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Perspective

Beyond Carbon Tunnel Vision: How Climate Change Hegemony Distorts Environmental Awareness and Hinders Comprehensive Action

Jordi Martín-Díaz

Department of Geography, Faculty of Geography and History, Universitat de Barcelona, 08001 Barcelona, Spain; jordi.martin@ub.edu

How To Cite: Martín-Díaz, J. Beyond Carbon Tunnel Vision: How Climate Change Hegemony Distorts Environmental Awareness and Hinders Comprehensive Action. *Earth: Environmental Sustainability* **2026**, *2*(1), 56–67. https://doi.org/10.53941/eesus.2026.100005

Received: 3 November 2025
Revised: 1 January 2026
Accepted: 2 February 2026
Published: 12 February 2026

Abstract: The planetary ecological deterioration continues unabated despite half a century of global environmental concern and three decades promoting sustainable development. In addition, this period has not served to consolidate an awareness congruent with the nature of the eco-social crisis for most of the population. The paradigm of economic growth is still hegemonic, while the emergence of climate change as the latest environmental emblem has resulted in a modification of the mental frame through which individuals comprehend socio-natural interactions and, consequently, the imperatives for global sustainability. Today, a common misconception is the belief that climate change is the main factor of the contemporary ecological deterioration, and that an eventual decarbonisation of the economy will be sufficient to resolve the eco-social crisis. In contrast to other environmental concerns that have dominated public and political attention, such as the issue of resource scarcity, the rise and consolidation of climate change as an 'environmental emblem' is a consequence of its compatibility with the paradigm of economic growth. I argue that the prominence of climate change in environmental discourse, while undoubtedly raising awareness of one of the core planetary boundaries, has, in reality, actively hindered a holistic comprehension of the eco-social crisis. Its alignment and promotion within the growth paradigm is fostering a 'decarbonisation-only' mindset that obscures and misrepresents other vital planetary boundaries, such as the biosphere integrity. This perspective paper examines the ascendancy of climate change, considering its cognitive and political implications, before proposing targeted measures to make meaningful progress in both awareness and mitigation policies.

Keywords: carbon tunnel vision; climate change; discourse analysis; environmental perception; growth paradigm; planetary boundaries

1. Introduction

Over the last few years, numerous international bodies, such as United Nations Environment Programme (UNEP), the Intergovernmental Panel on Climate Change (IPCC) and the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) have warned that sustainable development policies implemented worldwide are failing to contain and reduce global environmental deterioration [1–3] Lack of progress is particularly evidenced by the two major conventions established at the 1992 Earth Summit held in Rio de Janeiro, the Convention on Biological Diversity (CBD) and the United Nations Framework Convention on Climate Change (UNFCCC).

The CBD has not succeeded in reversing the loss of biodiversity, which threatens both the integrity of the planet and the resources necessary to meet human needs and well-being. Driven particularly by overexploitation, deforestation and other land-use changes, there is clear evidence that global biodiversity is declining, with negative impacts on ecosystem functioning, water availability and quality, food security and nutrition, human, plant and animal health, and climate resilience [3]. Even in those methodologies that employ conservative assumptions to assess the potential for a new mass extinction, the average rate of vertebrate species loss over the last century is up to 114 times higher than the normal extinction rate [4]. Despite placing more attention and efforts on the UNFCCC, there has also been a lack of progress in reducing greenhouse gas emissions. Overall, the net anthropogenic emissions of these gases were 59 ± 6.6 $GtCO_2$-eq in 2019, representing increases of 12% and 54% compared to 2010 and 1990 respectively [2]. The reduction in greenhouse gas emissions achieved through mitigation policies and improvements in energy efficiency has been smaller than the overall increase caused by global economic expansion. This has contributed to the acceleration of global warming, as evidenced in 2024 when the global average near-surface temperature surpassed the 1.5 °C threshold for the first time on record [5].

Continuous planetary ecological deterioration cannot be attributed to a single factor. It is the consequence of maintaining a predominantly anthropocentric worldview and the foundations of industrial societies, which are based on an instrumental conception of non-human nature, unbridled materialism, technological optimism and an expansive economy based on the need for unlimited growth [6]. Thus, the Great Acceleration initiated after the Second World War, featured by the unprecedented and accelerating socio-economic and environmental change [7], has continued unaltered throughout the present century. It is estimated that approximately one third of all materials extracted or discarded since 1900 were mobilised in thirteen years, between 2002 and 2015 [8]. In these circumstances, more than 50% of the global land surface has been significantly transformed by human activity [9]. This explains that seven of the eight 'safe and just' planetary boundaries proposed by Rockström et al. [10] have been exceeded globally, with the exception of climate change. At least two of these boundaries, i.e., atmospheric aerosol loading, biosphere integrity, climate change, freshwater change, land system change, modification of biogeochemical flows, ocean acidification, synthetical chemicals and stratospheric ozone depletion, have already been crossed on 52% of the Earth's surface, affecting 86% of the global population.

