the diverse ways in which people value nature (Diaz et al, 2015; IPBES 2016). IPBES argue that aligning environmental policies with stakeholder values, and showing how sustainability actions can align with different value systems, can help policymakers utilize a “deep leverage point” for transformative change (IPBES, 2022). Nonetheless, previous scenarios for environmental change (e.g., The Millenium Ecosystem Assessment and the SSPs) had tended only to explore the role of nature in driving and being impacted by development, which overlooked the full variety of ways in which people related to the more-than-human world and were therefore inadequate for representing the different ways in which people value nature and the benefits they derive from it (Rosa et al, 2017). In service of this new scenario development project, IPBES supported the development of new tools for designing scenarios that could address these issues. Between 2016 and 2019 the IPBES scenarios and models expert group engaged in a research and co-production process which eventually led to the publication and subsequent adoption by IPBES of the “Nature Futures Framework” (NFF) (Periera et al., 2020a). Details of the development process may be found in Lunquist et al (2017) and PBL (2018).

In its current format the Nature Futures Framework (IPBES 2023) depicts a trifecta of ways in which nature can be valued on a triangular diagram which has both an interior and exterior space. Three ways

¹ <https://www.ipbes.net/glossary/scenario>

of valuing nature are considered, with the most representative, or archetypical representation of each valuation being positioned on each corner of the triangle.

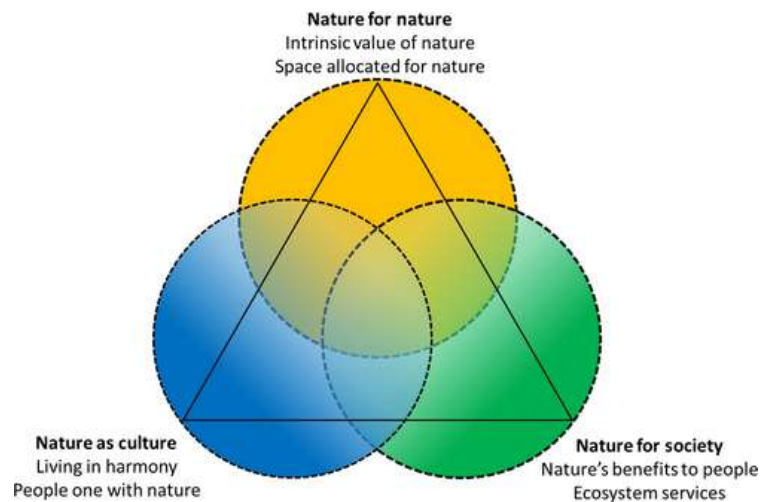


Figure 1: The Nature Futures Framework

Three values are contrasted: Nature for Nature, Nature for Society, and Nature as Culture. The space within the triangle is reserved for scenarios which achieve the KMGBF vision. Note also the descriptions given of each value. Source: Periera et al, 2020a Published Open Access.

“Nature for Nature” is the heading given to scenarios which hold an “intrinsic valuation” of nature. I will discuss the actual depiction of “intrinsic” valuations of nature in the NFF literature in greater detail later in this article, but suffice it to say now that those holding these values believe that nature has value all of its own, irrespective of its usefulness to people. “Nature for Society” views on the other hand have an “instrumental” account of nature’s value, which understand nature to be valuable to the extent that it provides value for human beings – e.g., in the form of ecosystem services, resources, or for its health and wellbeing benefits. Lastly, “Nature as Culture” valuations give a “relational” account of nature’s value. Whilst both Nature for Nature (NfN) and Nature for Society views (NfS) see Nature and Society as a dualism, Nature as Culture (NaC) focusses instead on the value ascribed to the relationships humans have with parts or aspects on the natural world; and may reject the binary opposition of humans and nature.

The NFF is thought to be useful for more than simply categorizing different value perspectives. Indeed, the innovation of the NFF from similar frameworks (e.g. Mace 2014) is to depict these perspectives in a relationship with each other. But how exactly is this relationship between value-perspectives understood? In the current practice for using the NFF, these values are thought to exist on a gradient/continuum with each other, with significant areas of overlap between the views (depicted as

the dashed-line bordered spaces, and along the edges of the triangle itself – see figure 1). This view of the NFF is supported in writing throughout the development process. For instance, a meeting of experts working on the NFF at PBL write:

“Through considerations on how to capture the wide range of views represented in the visions on how people relate to nature, an underlying triangular framework emerged, with three axes *forming a gradient between the perspectives*” (PBL, 2018 emphasis added)

That there is convergence space between the values depicted is supported by Periera et al (2020a):

“The NFF builds on the relational, instrumental and intrinsic values [and] allow for their coexistence... [the NFF] recognizes that most stakeholders will find themselves in intermediate positions of the preference space”

This is supported too by Martin-Lopez et al (2021):

“the three value perspectives on nature [represented on the NFF] are not mutually exclusive of each other – in fact, they are intricately connected and can reinforce each other”.

and also by Duran et al (2022):

“The coloured circles [on the NFF] associated with each value perspective blend together where they intersect, showcasing that they [each value perspective] *are not mutually exclusive*” (*emphasis added*).

This prevailing view of perspectives on the values of nature in the NFF then is one of compatibility and commensurability. The fact that each view is depicted as existing upon a continuum with the others reflects the idea that there are plausible ways to value nature which sit *between* the views represented at each of the extremities. Indeed, Duran et al (2022) further develop the NFF to depict narrative scenario-skeletons for the value-perspectives which occupy these interstitial positions on the framework. Nonetheless, the developers of the NFF are at the same time committed to saying that the value-perspectives at each extreme of the triangle do exist in genuine theoretical opposition with each other, reflecting normative disagreements over what “living in harmony with nature” requires, that stem from meta-ethical disputes over the kind of value nature possesses. Establishing that this opposition exists plays a not insignificant role in Periera et al’s original paper introducing the NFF (2022a). Periera et al take the time to respond to Piccolo (2017) who had argued that the characterization of “eco-centric”

[intrinsic valuations of nature] and “anthropocentric” [instrumental valuations of nature] views as dichotomy was “unhelpful”. Periera et al explicitly reject this view – the implication being that there is genuine ethical and ontological disagreements between the perspectives at the extremities of the framework.

