

Items 1-8; Applicant: Professor Tom Oliver, University of Reading

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Title: Catalyst for Biocentric Awareness and Governance

Grant period: 1st Oct 2024 – 31st Apr 2026; Total amount requested: \$247,630

Problem to be addressed: We face a global polycrisis, which requires new ways of governing if we are to have any chance of reversing damaging trends. These new governance approaches will need to be bespoke as they evolve in a modern context, though we would be wise to learn lessons from traditional indigenous cultures. A promising insight for radical governance reform is how changing our human relationship with nature can influence our motivation to protect the natural world¹. Recognising the sentience and our deep interconnectedness with more-than-human species engenders greater pro-environmental (as well as pro-social) behaviour². Therefore, harnessing research in non-human sentience and cognition, with implications for our relationship to nature – in particular the intrinsic value and rights of nature– can be crucially important to inform how we organize our human societies.

It is important to encourage primary research in non-human sentience and cognition, but that alone will not address our current urgent predicament. Further research is also essential to understand *how this new knowledge can influence people’s worldview* as living with and in nature. Furthermore, we need to understand what these findings, and changes in world view could mean for enabling *radically new governance approaches* that are more successful than the current status quo. Agile, progressive funders with an eye on the urgency of the polycrisis and the importance of innovative applied research can hopefully support this approach.

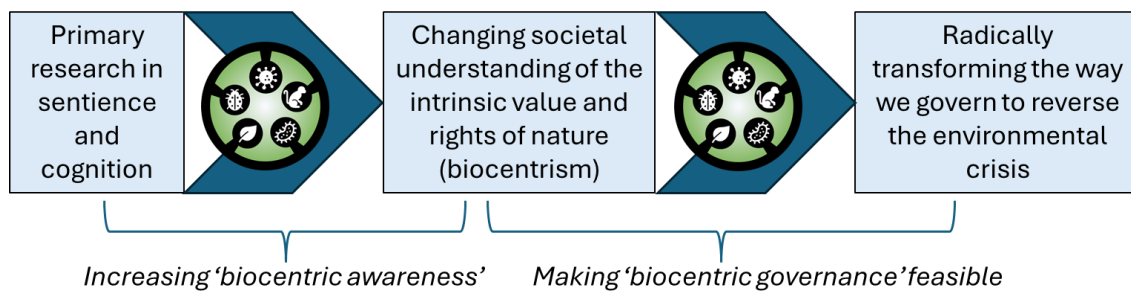


Fig. 1, Theory of change for this project, which links primary research with cultural change and action

Summary of approach: VKRF, along with other funders such as the Templeton World Charity foundation³ and National Geographic⁴ are investing in primary research around non-human sentience and cognition. This current proposal both synthesises, and takes forward, the implications of such new research to help provide urgent action in addressing the polycrisis. There are two themes to the work, one is around the radically *different governance approaches* that might come about if society genuinely adopted the biocentric perspective (positioning humans on a par with other species) that new primary research and existing syntheses⁵ prompt; the second, is about *how to make such shifts in worldview feasible* given there are many factors that ‘lock’ us in to worldviews that support and justify the existing status quo. New knowledge about the nature of intelligent life is important, though it is only a starting point in terms of progressive action to address the urgent crisis humanity faces.

Potential impact of the work: This work will identify alternative ecosystem governance approaches based on radically different conceptions of human–nature relationships. We will co-develop these ideas

with progressive policy makers from several countries, in order to have new options in place for when the opportunity for governance reform arises (potentially in the face of ongoing societal collapse in the face of polycrisis). The project will identify approaches to make governance reform around biocentric principles more likely. We will explore evidence-based, practical approaches that foster development in biocentric worldviews, both for wider society and targeted for influential policymakers.

The work will help to catalyse a shift from anthropocentric, exceptionalist views of human nature to biocentric perspectives, that emphasise the importance of cooperation, symbiosis and reciprocal relationships. Hence, we target interventions to shift the ‘Overton window’ – the frame of what is politically acceptable– to make biocentric governance more feasible. It is no doubt a huge ambition to transform society and reverse the environmental crisis. Yet, this project will provide the foundational building blocks for other projects to build upon. It is a ‘pathfinder’ showing how we can move from primary research around intelligence and sentience to a wider recognition of nature’s value. It will evidence and communicate how we can fundamentally transform our relationship with nature and, consequently, how we govern more effectively, with wisdom and humility on this precious, finite planet.

Theme 1 - Biocentric governance of socioecological systems

Rationale: The mainstream approach to environmental governance in most countries is anthropocentric. Western culture from the ancient Greeks through to Enlightenment thinkers and our neoliberal modernism has been imbued with a sense of human superiority⁶. Aristotle’s hierarchical ranking of animals and plants was developed through Christian scholasticism into a *Scala Naturae* (the ‘Ladder of Being’), which conceived of humans just below a monotheistic God with all other animals and plants beneath, and this sense of human exceptionalism has persisted to the modern day. This placing of nature as subservient to human needs (in some cases enthusing a ‘god given right’ to plunder and dominate nature) has long been argued to be a primary factor in the environmental damage⁷. Under anthropocentrism, the natural world is viewed from an instrumentalist perspective– in terms of the benefits it provides to us, and this value perspective has dominated modern environmental governance discourse, with nature protection framed as a means to enable human development⁸.