Moreover, the three-decade journey promoting sustainable development has not apparently served to consolidate a global environmental awareness consistent with the eco-social crisis. The growth paradigm, i.e., the ideology considering that perpetual economic growth is natural, necessary and desirable, is still hegemonic and shape public opinion [11,12]. This is seen in public and political debates on development, as well as in surveys looking beyond the dichotomous choice between growth and environmental protection. In this sense, the majority of the participants in a country-wide representative sample of 1008 Spanish citizens expressed a preference for the continuation of economic growth, albeit not at any cost [13]. The paradigm of economic growth remains hardly contested half a century after being identified as a major source of the ecological deterioration. As a response to the rise of environmental awareness in the last third of the 20th century [14], it is important to note that capitalism and the paradigm of economic growth have been efficiently legitimised through the ecological modernisation and the normative conceptualisation of sustainable development. Despite the similarities, ecological modernisation is the prevailing conceptualisation of environmental issues and the formulation of policy that became dominant from the second half of the 1980s onwards [15]. It is based on efficiency, technological innovation, techno-scientific management, procedural integration, and coordinated management, so it has a much sharper focus than sustainable development on exactly what to be done with the capitalist political economy [16].

The nesting of environmental protection within the paradigm of economic growth promoted by both sustainable development and the ecological modernisation occurred concurrently with the rise of climate change as the prevailing environmental concern. Importantly, this process has led to a significant shift in environmental awareness, as seen by the appearance of Greta Thunberg as a climate activist in late 2018. A core idea expressed in her early discourses is that the climate crisis is the greatest and most complex challenge we humans have ever faced, but that it nevertheless has a simple solution: stopping greenhouse gas emissions [17]. It is a different discourse and interpretation of the eco-social crisis from that of the youth activists who had attended the Rio Earth Summit a quarter of a century earlier. In her six-and-a-half-minute speech, Severn Cullis-Suzuki mentioned several environmental issues, without making any single reference to global warming or climate change [18].

This shift in the environmental awareness has significant implications since awareness encompasses both the perception and comprehension of alterations and threats to the environment, as well as the values, attitudes, and preferences that emerge in response to these perceptions and understandings [19]. Accordingly, a distinct comprehension of the eco-social crisis will have an impact in the priorities, including those concerning mitigation policies and practices. The growing prominence of climate change and the centrality of discourses representing it as the most urgent problem for humanity, led to early concerns over the neglect of other environmental issues,

including biodiversity [20], and the restriction of proposed solutions to the technical realm [21]. More recent warnings have denounced the perils of declaring strategic emergencies simply on climate change [22] and the 'carbon tunnel vision' of companies, which are focused on the problem of emissions in detriment of a wide spectrum of social and environmental issues [23].

Scientific debate has placed significant attention on environmental discourses, based on the assumption that realities are constituted through discourse (e.g., refs. [16,24–26]), as well as on the impact of environmental framing, which can powerfully affect how audiences perceive the issue (e.g., refs. [27–29]). Despite the existence of a diverse and abundant literature in both discourse analysis and framing, the issue of why climate change has become a consolidated environmental emblem and its impact on the contemporary awareness remain surprisingly unexplored.

In contrast to previous critical analyses, this paper puts in perspective the ascendancy of climate change and its subsequent consolidation as the current 'environmental emblem', whilst considering its cognitive and political implications. The paper contends that the resilience of climate change as an environmental emblem emerges from its compatibility with the norms of ecological modernisation and the enduring growth paradigm. I argue that this has resulted in a problematic cognitive modification that erroneously positions climate change as the cause rather than the symptom of the wider eco-social crisis. It is important to note that this cognitive transformation undermines the comprehension of the eco-social crisis, thereby promoting inadequate and technically focused solutions. The paper concludes with the proposition of specific measures to facilitate significant progress in both environmental awareness and mitigation policies.

2. Climate Change Ascendancy in Perspective

There is consensus that the human contribution to recent climate evolution is the defining symbol of our increasing unsustainable relationship with the rest of the environment. Climate change is better understood as the latest environmental emblem, and it has succeeded other specific concerns, such as deforestation, resource scarcity, nuclear power, acid rain and stratospheric ozone depletion. Symbolic issues have dominated public and political attention to the eco-social crisis at a given time. They function as a 'metaphor' for the eco-social problem at large, and it is through these specific concerns that people understand the bigger problem [15]. The rise of climate change as the environmental emblem was in parallel to the emergence of sustainable development. As analysed by Cohen et al. [30], both took shape as separate discourses and, consequently, there was insufficient discussion on how climate change should influence sustainability and vice versa. This gap explains why climate change was not introduced as one of the drivers of the global environmental change until the last edition of the Global Environmental Outlook [1].