In this paper I argue that this view of genuine disagreement between the value-perspectives is the correct way to understand them. However, I argue that recognizing that this genuine disagreement exists means accepting that *there is not* a gradient of views which sit between the nodes of the NFF. This fact, I argue is particularly noticeable when considering the irreconcilability of “intrinsic” (NfN) and “instrumental” (NfS) accounts of the value of nature – the purported continuum between which forms the right-hand axis (NfN-NfS) of the NFF. Moreover, I argue that the NFF literature has evaded this value incommensurability by inconsistently switching between presenting the NFF as representing “values” and a translation of those values into “policy preferences” thought to be compatible with each value-perspective. Unlike value-perspectives, policy preferences could be more plausibly depicted onto a gradient, and this subtle transition between this and genuine values has inadvertently crept into discussions and utilizations of the NFF. This poses a risk for scenario exercises which seek to align sets of policy and management options with the known or inferred values of stakeholders, if the scenario designers seek to deductively infer how values and policy choices align or what policies might be attractive to groups with different values. Likewise, these studies risk making revealed-preference assumptions about the values of stakeholders if they presume these can be identified from their policy preferences, particularly when the relationship between the values and their normative commitments are mis-conceptualized.

This paper is structured into two further parts following this introductory Section 1. In Section 2 I draw upon the environmental ethics literature to explore and contrast the depictions of “intrinsic” and “instrumental” valuations of nature with those from the NFF literature. I give three accounts of ways in which the NfN-NfS axis might be conceptualized as a continuum between intrinsic and instrumental values: 1) as a continuum between possessing instrumental and non-instrumental value (S2.2), 2) as an expanding scope of non-anthropocentric ethics (S2.3), and 3) as a continuum of policy strength that recognizing nature’s intrinsic value normatively commits us to (S2.4). I argue that none of these can convincingly explain why a continuum is the proper way to represent the difference between the two views. Then in Section 3 I consider what this means for how we use the NFF. The aim of this paper is not to argue that the NFF ought to be abandoned. On the contrary, I agree with the NFF developers that systematic methods for incorporating competing accounts of the value of nature into scenario design and quantification studies are essential. Instead, I make two proposals for altering the NFF to better reflect the relationship between intrinsic and instrumental values. In the first case, we might abandon

the depiction of the NFF as a continuum and instead reconceptualize the framework as containing a significant amount of negative space in the center where no internally consistent (i.e., non-contradictory) value-perspective could occupy. In this case, the NFF might retain its usefulness in mapping scenarios by constraining the locations which they may occupy. In the second case, instead of abandoning the continuum, we might instead abandon the commitment to the NFF being about “values”. If, as I suggest, the continuum interpretation has been made plausible by focusing instead on policy positions, then it might be useful to make this the explicit focus. The NFF may then remain useful for exploring policy trade-offs and compromises, or as a way of identifying prospects for coalition formation in transformative change processes. But neither of these options are without issues of their own.

S2 - Intrinsic vs Instrumental Values

S2.1 – The Importance of Intrinsic Value within Non-Anthropocentric Ethics

Environmental ethics is the branch of philosophy concerned with the ethical status of the non-human world, the proper way to treat non-human things, and the relationship between humans and non-humans. An early focus of the field was challenging the prevailing and often unquestioned norm of anthropocentrism in ethical and political thinking – the idea that the only kinds of entity which mattered in a moral sense were human beings. There are however both anthropocentric and non-anthropocentric theories of environmental ethics, the former of which examine the ethics of how humans interact with the natural world vis-à-vis the obligations that humans have towards their fellow humans. These anthropocentric accounts of environmental ethics occupy the “nature for society” node of the NFF – they give arguments for why protecting, caring for, or otherwise attending to nature in our moral reasoning is the correct response to our obligations to other people, whose needs and interests are instrumentally dependent on the benefits a healthy natural environment provides. For these thinkers, environmental ethics therefore was simply a specialized branch of ordinary ethical reasoning - akin to “medical ethics” - which did not imply any special claims about the value of nature and its moral considerability. Nature was seen as purely instrumentally valuable, and without wise stewardship that value would be degraded, and this would impact our ability to fulfil our ethical obligations and responsibilities to other humans.

By contrast some environmental ethicists – non-anthropocentrists- thought the purpose of the field was to demonstrate that non-human nature had an intrinsic value separate from and in addition to the instrumental values it provided. Early developments in non-anthropocentric ethics occurred within the field of animal ethics, where thinkers (notably Singer, Regan, Feinberg, Clark) sought to show how plausible explanations for the moral considerability of human beings in some intrinsic property possessed by humans (e.g., the ability to suffer, possess interests, or experience subjecthood) failed to

consistently exclude some or all other non-human animals – a fact which demanded a very serious alterations in how both wild and domesticated animals were treated. Concurrently a second “eco-centric” strand of environmentalist thinking believed that a more radical departure from conventional western ethics was needed in order to “live harmoniously with nature”, and which could demonstrate that non- sentient, non- living, and/or holistic/collective natural entities (e.g., whole ecosystems) could also be the end-point of moral reasoning.² Key contributions within this strand of thought sought to demonstrate a new basis for the direct moral considerability of nature and central to this project was identifying an intrinsically valuable aspect of “nature” which could ground this kind of direct consideration. Important contributions came from Stone (1972) Routley (1973), Regan (1981), Naess (1973), Callicott (1980), Taylor (1981, 1983)³, and Rolston III (1975); with Callicott summing up this attitude to intrinsic value when he wrote “how to discover intrinsic value in nature is the defining problem for environmental ethics” (Callicott 1999).⁴ At the time much was made of the supposed theoretical basis for this split between “animal” and “environmental” ethics (Callicott 1980, Regan 1983, Sagoff 1984), and I will return to the differences in their normative prescriptions in S2.3. However, as many of the major proponents of “eco-centrism” have softened their meta-ethical claims in the intervening years (with notable exceptions), it is now more common to consider both of these traditions as a single field, albeit with substantive internal disagreements (Jamieson 1998, Callicott 1998).

It is worth considering the precise relationship between possessing “intrinsic value” and “moral considerability” for this point is crucial for understanding why the question of whether nature has intrinsic value is linked to different normative assessments and policy and management preferences. For many of the non-anthropocentric environmental ethicists listed above, the question of whether an entity possesses intrinsic value, and whether it is due direct (rather than instrumental) moral consideration are somewhat interchangeable as the purpose for them in identifying/arguing for nature’s intrinsic value was to identify some feature of nature which could act as the grounds for ethical claims for nature’s direct *moral considerability* – i.e., as the ends of moral decision-making rather than only an instrumental good for serving the interests of other morally considerable entities (typically human people). The argumentative intention is to show that possessors of intrinsic value have attendant claims

² More on the kinds of entities who might possess intrinsic value in S2.3.