In particular, in the US and European nations nature is implicitly treated as a capital to be quantified with the aim of internalising it into the market-based economic system. This is inadequate for protecting nature, a fact which is increasingly recognised by international science policy organisations (e.g. 9,10,11,12). For example, two major issues are i) that it is not practically possible to quantify and put a monetary value on all the benefits that different species provide to humans, as the vast majority of species worldwide are not even discovered yet (86% of species on land and 91% in the ocean remain undescribed¹³), ii) it fails to tackle the consumer-driven mindsets that are the root cause of environmental degradation¹⁴. A deep sense of psychological connection engenders responsibility and care towards nature, but this care is not unassailable. It is eroded by the framing of nature as simply a set of assets that has occurred in modern decades and research shows how the language of commodification encourages psychological distancing and reduces pro-environmental attitudes and behaviours^{15,16}.

As these limitations become more widely recognised there is increased momentum for alternative approaches to ecosystem governance based on decentering the human and more biocentric symbiotic principles. For example, Earth Jurisprudence– the idea of giving personhood rights to nature is becoming more common, as are approaches to represent nature in key decision-making processes (e.g.

interspecies councils, and having a representative that speaks for nature on the board of an organisation). These approaches still have limitations, however. For example, Rights for Nature risks the conceptual atomisation of the world into discrete entities with sets of rights that are difficult to reconcile (i.e. taken to its full conclusion, where every individual organism has competing rights, the approach becomes unworkable¹⁷). Giving nature a place on company Boards risks representatives bringing their own implicit biases and presenting them as ‘the’ voice for nature.

These alternative approaches are still underpinned by the arguably hubristic aim to develop better approaches for *humans to govern* ecosystems (i.e. they are implicitly anthropocentric). Yet, new understandings of a) the role of non-human sentience and intelligence, and b) the recognition of intrinsic and relational value of species beyond instrumental value to humans⁶, may prompt a more radical reframing of governance. Currently lacking is an interdisciplinary hub to catalyse this field-building, specifically to address the following goals:

Theme 1 specific goals:

- Explore the limitations of current and emerging anthropocentric governance approaches
- Review the latest evidence and learn from other traditional cultures on alternative governance approaches that position humans on a par with other species (i.e. biocentrism)
- Understand the constraints and enablers (and risks) around radical reform towards a more biocentric approach to environmental governance

Theme 1 approach: The PI will coordinate international experts from diverse academic disciplines, leading thinkers/writers, and representatives from selected indigenous cultures, to explore alternative governance approaches. We will collate evidence and insights from diverse sources: i) examples from non-human systems to explore how organisms and intelligent ecosystems ‘govern’ themselves (e.g. ecosystems of cells in the animal and plant bodies, and symbiotic microbial communities); ii) by exploring traditional ecological knowledge and alternative governance approaches. This latter aspect involves learning from the past/different world regions to apply to the modern governance context. Many of these approaches (e.g. restricted harvesting where a proportion is left for nature¹⁸, sacred places like mountains, rivers and standing trees, and the sanctity of non-human life) diverge deeply from anthropocentric framings and ask instead ‘*how should humans be governed by the earth?*’ in order to restrict destructive practices^{19,20}. To co-develop this research, a steering committee for the project will be formed from colleagues at government agencies such as EEA, UNEP, UK government and VKRF, and the PI will be assisted by a skilled project manager.

Anticipated results – dissemination, communication and evaluation: Synthesising these strands, this project will identify a set of credible new governance approaches for our modern context. We will conduct analysis of the potential risks of adverse outcomes that need mitigating, and also conduct analysis of the constraints and enablers for these governance principles to be implemented. We will co-author an academic position paper on biocentric governance, highlighting approaches and knowledge/practice gaps that will help to build this nascent field, and influence research agendas, perhaps leading to a proposal for a larger Centre/network to share best practice. We will also develop a policy brief with targeted stakeholder events for different government groups, and with new governance ideas communicated in popular media (e.g. *Forbes*, *The Economist*, newspapers, and a forthcoming book by the PI). We will evaluate the success of this work by tracking the use of our outputs both in wider discourse, but particularly in policy and governance contexts.

Theme 2 - Accelerating transformation to biocentric awareness

Rationale: Biocentric governance approaches are unlikely to be feasible without deep psychological and cultural transformation. For example, the idea of a sacred mountain where human activities are prohibited is not easily understood from an anthropocentric mindset that only sees instrumental value in nature (take the tourists who regularly trespass on Uluru in Australia as an example). Governance based on biocentric principles— where humans are seen on a par with and deeply interlinked with nature, however, is possible; it has been found to operate in many local indigenous contexts²¹. Humans also have a strong sense of reverence and duty (both a biological tendency and a cultural-evolved tendency), which although often directed at a monotheistic God, can also be directed towards nature. Therefore, it is fully possible, especially as existing approaches to governing the polycrisis are failing, that alternative biocentric governance principles and approaches could become powerful approaches to reverse our current environmental crisis.

