



A proposition to interrogate the spectacle of Indigenous Peoples in biodiversity loss and climate change governance

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1. Introduction

'Spectacular' visuals and discourses have become an important public source of information about environmental crises (Goodman et al., 2016; cf. Debord, 1967). Indigenous Peoples¹ often continue to be positioned at the core of such spectacles. For a long time, they were portrayed as 'authentic' stewards of nature or 'natural allies in countering pressing environmental problems', romanticised as part of an untouched wilderness (Merino and Gustafsson, 2021: 627; Gordon, 2025; Redford, 1991). This created a 'spectacle of indigenous peoples' (Sullivan, 2011: 341) since early colonial encounters, when they were portrayed as 'noble savages', into contemporary presentations in biodiversity and climate activism and governance.

There are four contemporary dynamics in which representation politics change and directly affect biodiversity and climate governance, funding flows, policies, and legal outcomes, which is why this topic is timely. First, it has become commonplace for international NGOs to strongly focus on the role of Indigenous Peoples in biodiversity and climate change (e.g., IWGIA, 2024). Increasingly, scientific studies highlight Indigenous territories and activities as critical for our planetary health: Indigenous Peoples manage large forested landscapes and some of their land-use practices (e.g., cultural burns, agroforestry) improve forest health and biodiversity, essential for carbon sequestration, forest regeneration, and climate projection models (e.g., Dorji

et al., 2024; Hastuti and Hafidh, 2025). This is important and useful knowledge, but often its framing reduces complex socio-ecological systems to mere functional assets, while these territories are not passive reservoirs of nature and oxygen but active political spaces where Indigenous sovereignty is constantly negotiated against extractive and environmental interests. Indigenous Peoples' increasing visibility in institutional settings, including at conferences about biodiversity conservation and climate change, makes it relevant to not only study their framing but also how this frame fortifies (or not) under changing circumstances, what it masks, and what the consequences are. For example, Indigenous Peoples are framed as natural stewards by big international environmental NGOs (e.g. the International Union for Conservation of Nature, IUCN) (IUCN, 2025) and at past and future climate Conferences of the Parties (COPs) (Roosvall and Tegelberg, 2013; Roosvall and Tegelberg, 2015), including the COP30 in November 2025. Regarding the latter, proposals for a 'just' transition focus predominantly on renewable energy supply chains and carbon credits that, in some cases, have been instrumentalised against Indigenous territories (e.g., mining for nickel and lithium in Kenya and Brazil) (Angarova, 2024; Chime, 2025).

Second, there are examples of new rights-based litigations led by Indigenous groups in which Indigenous knowledge is now sometimes treated as legally decisive (Hofschneider, 2024; Rosenberg, 2024). Successful lawsuits reshape environmental policies. It matters how

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E-mail addresses: stasja.koot@wur.nl (S. Koot), steve.kunta@gmail.com (S. /Ui Kunta), dennismunyingwa@gmail.com (D. Munyingwa), ghoogendoorn@uj.ac.za (G. Hoogendoorn), emogende@ub.ac.bw (E. Mogende), rgordon@uvm.edu (R. Gordon).

¹ The question who is Indigenous has been subject of long debates. See special issues in *Anthropology Today* 2000: 16(4) and 2004: 20(2), *Social Anthropology* 2006: 14(1) and *Current Anthropology* 2004: 45(2) and 2006: 47(1). Despite often similar dynamics regarding the representation of Indigenous Peoples, we emphasize that 'Indigenous Peoples' is not a monolithic category but includes diverse groups based on different livelihoods, including those who directly manage protected areas (Kl cker Larsen and Raitio, 2022), groups displaced for conservation purposes (Kokunda et al., 2023), or groups negotiating water governance (McKibbin, 2023). Although there is a recurring theme at the heart of the spectacle, it operates differently for all these groups depending on politics, legal regimes, policies, history, and economic connections.