³ Though note that Regan (1981) sets up a desiderata for a non-anthropocentric environmental ethics, including the identification of intrinsic value conferring property which can confer moral standing to non-conscious nature, he did not believe that such an identification was forthcoming and the major corpus of his philosophical output was within the animal rights strand on non-anthropocentric ethics.

⁴ The centrality of intrinsic value to environmental ethics has also been challenged. A summary of these critiques, and a defense of intrinsic value, can be found in McShane (2007).

to standards of treatment from others – they ground obligations to act in certain ways towards them, to preserve the intrinsic value which exists, and particularly to not treat them in a purely instrumental fashion. This view of the normative implications typically follows from a Kantian account of intrinsic value (notably a term that Kant does not employ). Kant’s ethics gives a central role to the “dignity” of rational agents, a dignity which according to Kant is “raised above all price” (Kant, 1997: 434) and offers a justification for overruling or “trumping” purely instrumental valuations of that entity if they threaten that dignity; or at least shifting the onus for providing a justification to those who would impinge upon it. While for Kant the source of dignity was the possession of “reason”, the objective of the non-anthropocentric ethical projects outline above is to find some alternative plausible feature which confers the same kind of moral-considerability conferring intrinsic value to non-human natural entities.

While Kant has undoubtedly played a central role in shaping how the ethical content of possessing intrinsic value is understood within non-anthropocentric ethics,⁵ mention must also be given to the influence of G. E. Moore. Moore’s contribution to the field has primarily been through his conception of intrinsic value as *conceptually basic* – i.e., a concept which could not be broken down into any simpler component features (1912). For Mooreans if an entity has intrinsic value it is because of certain intrinsic properties of that entity, rather than any value conferred to it by its relationship to any other kind of entity. Moreover, within Moore’s ethics the normative import of possessing intrinsic value arises because agents have a duty to maximize intrinsic value in the world. But whether or not we adopt a Moorean or Kantian conception, intrinsic value has been central for non-anthropocentric environmental ethics as the determinant for grounding normative standards for “living in harmony with nature” which differ from those arising from purely instrumentalist evaluations.

S2.2 – What is Intrinsic Value?

The fact that for certain influential accounts of non-anthropocentric ethics, the possession of intrinsic value plays this normative role and explains why nature needs to be treated differently than if it only possessed instrumental value, gives us the theoretical background for explaining why different policies and scenario themes are associated with the NfN and NfS nodes of the NFF. What does this mean then for the possibility of intermediate/balanced positions existing along the NfN to NfS axis? To investigate, it is worth looking in more detail at the nature of intrinsic value and the forms in which it can take. Questions about intrinsic value may fall into two categories: those about what intrinsic value *is*, and those about what *has* intrinsic value. A simple explanation of *what is intrinsic value*, is that it is the value something possesses in or for itself. But as O’Neill influentially points out, this explanation is

⁵ “Kant’s modern classical concept of intrinsic value and the way it functioned in his ethics most influenced the thinking of environmental philosophers” (Callicott 2002: 5)

deceptive too and runs the risk of conflating the several ways in which we use the term “intrinsic value” (O’Neill 1992). O’Neill distinguishes three ways in which intrinsic value can be conceptualized.

The first sense is that intrinsic value is *non-instrumental* value. If something is instrumentally valuable, it is valuable because it is useful for achieving some other end. If we want to avoid there being a chain of infinite regression, there has to be some things which are *non-instrumentally* valuable to anchor the chain.⁶ This point has been recognized at least since Aristotle (2009, 1094a). It is worth pointing out that just because something has *non-instrumental value* does not mean that it does not possess *instrumental value*. Human beings are evidently both intrinsically and instrumentally valuable, as we provide all kinds of useful services to one another. Those who believe that nature has non-instrumental value are not in a position of claiming nature is not *also* instrumentally valuable. Rather, recognizing that they have *non-instrumental value* too means that in addition to all the value they have for others, they also possess some kind of value in addition to that which cannot be reduced to what it is useful for to others. Possession of non-instrumental value has traditionally been the type of intrinsic value which has been used to justify why nature is directly morally considerable (Rollin 1993, Singer 1993, Rolston III 1988, Regan 1981, Callicott 1980, Taylor 1986), following from the Kantian maneuver outline above - although there is widespread disagreement over what this requires in practice (see S2.4).

However, this straightforward move from recognizing non-instrumental value to recognizing direct moral considerability has been challenged as a false equivalence (O’Neill 1997), as some non-natural things typically thought to have non-instrumental value (artworks, languages) are not thought to be directly morally considerable. If O’Neill is correct then additional normative premises would need to be accepted to explain the moral importance of non-instrumental value, e.g., a premise which could tell us why we do not have the right to dispose of things with non-instrumental value in any way we choose, or why it would be undesirable to lose that value even if it benefitted no one. In either case, possession of this non-instrumental value in nature is typically thought to demand standards of treatment which would not be obligatory if only instrumental value was present, and therefore why certain policy options may not be permissible.

Secondly, intrinsic value can be understood as *non-relational value*. In this account, the possessor-of-intrinsic-value (call them X) possesses it because of some intrinsic value-conferring property which they possess in virtue of being X. Sometimes within the conservation literature, a property like the *rarity* of a particular species or ecosystem is given as an explanation for why said entity has intrinsic value. But those who hold that intrinsic value confers *non-relational value* would reject that the intrinsic value

⁶ Anyone who has had a “but why?” conversation with a toddler is aware of this point, some things “just are!”.

by a property like a species' rareness, as the property of being rare can only be known in comparison with other entities – it is therefore definitionally not an intrinsic property of an entity. Instead, proponents of a non-relational account of intrinsic value would look for a property which confers value that is part of the possessor's essential nature; where the value is possessed without reference to any relationship which the possessor has. For instance, biocentric accounts of intrinsic value hold that all living things have intrinsic value *because* they are alive (Schweitzer 1929, Goodpastor 1978, Taylor 1986)⁷, and whether something is alive may be known without needing to make a comparison with another entity, it is an intrinsic property.