The socio-political construction and the resilience of climate change as the contemporary environmental emblem are a consequence of its compatibility with capitalism and the paradigm of economic growth. This fact explains that the emergence of climate change gave rise to forms of governance and discourses that perfectly fitted with the norms of ecological modernisation, and which came to enjoy an almost hegemonic status [31]. As evidenced by the establishment of legal frameworks and the production of reports, communications, and programmes, international climate policy has thus been designed to safeguard the prevailing socio-economic order through an approach to socio-ecological interactions that is anthropocentric, technocratic and market-based [32]. This adoption of mitigation policies within the logic of capitalism has been evident since the first international agreement to reduce greenhouse gas emissions, since the Kyoto Protocol established the trade of certified emissions reductions as a pivotal policy response to climate change. The development of carbon markets has also served to reinforce the perception of climate change as a technical issue, rather than a socio-political problem [33,34].

The political history of climate change took particularly place since the 1980s and during the decade following the signature of the Kyoto Protocol in 1997. After being particularly discussed within scientific disciplines at the end of the 1970s, anthropogenic climate change entered the broader political and public realms in the late 1980s through the media, environmental organisations, governments and other bodies, such as the Intergovernmental Panel on Climate Change (IPCC) and the UNFCCC. Initially, the establishment of the IPCC in 1988 did not result in a modification of the climate strategy established in previous conferences, which encompassed a combination of the energy transition discourse and a focus on adaptation rather than mitigation [35]. The way for a solid emergence of climate change as the major environmental emblem was further cleared around the Kyoto conference. Major oil companies abandoned the Global Climate Coalition that had been formed in 1989 with the aim of publicly denying climate change, as denial carried reputational and legal risks once an international agreement seemed inevitable [36]. The configuration of climate change as the new environmental emblem was already evident by the end of the first decade of this century. In a survey conducted in spring 2008, the 62% of

Europeans considered climate change as the most serious problem facing the world, only behind the issue of "Poverty, lack of food and drinking water" [37].

The socio-political construction of climate change is a two-decade successful story thanks to the symbiosis developed between scientists, policymakers and journalists. This symbiosis created a mutually reinforcing dynamic triggering the configuration of a scientific consensus, the development of advocacy campaigns and legislative initiates, the rise of media coverage and the temporary reduction of denialism. Framed within the principles of ecological modernisation, the IPCC became instrumental in putting climate change on the agenda, catalysing the emergence of strong climate research communities and international climate politics [38]. The consensus on the causes of global warming was a notable feature of the scientific dynamic during the construction of climate change as an environmental emblem. This consensus, which is clearly expressed in the reports of the IPCC, was forged at a time when many details of climate interactions were not yet well understood [39]. In parallel, the media played a key role in informing the public, as seen in the public discovery of global warming as an environmental concern. In the United States, media coverage on the issue started to increase in 1988, helped by a hot, dry summer with forest fires and the observation that it would be the hottest decade on record [40]. Illustratively, people aware of the greenhouse effect rose from 39% to 58% between 1986 and 1988, in a trend that continued thereafter until reaching over 90% in 2006 [41]. In Japan, a significant increase in public concern only started in 2007, when a national campaign was launched with the aim of increasing the coverage of climate change in newspapers [42].

In the first decade of this century, the qualitative and quantitative evolution of climate change discourses crucially shaped its emergence as the new environmental emblem. During this process, there was the configuration of discourses of fear about future climate change and, at the same time, a notable increase of media coverage and scientific production. In terms of the former, climate change was framed as a potential threat in many influential publications, such as those of the IPCC [31], while discourses in different public and private segments progressively increased the sense of urgency [43]. The new interpretation of climate change in terms of 'catastrophe' and 'fear' contrasted with previous historical interpretations and implied that the public discourse around global warming started to use routinely a repertoire including other terms, such as 'danger', 'terror', 'extinction' and 'collapse' [44]. Importantly, political elites were effectively involved in the dissemination of fear, as exemplified by the Al Gore's documentary film *An Inconvenient Truth* (2006). In his documentary, the former Democratic candidate for the White House provided a dramatic visual and discursive portrayal of climate change and its consequences, with a trailer announcing it to be the 'scariest film you've ever seen' [45]. Its impact on public perception was visible in terms of the identification of climate change as the most pressing environmental issue, as Americans who considered it to be the most important environmental challenge doubled over a twelve-month period, rising from 16% to 33% [41]. Al Gore, who won the Nobel Peace Prize in 2007 alongside the IPCC, was also involve in advocacy campaigns. His non-profit organization, The Alliance for Climate Protection, launched a $300-million campaign in 2008 to push policymakers to adopt tough legislation to combat climate change [46].

In terms of the notable increase of media coverage and scientific production, the process is particularly evident when observed in contrast to biodiversity, the other core planetary boundary. While climate change and biodiversity had a similar media coverage in the 1990s, media attention started to switch mostly on climate change issues compared to biodiversity since 2000. Discrepancy in media coverage continuously increased in the subsequent years in many countries, until reaching in 2016 a media coverage eight times greater for climate change than for biodiversity in the USA, Canada, and the United Kingdom [47]. The increased media coverage of climate change had a direct impact on the consolidation of beliefs and opinions regarding the phenomenon, as individuals with a higher degree of exposure to information were found to be least likely to have their opinions changed by new information, compared to those who had been less exposed previously [48]. In terms of the scientific production, both the funding and rate of academic publications equally increased much faster for climate change than for biodiversity from 2006 onwards [47]. Such disparity between climate change and biodiversity also appeared in international organisations, as the World Bank prioritised climate change in annual investments, with substantial differences over biodiversity conservation [20].