Indigenous peoples are positioned in these: for instance, do they function as (co-)claimants or decorative stewards? Third, the recent rollout of the Kunming-Montreal Global Biodiversity Framework (GBF). In this plan, 30% of Earth's terrestrial and marine spaces should be preserved for biodiversity conservation by 2030 (in short, '30 × 30') (CBD, 2022). However, despite often being portrayed as stewards of nature in this initiative, many Indigenous Peoples have protested against 30 × 30, which many expect to become a colonial-style land grab, while they have thus far remained largely unrecognized as negotiators in the process (Agrawal et al., 2021; Sengupta et al., 2021; SI, 2020). Fourth, spectacularisation currently intensifies through the expansion of social media (Wang, 2024) and Artificial Intelligence (AI), where repetition of information is at the core of AI's 'thinking' through processing extremely large data sets based on already existing information (Hao, 2025; Walsh, 2026). Together, these developments may expand and alter the spectacle of Indigenous Peoples, making it crucial to investigate how visual, institutional, and legal framings of Indigeneity are mobilised today. Misrepresentation of Indigenous Peoples in these dynamics risks a further reduction of Indigenous agency.

Therefore, we emphasize the urgency to develop a research agenda that critically examines how spectacular framings of Indigenous Peoples shape, and are shaped by, global environmental governance. This agenda should focus on ongoing dynamics regarding the spectacularisation of Indigenous Peoples in environmental politics and policy. Important questions can be, among others, how Indigenous Peoples engage with or resist this frame, and how this affects the role of their connection to land and to their knowledge. Such an agenda can create practical insights into how framing may (dis)empower them in environmental governance.

In the remainder of this Perspective, we first conceptualise the spectacle of Indigenous Peoples. Next, we analyse how Indigenous Peoples' historical portrayal as noble savages is perpetuated in the current climate change movement. We then zoom in on the role of land and Indigenous knowledge in the spectacle. In the discussion and conclusion, we suggest further research on the spectacle of Indigenous Peoples.

2. The spectacle of Indigenous Peoples

Based on our collaborative experiences as researchers and practitioners (we all either are and/or work with Indigenous Peoples),² we analyse the spectacle of Indigenous Peoples, how this is applied in debates about biodiversity loss and climate change by a variety of stakeholders (i.e. climate activists, Indigenous peoples, NGOs, governments), and why it is important to develop a research agenda that emphasises a critical examination of spectacle-environment intersections. The spectacle refers to simplified, repetitive portrayals and narratives that mask deeper social and political complexities, reducing people's capacity to

critically engage and instead to numbly accept such representations (Debord, 1967). Through mass replication, circulation, production, and consumption of spectacular images, these become 'more real, and certainly more immediately accessed and experienced, than the phenomena they represent and mediate' (Sullivan, 2011: 339). The spectacle 'manifests itself as an enormous positivity, out of reach and beyond dispute' (Debord, 1967: thesis 12). It is increasingly relevant in times of growing visualisation, mediation, and repetitive narratives in global politics and society broadly (Garrett, 2020; Kellner, 2005; Wang, 2024).

However, until recently, the spectacle was only used in a few studies about nature and the environment (Igoe, 2017; Koot and Veenbos, 2023; Marijn and Verweijen, 2016; Sullivan, 2011), and except for a connection made by Sullivan (2011), the spectacle never focused on Indigenous Peoples, their relation to land, and their knowledge. Nonetheless, '[t]he spectacle of conservation sometimes also encourages peoples of conservation landscapes to become commodified, packaged, and presented as saleable; authentic on terms guided by paying customers, and ultimately a performance structured by spectator expectation' (Sullivan, 2011: 341). This applies most of all to Indigenous Peoples, who are often portrayed in imagery and through discourse as embodiments of environmental stewardship without acknowledging the historical, social, political, and material conditions they face. Spectacular representations are thus not just images: they also mediate social relations and shape views on human-environment connections (Debord, 1967; Igoe, 2017).

Understanding how the spectacle operates across scales—from visual representation to legal and institutional practice—and how it keeps changing, is at the core of the research agenda we propose in this Perspective.