Lastly, intrinsic value can mean *objective value*. This sense aligns closest with the account given by Moore, which gives central importance to the independence of intrinsic value from relationships with any other entity. The importance of this kind of intrinsic value is as a kind of meta-ethical guard against a *subjectivist viewpoint*. A subjectivist might hold that if I believe nature to have non-instrumental value, then for me at least it does so. When we say Place A is believed to be intrinsically valuable by Group B, then we are employing this subjectivist view on value. However, the objectivist view denies that intrinsic value is based on subjective belief, preferences, or attitudes – rather, whether something has intrinsic value is an objective fact, which would be true whether anyone believed it or respected it at all. The classic “last person” thought-experiment developed by Routley (1973) purports to show that nature has this kind of *objective value*.⁸ That nature has this *objective value* has had some ethical importance to non-anthropocentrists, as if they were to concede that nature's value is only that which human valuers confer to it, they would need to conclude that unpopular and unvalued aspects of nature in fact have no value, and environmental defenders would have little offer in the face of widespread public disinterest in nature (Kriegler 1973, Katz 1997).

When we are talking about intrinsic value within environmental ethics, or the conservation literature, we are usually employing it in the first sense: as *non-instrumental value* which – crucially - provides an explanatory basis for treating nature as an end of moral reasoning (unlike *non-relational* and

⁷ Note though that each of these authors explain the moral relevance of being alive in ways which are not strictly related to it being a *non-relational value*, instead offering explanations for why it additionally confers *non-instrumental value*.

⁸ Suppose you are the last person alive on Earth, and there is no potential for any other humans after you. You decide to spend your last days chopping down, and burning, every last rainforest on Earth; or perhaps setting off the world's complete arsenal of atomic weapons for good measure. Anthropocentrists, and subjectivists might struggle to explain why the last person has acted wrongfully if nature has no other value than that which it brings to people, or which it is purported to have by people.

objective value).⁹ We might also at the same time employ it in the other senses too – I can believe that nature has *non-instrumental value* and *objective value*. But I can also disbelieve that nature has *objective value* (for instance, if I am a subjectivist), but still believe that nature has *non-instrumental value*. Likewise, an influential school in environmental ethics has denied that nature possesses *non-relational value* while maintaining it has *non-instrumental value*. For instance, for Eric Katz (1997) and Robert Elliot (1997), nature’s intrinsic value is a factor of its independence from human intentional design – and this is thought to explain why only natural and no artificial things possess intrinsic value. Thus, while *objective value* and *non-relational value* are important concepts when we are discussing the intrinsic value of nature, neither are necessary components of a non-anthropocentric ethics. It is sufficient for such an ethics that at least some non-anthropocentric entities have *non-instrumental value*.

Returning to the NFF, I take it that this point is crucial. In the Nature Futures Framework, drawing from the IPBES report on values (2015) intrinsic valuations of nature are understood as:

“...non-anthropocentric values associated with nature and its contributions to people and are independent of any human experience and evaluation (IPBES, 2015)... [which] is not generated by human beings.” (Periera et al, 2020a).

According to the typology given above, we can see that the NFF understands intrinsic value as *non-instrumental objective value*. But this fact is important as it would seem to tell us why the continuum interpretation of values in the NFF is not appropriate for representing the relationship between Intrinsic and Instrumental value perspectives if the important sense of intrinsic value for explaining why NfN and NfS perspectives have different policy implications is *non-instrumental value*. It is not logically coherent to claim that nature concurrently has non-instrumental value while simultaneously possessing *only* instrumental value. It is definitionally central to the concept of having non-instrumental value that the entities which possess this value cannot be reduced to their instrumental value – they must not be treated “merely as a means to an end” (Kant, 1997). But if this is true, it becomes very difficult to see how or why we should consider there to be a continuum of value-perspectives which exists between those who hold that nature has non-instrumental value (NfN), and those who hold that it only possesses instrumental value (NfS). Entities either have non-instrumental value, or they lack it.¹⁰ It should not be

⁹ Through the Kantian conception of non-instrumental value offering a “trump card” against being treated only instrumentally and thus grounding certain limitations on the way you can act in relation to these entities. The other two forms of intrinsic value might still come with normative implications, e.g., through a Moorean account of a duty to promote

¹⁰ If the source of that value comes from an intrinsic property possessed by the entity itself rather than external valuer - as the IPBES Report on Values suggests is the correct interpretation of intrinsic value.

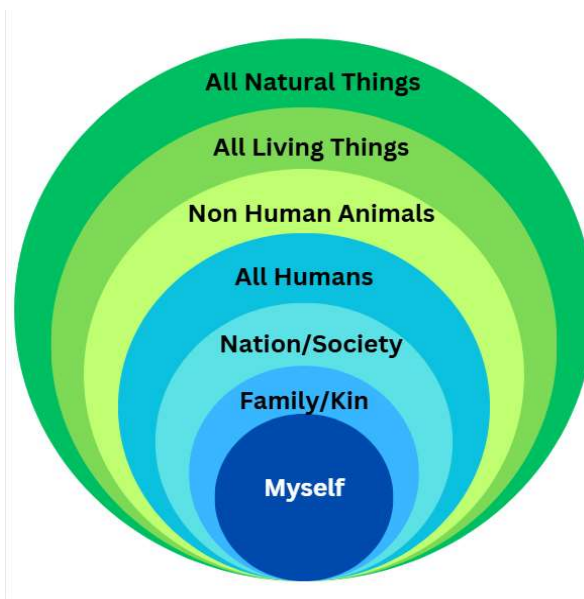
possible for an internally coherent value perspective to believe that nature has some non-instrumental value conferring property while also lacking it, but this is what it would imply that a value perspective mapped between NfN and NfS must do. If we are talking about *possessing intrinsic value*, then the relationship is a binary and not a continuum. Thus, if we are committed to treating the NFF's axes as a continuum, a different explanation of what the righthand axis represents will need to be given.

S2.3 - What has Intrinsic Value?

Perhaps then the relationship between NfN and NfS is not so much a continuum of whether nature possesses intrinsic value, but rather it reflects a different kind of relationship. One reading might be that the righthand axis of the NFF is not about whether nature possesses intrinsic value per-se, but rather reflects different interpretations over either a) the extent/scope of the entities thought to possess intrinsic value, or b) the strength of the measures/policies that recognizing nature's non-instrumental value commits us to. It is worth considering both of these in turn.