A novel but critical and timely question therefore is: what are the catalyzing factors for increasing biocentric awareness (i.e. for creating the psychological shift towards deeply appreciating our equal connection to nature and its intrinsic value). Despite its crucial importance, the answer to this question is lacking, with disparate primary research fragmented across many fields. Therefore, this project has the following goals:

Theme 2 specific goals:

- Deliver evidence-based practical approaches to accelerate transformation towards biocentric awareness in both policy makers and wider society.
- Complement existing VKRF investments like ASRA to ensure that key principles, such as the sanctity of non-human life and interdependence, are kept at high profile. In particular, providing much needed additional expertise for a ‘more-than-human’ pilot of systemic risk assessment.

Theme 2 approach: I will coordinate a second interdisciplinary working group that will develop and synthesise evidence to identify potential developmental programmes that can be most effective to enable large scale acceleration of biocentric awareness. Current evidence exists in disparate fields and, although there is always a need for primary research, there is also an urgent need for synthesis and application. For example, the following areas have scientific support for leading to psychological states where the self-concept is seen as more interdependent with nature, i.e. where the boundaries of our small ego dissolve and we feel connected to nature: mindfulness meditation²², community-based outdoor initiatives²³, psychedelics²⁴, immersive virtual/augmented reality²⁵. In some cases, the same neurobiological mechanisms may be at play ^{26,27}. Importantly, a growing sense of connection to nature is associated to increased pro-environmental and pro-social behaviours ²⁸, i.e. people with a biocentric awareness are more likely to recycle, reduce their carbon footprint, join conservation groups and vote on environmental issues. Therefore, there is credible evidence for leverage points to increase biocentric awareness. Yet, a novel, unanswered question is what combinations of practices would be most effective to accelerate this transformation in individuals and wider society? This project will identify potential developmental programmes that are tailored to help move both influential decision makers towards a biocentric worldview, which is a prerequisite for the reform of governance approaches explored in Theme 1. We will co-develop these approaches with our policy partners (from the UK government and EU commission), and work to trial and evaluate them in policy settings.

We will also work to accelerate transformation to biocentric awareness in wider society. Taking a systems perspective, policy makers respond to cultural norms, and so to shift the policy system we need to change wider culture. One targeted way of achieving this is to make use of new understanding

around social tipping points²⁹— where societal change to sustainability can potentially happen rapidly if the right mechanisms are acted upon. One important leverage point is that when people feel that change is happening more widely they are more likely to ‘jump onboard’. To this end, in this project we will pilot a public exhibition that evidences in an exciting and engaging way how the transformation to a biocentric awareness in society is already underway. There is evidence from many sectors of society— from education, to medicine, to urban design that transformation is already happening. For example, we will present new research in non-human intelligence and sentience (potentially showcasing results from other VKRF investments in this call) in a way that challenges the idea of human exceptionalism. We will then show how alternative views of human–nature relationships are leading to new governance approaches, including those based on giving personhood rights to rivers, mountains and pollinators (e.g. ³⁰; noting, this approach still has limitations) amongst others. We have made some development on this concept already and please see <http://tinyurl.com/48pya99s> for further examples of what such an exhibition could look like.

Anticipated results – dissemination, communication and evaluation: With policy partners we will co-develop developmental pathways and ideas for programmes that can be tailored to help move both influential decision makers towards a greater biocentric awareness. We will publish the evidence underpinning these in an academic journal evaluating success through citations in policy documents combined with evidence of use. We will also work with our policy partners to develop opportunities to trial and evaluate these pathways and programmes in policy settings. Evaluation of trials would be through before and after surveys of biocentric awareness (e.g. adapting well established nature connectedness questionnaires³¹). We will develop a small scale pilot (upscaled contingent on co-funding) for a public exhibition that shares: a) the science underpinning more-than-human sentience and a biocentric worldview, b) biocentric arts, c) how biocentric perspectives are transforming different sectors of society. Metrics of success will be visitor numbers and testimonials of impact, as well as tracking evidence of how the trial influences development of other similar initiatives around the world.

Project timeline with milestones and deliverables:

Task	2024		2025				2026		
	(Q3)	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
Invitations to project steering group (SG), exhibition SG and workshop participants (prior to Q4 2024 project start)	T1/2								
Steering group evaluation meeting		T1/2			T1/2			T1/2	
Literature/evidence synthesis and analysis		T1	T1	T1/2	T2	T2			
Structured interviews			T1	T1	T1/2	T1/2	T2		
Submit academic manuscripts							T1		T2
Policy brief and engagement events							T1	T2	T2
Wider public communication articles and presentations			T1/2			T1	T1/2	T1/2	T1/2
Public exhibition							T2	T2	T2
	T1: Theme 1 - Biocentric governance					T2: Theme 2 - Biocentric awareness			

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- ³ <https://www.templetonworldcharity.org/our-priorities/diverse-intelligences>
- ⁴ <https://www.nationalgeographic.org/society/our-programs/wildlife-intelligence-project/>
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