2.1. From 'noble savage' to 'steward of the climate'

In the historically romanticised frame of 'noble savages', nobility of Indigenous Peoples does not refer to 'blue-blooded' European aristocracy, but to their reciprocity, generosity beyond individualised ownership, management of natural resources, and their wisdom and knowledge of nature (Ellingson, 2001; Gordon, 2025; Rapp, 2024). This frame of Indigenous Peoples as stewards of nature has long served as an example for humanity's potential to co-exist with nature, but academic and public articulations of the unique knowledge and values of Indigenous Peoples are habitual and rarely investigated (Athayde et al., 2025; Nitah, 2021; Pascual et al., 2023; Sneed, 2019). Such articulations repeatedly emphasise this frame as not matched in the industrially-minded and consumption-oriented West (Ellingson, 2001; Rapp, 2024; Rowland, 2004). Recently, for instance, the oft-cited claim that '80% of the world's biodiversity is found in Indigenous territories' was found unproven (Fernández-Llamazares et al., 2024: 32; see e.g. Etchart, 2017; Redvers et al., 2023: for such claims) but reinforces the spectacle. Most Indigenous groups have indeed had relatively minor impacts on their local environments, but this is mostly due to their low numbers, lack of external markets, and limited means instead of deliberate 'conservation practices' (Ellingson, 2001; Hames, 2007; Rapp, 2024; Redford, 1991). Historically, there is no evidence that our forebearers, whom Indigenous Peoples are often said to live like, were taking better care of nature. In fact, many correlations exist between the arrival of human beings and the extinction of species in areas of arrival (Ellingson, 2001; Hames, 2007; Rapp, 2024; Werdelin and Lewis, 2013).

Today, Indigenous Peoples use modern technologies and are involved and absorbed in global (market) processes (e.g., oil extraction, tourism, mining). Many embrace these options to achieve greater prosperity (Comaroff and Comaroff, 2009; Garland and Gordon, 1999; Rapp, 2024; Redford, 1991). Hunter-gatherer groups, for instance, were pulled into military activities in guerrilla and counter-guerrilla wars, based on their presumed knowledge about the environment and tracking skills (Gordon, 2025; Stapleton, 2014). In conservation, there has been the caution 'that indigenous peoples are not [...] suitable allies [...]

² This Perspective is grounded in our collaborative in-depth research and practitioner experiences in southern Africa and beyond over many years. The first author has worked with Indigenous Peoples in southern Africa since 1999 and in Indonesia since 2017, as an academic and a practitioner. The second author identifies as Indigenous Ju/'hoansi and has extensive experience with Indigenous representations in research, tourism, journalism, and documentary making in Namibia and Botswana. The third author identifies as Indigenous Khwe. He works as a community environmental legal officer at the NGO Natural Justice alongside Indigenous Peoples in the N'fa Jaqna and Nyae Nyae Conservancies and Bwabwata National Park in Namibia, and he is currently involved in discussions about how conservation research should ethically be done with Indigenous Peoples. The fourth author has worked extensively on tourism and climate change in southern Africa since 2014. The fifth author has worked on natural resource governance, Indigenous politics, and wildlife conservation in southern Africa. The sixth author has extensive research experience with Indigenous peoples in Papua New Guinea and southern Africa, and has published several books about this.

sometimes choosing their economic wellbeing over preservation of natural resources' (Chapin, 2004: 18; cf. Rapp, 2024; Redford, 1991). Nonetheless, in 2024, at the Biodiversity COP16 in Cali, Colombia, Indigenous Peoples achieved a subsidiary body to include them in future decisions about biodiversity conservation (Grattan, 2024). This is an important achievement and shows the willingness of Indigenous Peoples to engage politically in these debates that go beyond spectacularisation.

The historically developed frame of them as natural stewards has evolved into a more recent parallel variant of Indigenous Peoples as noble stewards of the climate, where Indigenous knowledge is considered essential to mitigate climate change (Etchart, 2017; Nitah, 2021; Schlingmann et al., 2021; UNDP, 2024). However, it seems as if this frame is largely based on studies in Northern countries that may now be a bit outdated (Belfer et al., 2017; Roosvall and Tegelberg, 2013; Roosvall and Tegelberg, 2015). Nonetheless, Indigenous Peoples from all over the world are increasingly framed as key players in the international climate agenda (Belfer et al., 2017; Brugnach et al., 2017). For instance, funders and environmentalists describe them 'as allies in the policies and projects they promote to [fight] climate change' (Merino and Gustafsson, 2021: 627). In this process, Indigenous knowledge is often regarded as 'critical [...] in the Fight Against the Climate Crisis' (LP, 2021). Indigenous Peoples often featured prominently in events surrounding the different biodiversity and climate Conferences of the Parties (COPs). For example, at the United Nations Climate COP21 that led to the Paris Agreement in 2015, colourful Indigenous protests were reported on (social) media and seen as part of the celebration of the event. However, these were side events based on the exclusion of Indigenous Peoples from the negotiations at the main events. In protest, they established their own climate platform, while their rights and interests, including crucial land rights, are hardly reflected in the final report emanating from the agreement (Etchart, 2017). This frame of them as 'climate stewards' carries the danger that the costs of global sustainability, at least in part, are displaced to Indigenous Peoples based on unrealistic expectations and repercussions if they fall short, while they are disproportionately affected by climate change and among the least powerful people able to affect its causes (IWGIA, 2020; Rapp, 2024; Williams, 2012).