In the previous section we looked at length at what intrinsic value *is*, but thus far we have not discussed the second kind of question about intrinsic value – that is, who or what possess it, and why? In the Nature Futures literature these questions are often left unexamined. It is evident that we are talking about “nature”, and in the quote from Periera et al above we can also see that they view intrinsic values of nature as “non-anthropocentric values” (Periera et al, 2020a). But this is not especially helpful as there is substantial disagreement over what counts as “nature”. As for “non-anthropocentric”, definitionally this only tells us that some non-human entities possess intrinsic value – but what those entities are is also left unexamined.

It is reasonably common now to recognize that there are different accounts of the “scope” of non-anthropocentric ethics. Singer (2011) gives an influential account of the expanding scope of moral concern. He argues that the long-term trend/progress of moral thinking has been to expand the scope of who we are expected to account for in our moral reasoning: originally moral concern was devoted only to one's family, then tribe, nation, all humans, and now increasingly to non-humans too. But even amongst those who agree that there is intrinsic value outside of human beings disagree substantially over which kinds of entities possess it. Animal-ethicists/sentientists believe that (sentient) non-human animals have intrinsic value, bio-centrists expand this to all living things, and eco-centric views are open to non-living natural things (e.g., mountains, ecosystems, rivers, the cosmos) having intrinsic value too. We might then be tempted to think that such an account could also form a basis for the NfN-NfS continuum, that the further one travels up the axis in the direction of NfN, the greater the scope of which entities get included. However, I suggest that this too would be a mistake, as it risks undermining or flattening the substantive reasons people have for believing one rather than another.



**Figure 2: A Diagram Representing the “Expanding Moral Circle”
Account of Moral Development**

With blue circles representing anthropocentric, and green non-anthropocentric views

Source: Own Composition

Here it is useful to draw another distinction: between individualistic and holistic accounts of non-anthropocentric ethics. Individualist accounts believe that the bearers of intrinsic value are (as the name suggests) individual entities. A single person, an individual squirrel, dandelion, mountain, grey whale, lake, or paramecium. “Animal rights” theories of ethics are classically individualistic – focusing on an individual animal as a rights-holder (e.g., Regan 1983). Regan makes the non-instrumental/instrumental divide clear when he writes:

...animals are treated routinely, systematically *as if their value were reducible to their usefulness to others*, they are routinely, systematically treated with a lack of respect, and thus are their rights routinely, systematically violated. (Regan 1985: 24 *emphasis own*).

But not all individualist non-anthropocentric ethics limit their scope to animals. Taylor (1986) develops an individualist biocentric theory which purports that intrinsic value is possessed by all living things: human, animal, plant, and bacterium.¹¹ This he bases on an argument that all living things, and no non-living things have internally directed teleology – i.e., they are purposely directed in a *non-relational* way. As living things have a purpose (Taylor gives several accounts of what this purpose is – variably

¹¹ See also Varner 1998.

species survival, individual survival, or leading a flourishing life), this purpose can either be advanced or hindered. This distinguishes the moral state of teleological living things from individual non-teleological non-living things – e.g., rocks, bricks, mountains, cola bottles, rivers, the Forth Bridge, the atmosphere.

Individualist non-anthropocentric ethics are not committed to saying that collective entities (e.g., species, ecosystems, forests, biomes, landscapes) have no value – but rather their value is the instrumental value the collective has to its constituent individuals (e.g., Jamieson 1998). Holistic theories on the other hand believe that nature's intrinsic value is possessed by entities other than individuals, including by collective entities. This kind of approach is typified by Leopold (1949) who assigned intrinsic value to “the land” or “the biotic community as a whole”. This line of ethical thinking was greatly developed by Callicott (1980), although he later substantially revised this position to include a greater role for individual wellbeing (Callicott 1989) following a productive interchange with Tom Regan (1983). Similar biocentric holist views are held by Fox (2007). Eco-centric views hold that the possessors of non-intrinsic (relational) value can also be non-living entities, for example whole ecosystems and habitats.¹² Katz (1997) argues that natural entities, including non-living ones, have non-instrumental value in respect of the fact that they are natural. He argues that the value of nature is a function of its independence from human design, and once humans alter nature and make it into an artifact this value it possesses is lost. The moral significance of *naturalness* and what it commits us to has been a source of much debate in both environmental and animal ethics (Brennan 1984, Birch 1990, Allison 2004). Rolston III (2002) also suggests a “radically new” ethic is needed to govern obligations to protect landscapes with sparse biological content, such as Antarctica.

What ought to be drawn from this discussion is that there is substantial disagreement over who/what the possessors of intrinsic value are. We need to be careful here, as the NFF does not seek to evaluate the reasons for the worldviews which it represents – so it is not enough just to acknowledge that worldviews which have an intrinsic valuation of nature have substantive disagreements over what the source and location of that value is. But nonetheless, the disagreements in the accounts of nature's intrinsic value presented above still are not suited to be presented as a continuum in the way the expanding circle analogy of morality might suggest. This is because, I think, the differences between the views outlined above are not primarily over the quantity of entities which are included, but disputes over the type or category of entities with which intrinsic value resides. It is not a fair account of these views to just present them as a continuum of ever widening scope – as the differences between, for

¹² Though note that strictly speaking all holistic views expand intrinsic value beyond living things as collectives of living things, e.g., species, are not themselves living.

instance, an individualist biocentric and holistic eco-centric, theory of non-anthropocentric ethics is qualitative rather than quantitative. These competing perspectives represent more than just an increasing “openness” and willingness to acknowledge the moral relevance of others, but instead fundamentally different accounts of moral ontology, rather than a single principle being applied to an ever-widening scope of entities. To present them this way is to miss these substantive reasons for disagreement.

S2.4 - Translating Intrinsic Values of Nature into Scenario Policies and Themes.

If the axis then is not about who possesses intrinsic value/the scope of non-anthropocentric ethics, then perhaps a third way to conceptualize it is through a continuum of strength or weight that acting in accordance with nature’s non-anthropocentric value commits us to. Indeed, this interpretation of the NfN-NfS axis seems to accord with how the NFF is employed in mapping scenarios which contain clusters of differing policy choices. Figures 1 indicates that each value position on the NFF has corresponding policies that are thought to be typical and/or compatible with either intrinsic/instrumental/relational ways of valuing nature. Indeed, in the version of the NFF presented by Duran et al (2022) the vertical axis of the trifecta is labeled to represent a continuum of “management intensity”, with the “land-sparing & wilderness” policies which characterize the NfN node being on the extreme low management intensity end of the spectrum.