The solid emergence of climate change as the current environmental emblem, as well as discourses representing it as the most urgent problem for humanity, explain the fact that, during the last decade, it has further escalated to become the greatest challenge for humanity among many people worldwide. In 2019, climate change was considered the most important global threat by an average of 67% of citizens surveyed in 26 countries across five continents [49]. In half of these countries, climate concern had increased significantly since 2013, with increases of up to 28 and 29% in Mexico and France, and double-digit increases in countries such as Canada, Germany, Kenya, Poland and South Africa. A double-digit increase that took also place in the US, despite the raising polarisation of climate change along party lines since the success of the Tea Party Republicans candidates

in the 2010 election [50]. After the beginning of COVID-19 and the Russian invasion of Ukraine, climate change continued to be regarded as the most significant threat, with record levels of concern being reported in numerous countries [51]. Illustratively, climate change also retains its pre-eminence in surveys with several environmental choices. In this case, those categories directly linked to climate change, such as the failure of adaptation and mitigation, are a majority among the environmental risks and usually topple the three leading positions when these risks are assessed in the long term [52].

The prevailing discourses on climate change and the continuous increase in global greenhouse gas emissions have led to a reinterpretation of climate change as a 'climate crisis and emergency' (Figure 1). This reframing, particularly in relation to the 'climate emergency', is associated with the social demand advocating a climate action through the formal declaration of an emergency. Triggered by Greta Thunberg in her school strikes for climate, the social mobilisation demanding far-reaching action on climate change that was developed in 2018 and 2019 had also a direct impact on the political realm. There was a proliferation of climate emergency declarations, which have been already adopted by 2366 jurisdictions in 40 countries, including the governments of 18 countries and the European Union [53]. Similarly, journalists have followed the example of The Guardian, which updated its style guide in May 2019 to replace 'climate change' in their coverage for 'climate emergency, crisis or breakdown' [54].

Despite social mobilisation and the reframing of climate change as an emergency, the principles of ecological modernisation remained unaltered in the sixth assessment reports published in 2021 and 2022. For economists within Working Group III, the focus of which is on climate change mitigation, solutions remain limited to technological responses [55]. Of the slightly more than three thousand scenarios examined with socioeconomic data, not even one contemplated any kind of reduction in economic growth, while there was only one chapter dedicated to the issue of demand reduction and austerity measures. This issue, thanks to the idea of the energy transition and the eventual development of carbon capture and storage technology, has been carefully ignored by the IPCC for thirty years [35].

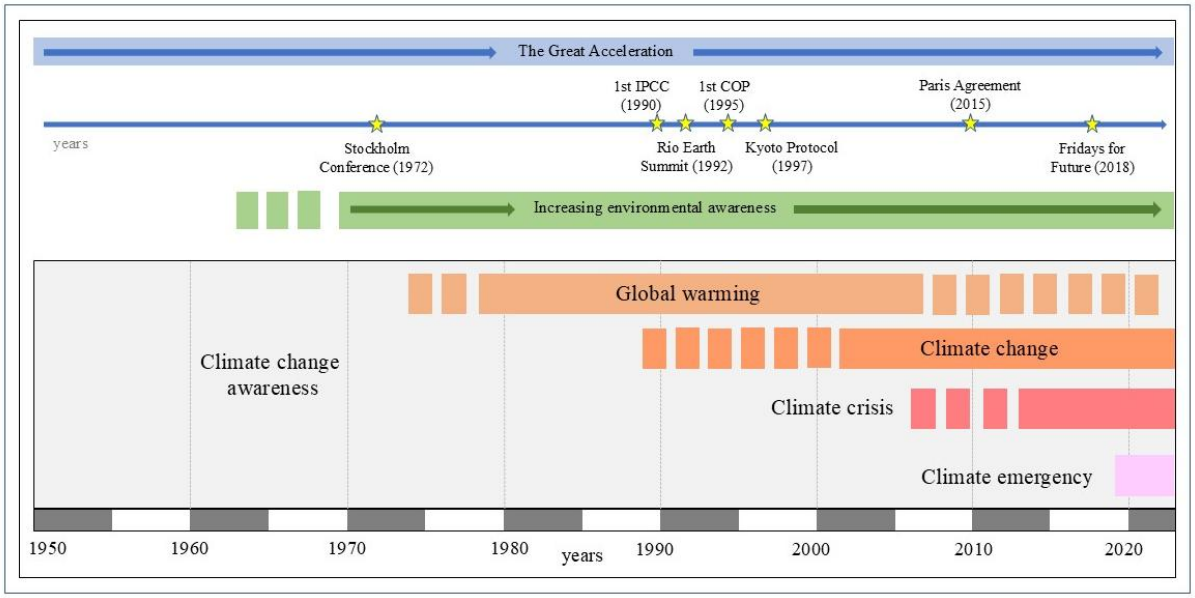

Figure 1. Evolution of the main concepts on the anthropogenic climate change.