Another important frame, that of Indigenous Peoples as victims, is sometimes used to sell the importance of climate mitigation to the public. This often happens without addressing local vulnerabilities of the communities it concerns, while their true inclusion in decision-making about mitigation remains limited (Roosvall and Tegelberg, 2013; Belfer et al., 2017; Brugnach et al., 2017). Global and national mitigation measures often underestimate local situational consequences when implemented (Brugnach et al., 2017).

2.2. Land and knowledge

Two domains that dominate the spectacle of Indigenous Peoples are the Indigenous connections to their lands and Indigenous knowledge systems. First, Indigenous lands are fundamental to understanding the roles of Indigenous Peoples in global environmental governance. It is important to differentiate between Indigenous politics on Indigenous Peoples' own lands and on the regional and global stage: in the latter 'they are performing a role demanded of them by global audiences', in which Indigenous spokespersons' knowledge about and their authenticity of 'coming from the land' deeply affects the minds of global audiences and markets (Abidin et al., 2020: 10). Land rights ensure that they are viewed as active participants with a certain level of control over their lands and knowledge, rather than only as stewards of nature (Hitchcock and Vinding, 2004; Reyes-García et al., 2022; Williams, 2012). Sometimes Indigenous Peoples strategically spectacularise to achieve recognition of their (global) Indigenous rights, of which land rights and access to resources form a crucial part (Koot et al., 2019; UNDRIP, 2008).

Indigenous territories are often rich in biodiversity and frequently

attract extractive industries, multinationals, conservation and climate initiatives, which threaten land rights, access to resources, and risk (further) displacement (Barume, 2014; Almeida and Weldemich, 2023; Etchart, 2017; Hitchcock, 2025; Redford, 1991). This often results in Indigenous Peoples being co-opted under the Indigenous spectacle frame, while mainly market mechanisms are promoted to include Indigenous groups to 'develop' (Garland and Gordon, 1999; Koot et al., 2019). In many cases, land set aside for conservation comes together with access for local elites and multinational corporations involved in extractive industries or high-end tourism (Almeida and Weldemich, 2023; Brugnach et al., 2017; Doyle and Whitmore, 2014). The rise of market logic often supersedes the social justice orientations of post-colonial ideologies, often exacerbating inequalities. Despite occasional 'victories', Indigenous Peoples continue to struggle for access to land amid evictions and land and green grabs (Fairhead et al., 2012; Kokunda et al., 2023; Koot et al., 2019).

Second, Indigenous knowledge is strongly articulated and often repeated in the spectacle. Just like land, it lies at the heart of the Indigenous spectacle in a simplified and over-romanticised way (Roosvall and Tegelberg, 2013). Of course, different value systems (Pascual et al., 2023), ontologies, and knowledge systems (Orlove et al., 2023; Sullivan, 2021) are important in the interrelated crises of biodiversity and the climate (IPBES-IPCC, 2021). However, there are important caveats regarding Indigenous knowledge. It is unclear exactly what can be considered 'Indigenous knowledge'; today, Indigenous Peoples, like anyone, have formed hybrid worldviews that cannot be easily distinguished (Chanza et al., 2024; Hillmer-Pegram, 2016; Koot and Büscher, 2019; Ofori and Mdee, 2025). Furthermore, it is yet unclear how Indigenous knowledge can be integrated in a world where positivist scientific knowledge dominates, as is the case in most biodiversity and climate studies. If attempts are made to do this, it generally means that Indigenous knowledge is integrated into existing, dominating scientific systems (Reyes-García et al., 2023), while 'an absence of Indigenous voices in research, policy, and decision-making' persists (Belfer et al., 2017: 58; cf. Chapin, 2004). This carries the risk that Indigenous knowledge and practices are becoming 'mere informational inputs' in dominant environmental paradigms, sidelining Indigenous perspectives (Blaser, 2009: 15; Brugnach et al., 2017; Chapin, 2004) as mainly 'a means of corroborating scientific knowledge' (Belfer et al., 2017: 57).