This is in itself a troubling leap in the information which the NFF diagram purports to display. In Duran et al’s formatting of the NFF, two different kinds of information are presented on the same continuum. On one hand, it’s meant to display a continuum of values themselves, but at the same time it is also meant to display a continuum of policy intensity. This shift can be read directly from Duran et al themselves:

“We positioned the six [scenario] skeletons along these *three nature value gradients* whilst maintaining a *coherent interdependence* of their characterized themes and nature values. Specifically, this exercise followed Hegel's system of dialectics in logic, where the “opposing sides” are different definitions of logical concepts that are opposed to one another... We considered this to be a useful framing, because it does not mean that one side is ‘right’ while the other is ‘wrong’, but, instead, says that they are opposing logics that cannot be simultaneously maintained, i.e. it is not possible to simultaneously have land sharing and land sparing, but it is possible to hold a relative space between them.” (Duran et al, 2022) [emphasis own]

Here we see the authors switch between first describing the NFF as a “nature value gradient” at the beginning of the quote, but ending by explaining it as a gradient between a policy type i.e., “land sharing

and land sparing” and the “relative space between them”. If the argument put forth in S2.1 showing “non-instrumental” and “merely instrumental” values as binary opposites correct, then the idea that there is “relative space between them” ought to be rejected. But a continuum interpretation between strong-weak policies, or over the space devoted to protected areas in “land sparing-land sharing” would be possible.

The authors justify this maneuver by claiming that the values that are represented have “coherent interdependence” with the “themes” (i.e., policy choices within) each scenario. But this strategy commits the authors to saying that for each value perspective included on the NFF, there is a single possible translation of the values into policy/themes. Specifically in the case of NfN views, this is that an intrinsic valuation of nature commits us to policies of “land sparing, rewilding, [and] strict nature protection [and] wilderness” (Figure 2). This however overlooks the substantial disagreements between non-anthropocentric theories of ethics over what recognizing and acting in accordance with nature’s intrinsic value commits us to, not least over the fierce debates about wilderness and conservation policy within the environmental ethics field. If there is no one set interpretation of what an intrinsic value of nature policy is, then the switch from values to policies that underpins the continuum interpretation will fail.

Philosophers who have committed to non-anthropocentric ethical theories have nonetheless had substantial disagreements over what kinds of actions these normative commitments entail. Of particular note to our discussions here is the debates over the value of wilderness which have been central to the environmental ethics discipline since its formation some fifty years ago. A central debate within the discipline has been between what we could characterize as interventionist and non-interventionist perspectives within non-anthropocentrism. The non-interventionism camp have tended to emphasize that recognizing nature’s non-instrumental value demands that humans adopt a relationship with the natural world where they involve themselves as little as possible with nature, natural processes, and the lives of wild living creatures. Interventionists however have argued that recognizing nature’s non-instrumental value can also entail positive duties – to assist, and possibly even redesign the way that natural processes operate. This divide leads to a divergence in perspectives over management of protected areas and especially the value that wilderness is thought to possess.¹³ This in turn makes it difficult to confidently assign the kinds of policy positions that NfN worldviews must accept.

Firstly, it ought to be noted that wilderness itself is a kind of “relational” account of nature’s value – i.e., if we think that wilderness is nature with the absence of human alteration, and wilderness has

¹³ To the extent that “wilderness” is a specific kind of landscape characterized by a highly minimized amount of human intervention.

intrinsic value, but other kinds of landscape lack it, then the intrinsic value of wilderness is a kind of relationship with human beings (O'Neill 1992). Callicott (1986) offers a relational defense of wilderness on the grounds that nature's non-instrumental intrinsic value is conferred by human beings, but they should reason that wilderness areas deserve protection as "sanctuaries". But as we have seen from S2.1 this relational account is only one way that an intrinsic valuation of nature might be framed. Katz (1997) offers a relational argument of this type and uses it to justify strongly non-interventionist nature preservation measures. Katz argues that nature has intrinsic value only when it is in an unaltered form, and therefore the only way to preserve that value is to commit to selecting certain untouched parts of nature to strong preservation measures. But the interesting corollary of this is that nature restoration measures, including rewilding, are at best a fruitless exercise – as restored landscapes too are a kind of designed landscape that bears the mark of human alteration too and do not have equal value to true wilderness. A similar account can be found in Elliot (1997). Taylor (1986) is a biocentrist with an *objective non-instrumental* account of nature's intrinsic value and argues that "respecting nature" entails duties of non-interference in wild spaces, but none-the-less allows for some "restitutive" interventions which occasionally override the presumption of leaving alone. But perhaps the most forceful defense of wilderness comes from Rolston III (1991) who argues that a real *non-instrumental, non-relational, objective* valuing of nature requires valuing the independent functioning of natural processes for themselves, and wilderness is the best/only way to achieve this. He writes:

"We can and ought to have rural nature, and we will be glad to have rural nature with a high bird-count. But we can have a rural nature with a high species count and not have anywhere on the landscape the radical values of wild, pristine nature. That loss would not be compensated for by the stepped-up species count in agriculturally disturbed lands. In wilderness, we value the interactions as a fundamental component of biodiversity" (Rolston III, 1991)

Yet other environmental ethicists have had quite different attitudes to the relationship between nature's intrinsic value and the demand for wilderness protection. Callicott himself vacillates on the subject of wilderness though remains committed to non-human nature being intrinsically valuable, later arguing that trying to preserve a wilderness area as an example of an untouched or historic landscape was akin to "pickling in aspic" – an attempt to halt the processes of evolution and natural change (Callicott 1991).