3. Modification of the Mental Frame

By the end of the first decade of this century, many citizens had already started to include climate change in their discourses [56]. The subsequent consolidation of climate change as the contemporary environmental emblem explains the contrasting discourses observed between the two young activists separated by a quarter of century, i.e., Severn Cullis-Suzuki and Greta Thunberg. The speech that Severn Cullis-Suzuki delivered at the 1992 Rio Earth Summit mentioned several environmental issues, such as the ozone depletion, air pollution, deforestation, waste generation, high consumption of Global North societies and loss of biodiversity, with an explicit reference on the fact that plants and animals go extinct every day [18]. Despite taking place at a time when the stratospheric ozone depletion was the environment emblem, her words highlight a broad environmental awareness. Severn Cullis-Suzuki's discourse is a stark contrast to those developed by Greta Thunberg in 2018 and 2019, during the most intense period of the Fridays for Future movement. Greta Thunberg's speeches essentially and almost

exclusively focused on climate change, with constant and abundant references to carbon emissions and IPCC conclusion [17].

As recognised in various disciplines, these changes in language and discourse observed between Severn Cullis-Suzuki and Greta Thunberg are linked to broader processes of transformation and are an important part of social and cultural change [57]. Discourse has a very close relationship with awareness and consciousness, since it profoundly shapes one's view of the world and reality, rather than being only a neutral medium mirroring it [24]. Such influence on perception and awareness is explained by the fact that both emergence and consolidation of new discourses transform the frames that exist in our brain. Mental frames can be understood as internal structures of the mind that preconfigure the way we see the world and perceive reality [58]. This typology of frames is part of what the cognitive scientists define as the cognitive unconscious, i.e., structures in our brains that we cannot access consciously, but which we know through their consequences: our way of reasoning and what is understood as common sense [59]. It is noteworthy to mention that due to the functioning of the brain, the transformation of mental frames requires a constant effort to build up both the background frames and the neural circuitry to inhibit the wrong frames [27]. This complexity highlights the centrality that the symbiosis developed between journalists, policymakers and scientists had on the effective socio-politic construction of climate change as the contemporary environmental emblem.

The close relationship between discourse, mental frames and awareness also reveals the relevance of using accurate terms and language in all contexts when describing and analysing any issue. Importantly, the hegemonic discourse of climate change is actively building and reinforcing the 'wrong' mental frame in the public consciousness. Greta Thunberg's discourses, essentially or exclusively focused on climate change, demonstrate that even the well-intentioned activism contribute to this pervasive and counterproductive dynamic. The present ecological emblem is serving as an inappropriate environmental frame because it disregards crucial details and, more importantly, effectively inverts the relationship between climate change and the global environmental crisis (Figure 2a,b). The erroneous consideration that climate change is the cause, rather than the symptom, of the wider eco-social crisis may be observed in daily discourses, when climate change is mentioned in reference to all or almost all other environmental problems, such as plastic pollution, the ozone stratospheric depletion and the loss of biodiversity. The existence of an inverted relationship between climate change and the global environmental crisis prevents an accurate comprehension of the eco-social crisis. This explains the diminished and distorted understanding of the biodiversity crisis, the other core planetary boundary, as highlighted in several academic publications [21,60,61].

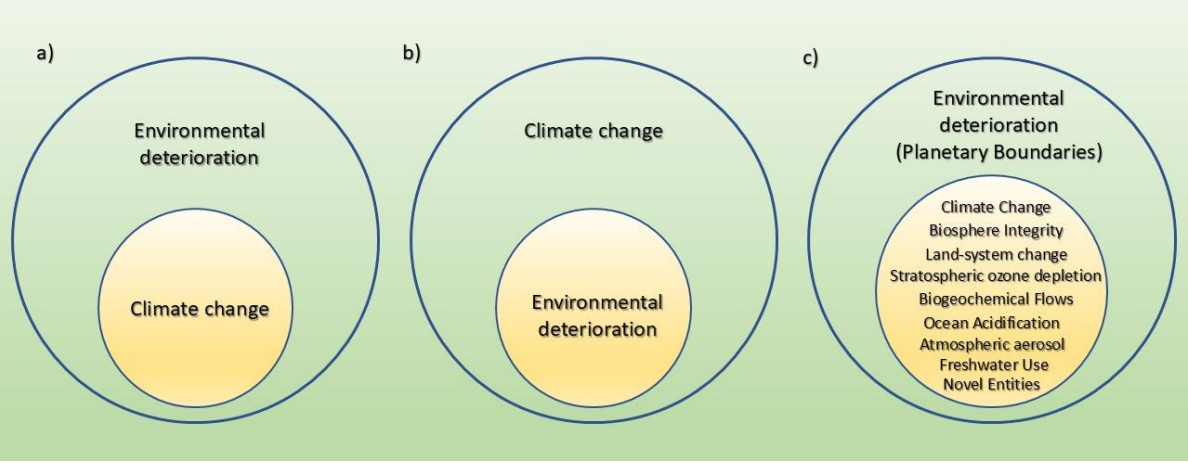

Figure 2. Contemporary climate change is a manifestation of the anthropogenic environmental deterioration (**a**); the erroneous inverted relationship linking environmental deterioration to climate change (**b**); the discourse modification correctly framing climate change and linking it to other planetary boundaries (**c**).