Indigenous perspectives on what is scientifically seen as 'nature' and 'climate' may remain different, often providing a dominance of 'Western' perceptions over Indigenous knowledge (Dieckmann, 2021). Many international environmental organisations increasingly try to engage with non-Western knowledge (e.g., IPBES, 2024), but frequently detach this knowledge from the worldviews, values, embodied practices, and relationships that are pivotal to those knowledge systems. Thus, '[o]nly by fully recognising [the] holistic quality of knowledge systems can climate [and conservation] research begin to point beyond short-term fixes, toward a transformation of attitudes, of ways of life, and, ultimately, of power structures' (Orlove et al., 2023: 1431). Together, these land and knowledge dynamics raise important research questions on how land and knowledge-based framing conditions Indigenous agency in environmental debates.

3. Discussion and Conclusion

This Perspective analyses the framing of Indigenous Peoples as a Debordian spectacle. By doing this, it highlights an innovative conceptual approach that has not been used in debates regarding the framing of Indigenous peoples, while also laying out directions for future research. We propose a research agenda examining the political and epistemic work that spectacular framings perform within environmental governance. As the spectacularisation of Indigenous Peoples in environmental governance accelerates through (social) media, AI, and global policy arenas, a renewed research focus on the spectacle's political effects is

timely.

The spectacle of Indigenous Peoples is articulated and positioned, drawing upon ‘historically sedimented practices, landscapes, and repertoires or meaning’, emerging ‘through particular patterns of engagement and struggle’ (Li, 2000: 151). Such articulations disseminate beyond mere visualisations, e.g., into academic publications and public expressions. The articulation of Indigeneity should be seen as ‘a process; a series of encounters; a structure of power; a set of relationships; a matter of becoming, in short, and not a fixed state of being’ (De la Cadena and Starn, 2007: 11). Furthermore, throughout history we have seen how a framing of them as stewards of nature can contribute to Indigenous Peoples’ already marginalised status because it positions them outside of modernity, dependent on more powerful outsiders (Gordon, 2025). Indigenous territories, often rich in biodiversity and increasingly central to climate mitigation strategies, continue to attract extractive industries and environmental initiatives that threaten the Indigenous Peoples’ sovereignty. The spectacular frame of them as stewards of nature and the climate is often used with the intention to benefit them by highlighting selected ‘traditional’ values and beliefs. Based on such selections, the spectacle of Indigenous Peoples often leads to unrealistic expectations of the power of Indigenous Peoples to preserve nature or address climate change (Belfer et al., 2017; Merino and Gustafsson, 2021; Rapp, 2024; Rowland, 2004).

Indigenous Peoples are active participants in global political and economic systems, and they are disproportionately impacted by the very crises that their mythologised image suggests they are immune to or even a solution to. This does not mean that all Indigenous Peoples are necessarily against an essentialised frame as stewards of nature and the climate, only that there are many different perspectives among them, including strategic uses of the spectacle (Sahlins, 1999; Spivak, 2009). For instance, Indigenous Peoples sometimes need the frame to be able to participate in political processes in the first place (Redvers et al., 2023). Therefore, it can be embraced by Indigenous Peoples to gain political recognition, development, or access to resources (e.g., land), including through initiatives in which a select group advocates for a bigger role in addressing climate change, climate adaptation, and climate justice, such as Indigenous Climate Action (ICA, 2025) and Indigenous Climate Hub (ICH 2025). Spectacular frames are thus utilised in different ways, have severe consequences, and are subject to change.

So on the one hand, the spectacle of Indigenous stewardship may reinforce the notion that Indigenous cultures are static, connected to a specific land area, and separate from broader historical, societal, and political developments. On the other hand, the spectacle provides an important lens to analyse precisely these historical, societal, and political developments, including the structural pressures they face owing to biodiversity loss and climate change governance. Through the spectacle, different actors show their causes in such a way that it prevents engaging with these deeper, structural politics (Debord, 1967; Kapoor, 2013).