Moreover, this focus on preserving natural processes is not shared across intrinsic value of nature worldviews. Other non-anthropocentric ethical theories have developed anti-wilderness theories based on arguments that recognizing nature's non-instrumental moral worth entails obligations to intervene where the unrestricted functioning of natural processes causes suffering to living creatures. Arne Naess has an eco-centric ethics but nonetheless argues that the extreme suffering that characterizes the natural

world demands that humans act to minimize it where they can, including by making targeted interventions into the way natural systems operate (Naess, 1991). This “interventionist” current has been more prominent (though far from undisputed) within animal ethics. Donaldson and Kymlicka (2012) argue that respecting the intrinsic value of free-living nonhuman animals entails treating them as sovereign over their territories, but nonetheless humans have duties of rescue. Claire Palmer has argued that intrinsic value of non-human animals can mean supporting “assisted migration” of species to adapt to climate change – which in practice entails humans acting to design substantially unnatural looking ecosystems (2014). Cowen even argues that humans should be “policing nature” by taking “modest” steps to limit the harm caused by natural predation, including ending subsidies for policies which promote the survival of certain predatory species (2003). Horta (2010) however has been a prominent champion of the view that the moral response to nature’s intrinsic value should be making extensive alterations to ecosystem functioning – including diverting agricultural production to feeding wild animals overwinter and inoculating them against diseases. Horta’s vision of “living in harmony with nature” then is one where humans have a very high management intensity in nature, contra to the expectations of what an intrinsic value of nature scenario should look like according to Duran et al (2022).

If we want to say then that the NfN-NfS axis is a continuum of policy strength, we need to know what policies are compatible with an intrinsic valuation of nature. What I have hoped to show here is that two worldviews/ethical theories can both be committed to nature possessing intrinsic value but nonetheless have quite distinct outlooks on what recognizing that intrinsic value means for how we relate to nature and what kinds of policies we might think are compatible with this worldview. It is misleading to say that an intrinsic valuations of nature demand uniformly “strong” or “strict” nature protection measures.¹⁴ This has important implications for how we do value-policy translations (at least) on the NfN node, as it shows that there is no essential link between recognizing nature’s intrinsic value and adopting a particular policy perspective (e.g., on the acceptability of wilderness). If there is no single “coherent interdependence” between values and themes/policies, then this will have important implications for how we use the NFF to design scenarios, as we cannot reliably deduce what policies will necessarily be compatible with each node of the framework.

If we want to resolve this issue, the NFF would need to either (1) engage in a substantive normative debate about what the correct interpretation of policies consistent with a non-anthropocentric worldview

¹⁴ Additionally, we ought to note that there is nothing prima-facie incompatible with holding that nature has only instrumental value and advocating for wilderness preservation either. We might for instance argue that maintaining large, natural, untouched areas is aesthetically important, or perhaps just the best way to secure instrumentally useful ecosystem services.

is (and which non-anthropocentric worldview is meta-ethically justifiable), or else (2) abandon the notion that the NFF is a way of representing both values and corresponding policies at the same time. The difficulty with option (1) is that the purpose of the NFF is to present each worldview in a neutral manner – not evaluating which way of valuing nature is the correct one, but simply trying to reflect the diversity of ways in which nature can be valued. While option (1) is not saying that any of the three nature-values is false, but it is saying that there is a correct way to interpret how to translate values into policy which suggests that at least some people who hold a NfN type worldview are incorrect about what policies it commits them to. This does not seem to be in keeping with the overall non-partisan, morally agnostic thrust of NFF project. Therefore, in the following section (S3) I consider two possibilities of how to adapt the NFF along the lines of option (2).

S3 - Two Suggestions for Reconceptualizing the NFF

In the preceding section I have argued that it is not plausible to depict, as the NFF currently does, the NfN-NfS axis of the NFF as a continuum between two value perspectives. In this following section I want to turn to considering what the implications of this argument are for how we ought to use the NFF. I suggest that there are two possible ways in which the NFF might be reformulated in order to better account for the irreconcilability of different ways of valuing nature.

S3.1 – The Non-Continuum Approach

The first suggestion is that if the NFF mischaracterizes the relationship between NfN and NfS values as a continuum, then the NFF ought to abandon the continuum approach. What might this look like in practice? During the design process of the NFF, the author team took inspiration from a typology of nature-values developed by Georgina Mace (2014). Mace’s typology is meant to depict the way the values of conservationists have shifted over decades, with four distinct periods: “Nature for Itself, Nature Despite People, Nature for People, and Nature and People”. These roughly translate to (two accounts of) Intrinsic, Instrumental, and Relational values in turn, but Mace does not attempt to depict them in any kind of continuum relationship to each other.¹⁵ Thus in theory this could be used to categorize scenarios according to their values/approach to conservation but without committing to saying that intrinsic and instrumental values exist on a gradient with each other. Indeed, like the NFF, Mace’s framework has also been used to map conservation scenarios according to the values they represent (ENVISION, 2020) though note that the methodology for doing so does depict these scenarios

¹⁵ Other than the fact that the approaches she identifies exist on a continuum of distinct periods in time – though as Mace notes these views do not strictly supersede each other and all exist in some form in current conservation practice.

on a value-continuum, and thus it is not clear that this particular use avoids the irreconcilability problem either.

A recent paper by Oostvogels et al (2024) also tries to adapt the NFF to better represent conflicts between the value perspectives by incorporating an additional mirrored set of axes to represent disvalues. The resultant “integrated-NFF” [I-NFF] is very helpful for addressing a separate but related issue with the NFFs axes, which is that where a scenario gets mapped to the NFF is based on a sum of its attributes/themes which position it nearer or further from each corner of the diagram. But as the NFF only maps positive values there is no way to incorporate disvalues, or trade-off positive and negative valuations in the mapping process. Nonetheless, while Oostvogels et al’s I-NFF is an improvement in how the NFF continuums function, it does not help solve the irreconcilability of value perspectives.

A possible way to represent irreconcilability might be to reconceptualize the NFF triad as containing significant areas of negative space in the center denying the possibility of there being spaces where the value perspectives overlap. This negative space would have the function of preventing the possibility of mapping scenarios to overlapping positions where no internally non-contradictory value perspective could sit. This would represent a highly deductive use of the NFF: useful for experts in designing and mapping scenarios to value-perspectives in the abstract; with a focus on ensuring that they are internally logically coherent/consistent. This would limit scope for using the NFF as it is employed today as a way of mapping the value perspectives held by real people who may themselves not have fully non-contradictory values, worldviews and/or beliefs about the policy positions their values commit them too.

S3.2 – The Policy Preference Account

The second option to adapt the NFF in light of the irreconcilability of values might be separate employing the NFF into a three-step process where a mapping of values occurs separately from a mapping of policy preference. In S2.4 I criticized Duran et al (2022) for making the NfN-NfS continuum seem plausible by switching between binary value-perspectives (Intrinsic Non-Instrumental Value vs Instrumental Value), and the non-binary continuum of compatible policy preferences (e.g., land sparing to land sharing, or intensity of management) which were thought to be inherently connected (coherently interdependent) with each value perspective. However, this critique might be circumvented if the NFF separated out the linkage between identifying values and associating those values with policy preferences. Instead, scenarios could be mapped onto an NFF diagram in accordance with how they reflect three different themes (e.g.: Space for Nature: Management Intensity: Utilitarian Intensity) without necessarily being concerned with which value perspective was thought to drive acceptance of that theme.