The diminished and distorted comprehension of the eco-social crisis provided by the current environmental frame is observed in scientific research, media coverage and policymaking. From the scientific perspective, it is highlighted by the fact that, in the impact analyses, the carbon footprint has become the main indicator in detriment of the ecological footprint. Even though the carbon footprint presents significant limitations as an indicator [62], it is utilised in analyses that encompass a wide diversity of parameters directly affecting most, if not all, environmental issues, and not simply climate change (e.g., ref. [63]). This bias takes also place among policymakers who are involved in the formulation of international policies and the direction of global action on key issues. It is

exemplified when the United Nations Secretary-General, António Guterres, issued a warning that "climate change is, quite simply, an existential threat to most life on the planet, including and especially human life" [64]. While climate change is undoubtedly a driver of biodiversity loss, the resulting interpretation from this inverted relationship between climate change and the global environmental crisis disregards the existence of direct drivers that are much more relevant. In the analysis of threat for more than 8000 species conducted by Maxwell et al. [60], a total of 6 drivers were identified as being much more impactful than climate change. By order, these big killers of biodiversity are overexploitation, agricultural activity, urban development, invasion and disease, pollution and, finally, system modification, such as fires and dams.

Because of this inverted relationship produced by the current ecological frame, contemporary environmental awareness is also projecting a misleading perception on global sustainability, as potentially achievable through the economic growth paradigm and by essentially reducing and eventually eliminating greenhouse gas emissions. This interpretation is, however, inconsistent with the nature of the ecological crisis and the laws of thermodynamics. The exponential consumption generated by the ever-accelerating global production and consumption of goods and services is incompatible with the finite nature of both renewable and non-renewable natural resources. This is the case for the critical minerals so-much needed for energy and digital transitions, which include commodities that had been considered abundant until recently, such as copper and nickel [65]. Along with the greater dependence on raw materials, the process of decarbonisation also involves the massive challenge to secure huge amounts of energy to support growing extraction and recycling needs [66].

Finally, the predominant environmental awareness has led to changes in policy guidance, as evidenced by the adoption of climate emergencies since the end of the last decade. Unlike those issued in response to specific events, such as fires and floods, climate emergencies are a typology of strategic emergency intended to incentivise action by stimulating urgency and greater ambition in the absence of immediate hazards [67]. Beyond the question of their effectiveness, linking strategic emergency declarations to climate change encourages the implementation of limited and even inadequate mitigation measures. This is because it focuses attention on one issue, while other equally important environmental and social issues are sidelined or marginalised [22]. Despite the concern on the biodiversity loss often appears mentioned in these declarations, the declaration of climate emergencies consolidates the serious gap between the two core planetary boundaries [47,68], while usually ignoring all the rest.

4. Discussion

The comprehension that non-human nature provides vital resources that cannot be endlessly exploited to satisfy human needs is one of the most important transformations in our consciousness of the last half a century. The problem of resource scarcity marked the environmental debate in the early 1970s, when this realisation was emerging amid the publication of the influential report The Limits to Growth [69]. The resource scarcity turned into a very short environmental emblem as it was soon marginalised in academic, economic and political circles. More recently, the concept of 'planetary boundaries' has been similarly treated, particularly in economic and political circles, as it was removed from the final declaration of the Rio+20 Conference and excluded from the Sustainable Development Goals (SDGs) three years later [16]. Anthropogenic global warming has unquestionably experienced a very different fate, as evidenced by the path towards its ascendency, during which political elites and international organisations played a key role.

Climate change is the dominant environmental emblem of this century because its mitigation, through the reduction of greenhouse gas emissions, is fully compatible with the paradigm of economic growth and the norms of ecological modernisation. However, climate change is not the first emblem to be compatible with these norms and the growth paradigm, so its resilience as an environmental emblem is further explained by three important factors. Firstly, the climate has historically had a significant influence in humans and societies, which explains the intimate relationship between culture and climate [44]. Secondly, climate change mitigation is perfectly aligned with an inevitably energy transition in the medium term, after having left behind the peak of conventional crude oil [70]. Thirdly, climate change is playing a strategic role for capitalism and the paradigm of economic growth because the relationship between economic growth and ecological damage becomes completely or significantly dissociated with the inverted mental frame (Figure 2b). This dissociation between economic growth and ecological deterioration, caused by an excessive or exclusive focus on the issue of greenhouse gas emissions, benefits the prevailing socio-economic order, as discontent with a mounting crisis does not necessarily turns into a rising dissatisfaction with capitalism and the growth paradigm. It is evidenced by the fact that a significant proportion of the population prioritises the implementation of an energy transition over the fundamental transformation of the economy that is efficiently and increasingly exacerbating the eco-social crisis.