Thus, arguably, the spectacle of Indigenous Peoples is more relevant than ever and will remain so due to its flexible character. An important concern we have is that today the spectacle of Indigenous Peoples ‘might help legitimise the displacement of the costs of global sustainability agendas to Indigenous actors by rendering invisible the ways in which they reinforce social inequality’ (Merino and Gustafsson, 2021: 632). Even if Indigenous knowledge could curb, or even solve, environmental crises, Indigenous Peoples are generally denied power to do so owing to their inferior position (Gordon, 2025; Koot, 2023). This is not a denial of the value of Indigenous knowledge regarding local ecosystems (Butler and Menzies, 2007), but it shows how Indigenous knowledge has frequently been commodified to benefit external parties (Sullivan, 2011). Therefore, ‘research on climate change must facilitate genuine partnership across knowledge systems’ that ‘can be built only as part of larger, more encompassing political shifts’ (Orlove et al., 2023: 1431). Nonetheless, it is important to also acknowledge that the spectacle of Indigenous Peoples seems to increase their chances of becoming active participants in discussions about and governance of global

environmental crises. Even if their voices and concerns are, for the most part, ignored or hardly taken up in global politics and policies, the spectacular frame is also a way to achieve recognition and acknowledgement in these debates in the first place.

Based on the recurring themes that we described at the start of this Perspective—i.e. upcoming and continuing global policy changes affecting Indigenous lands and livelihoods (e.g. at biodiversity and climate COPs), the changing legal positions of Indigenous knowledge, the global expansion of protected areas, and the intensification of spectacularisation through social media and AI—we suggest new research on the spectacle of Indigenous Peoples, i.e. a research agenda that emphasises a critical examination of spectacle-environment intersections. In this, it is important to recognize that the most profound environmental actions occur at the grassroots level, largely invisible to the media. Here, Indigenous Peoples are not performing for an audience but engaging in daily acts of resistance, land defense, and adaptive management (e.g., to changing environmental conditions due to climate change) that defy the binary of ‘victim’ or ‘hero’. Grassroots actions and knowledge-in-context (i.e., localized and not overly romanticized) often bypass the spectacle and are pragmatic, grounded in a local urgency to solve daily problems or simply as important elements in Indigenous Peoples’ livelihoods. Indigenous knowledge-in-context offers a holistic, place-based understanding of ecosystem dynamics that can improve resilience to climate change and enhance biodiversity outcomes (Dorji et al., 2024; O’Reilly, 2026). Such activities and knowledge should be part of future research, e.g., how local communities are integrating traditional fire management or water governance into modern climate adaptation strategies, but without being dominated by the overly romanticized frame of such activities and knowledge or simply assimilating it into scientific frameworks. Instead, co-production of knowledge means that different Indigenous perspectives also shape the questions and methods. So far, practical ways of working with Indigenous knowledge (e.g., to implement Indigenous mitigation strategies) were limited, and without clear indigenous-sensitive methods for this, holders and users of this knowledge may remain at the margins of climate change programs (Chanza et al., 2024; Ijatuyi et al., 2025). Importantly, we stress that Indigenous knowledge may not always be easily differentiated from ‘scientific’ knowledge but overlaps with this into hybrid knowledge systems (Chanza et al., 2024; Koot and Büscher, 2019; Ofori and Mdee, 2025), while there may also be instances where these knowledges contest each other (Ijatuyi et al., 2025; Popovici et al., 2021).

Additionally, and more directly focused on spectacularisation, new research should address how Indigenous Peoples engage with or resist this frame, and how this affects the role of their connection to land, the environment, and knowledge in daily life. Moreover, contemporary Indigenous positionings include offline and online articulations and expressions, including on social media and generated by AI, which we foresee will only increase further (Intahchomphoo, 2018; Hao, 2025; Walsh, 2026; Wang, 2024). Considering the underclass status of so many Indigenous Peoples globally, and aspirations to also develop beyond this frame, such research can create practical insights into how framing may or may not empower them politically in contemporary environmental debates and governance.

CRedit authorship contribution statement

Gijsbert Hoogendoorn: Writing – original draft, Conceptualization. **Emmanuel Mogende:** Writing – original draft, Conceptualization. **Steve /Ui Kunta:** Writing – original draft, Conceptualization. **Dennis Munyingwa:** Writing – original draft, Conceptualization. **Stasja Koot:** Writing – review & editing, Writing – original draft, Supervision, Conceptualization. **Robert Gordon:** Writing – original draft, Conceptualization.

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The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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No data was used for the research described in the article.

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