In deductive exercises with the NFF, the core themes could be identified and scenarios developed that trade-off on those themes without linking each scenario to a value. Instead, those who engage with the scenarios would be free to align with whichever scenario best accorded with their values as they saw fit. In inductive NFF exercises, where scenarios are generated through an engagement process (e.g: D’Alessio et al, 2024) the value-perspective could be shown by an interlinked connected figure. Those present in the workshops could map themselves to the non-contiguous NFF in stage one, and then to the policy-preference NFF in stage two. A third stage might collect qualitative data from each stakeholder where they are asked to give their reasoning for the connection which they made. This would avoid the problematic process identified in S2.4 of deductively assuming that value-policy connections can always be known a-priori and remains open to the fact that in the real-world people often make counter-intuitive links between their values and policy choices. The benefit of this version might be that – counter-intuitively – that we can visualize how different groups might align or diverge over policy options, without requiring us to know anything about what their values are and their coherence. Giving space for explanations could also avoid making a “revealed-preference” assumptions that values could be known from policy choice (Samuelson, 1938) and vis-a-versa.

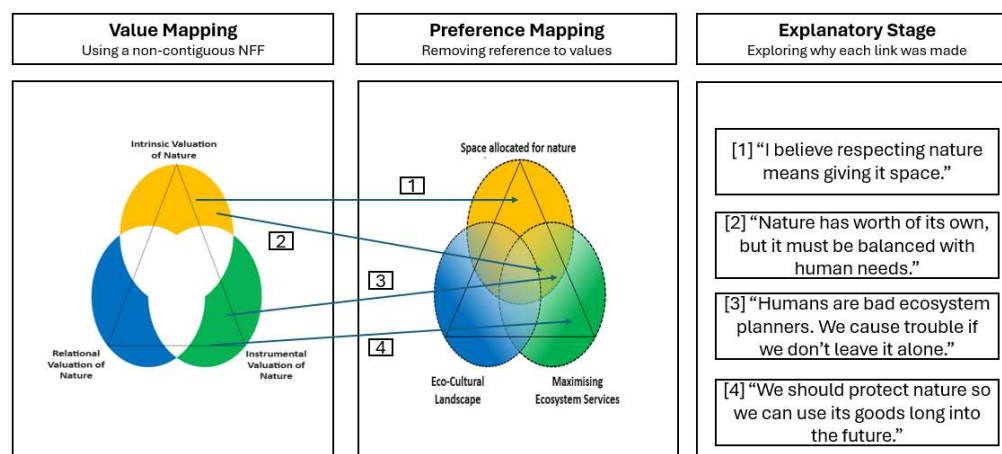


Figure 3: Example Workflow for a Three-Step NFF Analysis to Evaluate Value-Preference Connections

Source: Own Composition.

Moreover, this approach might avoid the commitment to being able to find points of compromise and alignment across the whole gamut of the world’s nature-values, or as Periera et al put it: “the possible convergence and synergies of measures to achieve [the KMGBF goals]” (2020a). By focusing directly on policy choice, this option could re-emphasize where conflicts exist, as well as identifying which groups find their preferences in alignment. Instead of as a tool to seek compromise, the NFF might be used as a tool for political actors to identify possibilities for coalitions and exclusions. After all, while

there may be plural visions of what a world “Living in Harmony with Nature” looks like – ultimately the world must decide upon which pathway to embark. Someone has to win (and lose) in the end, given that complete global re-alignment and convergence on values is vanishingly unlikely. Refocusing on contestation might aid in making this fact starker and clearer and aid in discussing the epistemic justice of whose values are prioritized, worldviews recognized, and preferences satisfied .

Nonetheless, it is evident that there are limitations to this re-envisioning of the NFF too. The purpose of the NFF project was to conceptualize and represent in scenario design *differences in value*. While in co-designed NFF scenario exercises that engage real-world stakeholders the method proposed here can retain a value-policy connection, in deductive exercises where the NFF is used as a skeleton to deduce context specific scenarios it is harder to make the original intended link to representing plural values. Removing the discussion of value, and the means of conceptualizing differences in worldviews, means removing the way scenario designers can structure the policies they choose to include in their scenarios. The danger here is that certain policy preferences could be ignored if there are no mechanisms to prompt scenario designers to consider the plurality of values and worldviews.

S4 - Conclusions

The purpose of the NFF is to provide a systematic tool for incorporating different perspectives on the value of nature into scenario design; and to thereby evaluate the role these values play in the system and explore different visions of what a world living in harmony with nature might look like. Moreover, it is very welcome that IPBES should be taking this task seriously and developing approaches for bringing alternatives to the mainstream -instrumentalist- values into scenarios and assessment research. None of the critiques I raise here ought to undermine the importance of the task the NFF was designed for, and nor should they be taken as completely undermining the usefulness of the NFF as a heuristic device.

Nevertheless I have argued that the current way the NFF presents Intrinsic vs Instrumental values is based on an untenable account of these two ways of valuing nature occupying a continuum. This view has been made plausible by mistakenly transforming the discussion from values themselves to policies and themes. I have given three reasons for thinking that this approach to the NFF needs to be revised: because whether nature possesses intrinsic or merely instrumental value is a binary and not a continuum; a continuum cannot be constructed based on an “expanding circle” of morality account of intrinsic value; nor can it be constructed from linking intrinsic values to the “strength” of the policy measures these values are though to commit us to. I have made two tentative suggestions for how the NFF might be revised to adapt to the irreconcilability of these two values. Either it abandons the continuum approach, or it abandons the claim of being about values. Neither of these are options without trade-

offs. The aim of paper is to cast a critical but friendly eye on precisely how we use the framework, how we represent values in scenarios and modelling research, and to caution against oversimplifying when we try to deduce the kinds of policies different stakeholders and groups of valuers might prefer or assent to. Future research avenues should continue to explore methodologies for going beyond revealed-choice assumptions when thinking about value-policy translations in biodiversity and conservation research, and devote time to understanding the reasonings of stakeholders.

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