Indeed, this paper has also analysed the cognitive consequences of the consolidation of climate change as the environmental emblem. It is a dimension ignored in previous critical analyses on the ascendancy of climate change [21–23], as well as in analyses on environmental discourses and framing (e.g., refs. [16,24,27,28]). The cognitive implications of the current ecological emblem highlight that the problem is larger than what the 'carbon tunnel vision' may suggest, i.e., a narrow and limited perspective on carbon emissions and climate change while ignoring other environmental issues. On the one hand, the inverted mental frame (Figure 2b) produces a misrepresentation of the eco-social crisis that goes beyond the neglect of other issues, as climate change has become the cause rather than a unique symptom. On the other hand, the modification of mental frames produced by the consolidation of climate change discourses cannot be easily modified due to the functioning of the brain. As George Lakoff [27] asserts, the mere provision of a few words and slogans can, at best, only offer a minimal contribution to the creation of the necessary structures in one's brain circuitry. Therefore, the pervasive perception that other environmental issues are a consequence of anthropogenic climate change should be recognised as a serious social problem and a significant setback in terms of consciousness.

5. Conclusions and Future Directions

Considering the pervasive and counterproductive reinterpretation caused by the current environmental emblem and the fact that the anthropogenic global ecological deterioration persists, there is no other solution than making a new and sustained effort to re-centre a holistic vision on the causes and consequences of the eco-social crisis. Therefore, I propose four targeted measures in consideration of the dynamic that enabled the emergence of climate change as the current environmental emblem, as analysed in the second section. These measures are designed to foster a new symbiosis between scientists, policymakers and journalists. The four measures are presented in a sequence to create a mutually reinforcing dynamic that allows effective improvements in both fields of environmental awareness and mitigation policies. The objective of this sequence is to produce more accurate interpretations and responses to the eco-social crisis, while it also has the potential to establish the planetary boundaries as the new environmental emblem.

The initial targeted measure is particularly directed towards local and regional public administrations, and it involves the reinterpretation and rebranding of the 'climate emergency' declarations as the 'planetary boundary emergency'. Rather than focusing on climate change, this new typology of strategic emergency will imply making a broader diagnosis of the eco-social crisis before defining territorially specific measures for the mitigation of the nine critical processes that regulate the stability and resilience of the Earth system. The declaration of a planetary boundary emergency allows considering the main drivers of the global environmental deterioration, such as overexploitation of natural resources, the use of agrochemicals and land use change and forestry activities. This new typology of strategic emergency has positive interpretative and policy implications. On the one hand, it compels policymakers to address the interconnected system of the negative environmental impacts and to identify holistic mitigation strategies and policies. On the other hand, this measure facilitates the counteraction of the inverted mental frame (Figure 2b) across different geographical scales, while concurrently fostering the identification of the other planetary boundaries (Figure 2c). In those 2366 jurisdictions where climate emergencies have been declared since late 2016, a justified modification of this rebranding will be a powerful and effective mechanism to initiate public representation of climate change as one of the planetary boundaries. As the appearance of new language must make sense in terms of existing one's view of the world and reality, it is important that climate change keeps its current discursive centrality while becoming progressively and accurately framed along with the rest of the planetary boundaries.

Secondly, a scientific reorientation must be conducted in parallel to promote a holistic environmental awareness and to represent climate change as one of the planetary boundaries. The contribution of scientists is crucial to overcome the 'carbon tunnel vision' and the inverted mental frame (Figure 2b), so this measure involves two complementary actions. In terms of the representation of climate change as one of the planetary boundaries, it is essential that national and international funding agencies modify academic research program priorities to encompass all planetary boundaries, whilst simultaneously incentivising research on ecological over carbon footprint. Concurrent with this reconfiguration, contemporary debates, such as the emerging discourse on the polycrisis (e.g., refs. [71,72]), present immediate opportunities to establish a direct and explicit nexus between climate change and the remaining planetary boundaries. The development of this explicit nexus would foster and legitimate the first measure, i.e., the rebranding of the climate emergencies to be conducted by policymakers, while it would further facilitate the progressive inclusion of the planetary boundaries concept into public and individual discourses (Figure 2c).

In addition to the reconfiguration of the research agenda, it is also necessary to promote a holistic environmental education at the higher education institutions, due to their unique contribution in training future leaders and teachers of compulsory education. The most effective manner is through the implementation of a compulsory subject on the eco-social crisis at all degrees, in accordance with the initiative developed by the University of Barcelona [73]. Although this initiative did not ultimately come to materialise, the Commission responsible for the design of the subject completed its task by proposing an exemplifying 4 + 2 formula. Analyses of the planetary boundaries and challenges to advance in the eco-social transition were to be undertaken within the framework of 4 ECTS credits, which would be common to all degrees. The remaining 2 ECTS credits were to be determined by faculties, with the content of these credits addressing the contribution that each profession and faculty can make to the eco-social transition. In the event of impediments arising in the implementation of this target, the promotion of microcredentials with the same holistic approach becomes a feasible short-term alternative. The promotion of a broad perspective in environmental education will contribute to the dismantling of the carbon tunnel vision and the inverted mental frame. In addition to the concept of Planetary Boundaries, other central concepts that should be considered in the holistic environmental education include the Anthropocene, Biocapacity, Degrowth, Eco-social Crisis, Ecological Footprint, Eco-social Transition, Global Environmental Change, Great Acceleration and Socio-Economic Metabolism.

Thirdly, the modification of media guidelines and deontological codes to adopt also a holistic approach to the eco-social crisis. Due to the decisive role that media play in the diffusion of different issues, including the environment crisis, it is also crucial that journalists end the effective reproduction of the carbon tunnel vision and the inverted mental frame (Figure 2b), whilst contributing to the dissemination of the representation of climate change as one of the planetary boundaries (Figure 2c). The process conducted by the Catalan Association of Journalists in 2025 to integrate the communication of the climate emergency into its Code of Ethics may be regarded as a point of reference for this transition. Although the nine specific recommendations incorporated into the ethical code are only focused on climate change, the deontological guide, elaborated in consultation with scientists, offers a nuanced vision of the climate emergency, as part of the larger ecological crisis [74]. Coherently with this framing, it is interesting to note that the deontological guide not only defines the possibility of using either ‘climate crisis’ or ‘climate emergency’ in news coverage, in accordance with the initial mandate and the reference style guide of the Guardian. The deontological guide suggests the use of two broader concepts, i.e., the ‘ecological and the eco-social crises’, while warning that using the most popular terms, such as climate crisis and climate emergency, may focus the debate exclusively on emissions and temperature increases. World media and journalists’ associations will become fully aware of the need to reframe news coverage on the eco-social crisis once scientists further promote the planetary boundaries discourse and policymakers have started to rebrand strategic emergencies.

Finally, the fourth targeted measure involves the promotion of a meta-consensus on the planetary boundaries and the reduction of the socio-economic metabolism. This challenging measure is necessary considering the resilience shown by the paradigm of economic growth in the last fifty years and the exclusion of the planetary boundaries from the main international goals and declarations since the previous decade. Although meta-consensus does not inherently entail a modification of initial positions, it can serve as a valuable instrument when there is a necessity for discursive bridges to be constructed across conflicting positions. This approach to consensus represents moving away from the principle of complete consensus, while embracing the existence of other legitimate points of view that should be admitted to the process of deliberation [75].

The establishment of a meta-consensus has already been promoted within the domain of international environmental governance. This is evidenced by the deliberative process on the concept of ‘ecosystem services’ conducted within the IPBES to develop a conceptual framework that would subsequently guide future activities [76]. The follow-up and review of the 2030 Agenda for Sustainable Development adopted by the United Nations provide an appropriate platform and opportunity for facilitating this dialogue, among a wide diversity of actors, on the planetary boundaries and the reduction of the socio-economic metabolism. It is imperative that de-growth experts assume a pivotal role, leveraging the invaluable experience acquired in recent years through multi-stakeholder events, such as the Beyond Growth 2023 Conference hosted by the European Parliament. The foreseeable failure to meet the Goals of the 2030 Agenda will highlight more clearly the impossibility of promoting the world’s sustainability objectives within the paradigm of economic growth. Therefore, this meta-consensus should be particularly fostered by scientists and policymakers with the objective of framing the definition of new international goals at the end of the present decade.

Funding

This work was supported by the ANTALP research group (Antarctic, Arctic, Alpine Environments), funded by the AGAUR-Generalitat de Catalunya (project number; 2021-SGR-00269).

Institutional Review Board Statement

This work is based on a conceptual and discourse analysis of publicly available sources and does not involve the collection or analysis of personal, sensitive, or identifiable data from human participants. Therefore, ethical review and approval by an Institutional Review Board were not required.

Informed Consent Statement

Not applicable, as this study is based solely on the analysis of publicly available sources.

Data Availability Statement

This perspective article did not generate or analyse new data and is based on publicly available sources.

Acknowledgments

The author thanks the comments from Diego Andreucci, Marc Oliva, Jordi Nofre and Federico Demaria. The author would also like to thank the comprehensive and enriching revision conducted by the two anonymous reviewers. Finally, the author takes full responsibility for any inaccuracy.

Conflicts of Interest

The author declares no conflict of interest.

Use of AI and AI-Assisted Technologies

During the preparation of this work, the author used Deepl Translate to review the grammar of some sentences. The author decided on the final version and takes full responsibility for the content of the published article.

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