

# FROM ENVIRONMENTAL VULNERABILITY TO ECOLOGICAL VULNERABILITY: THE PARADIGM TRANSITION

## *DA VULNERABILIDADE AMBIENTAL À VULNERABILIDADE ECOLÓGICA: A TRANSIÇÃO DE PARADIGMAS*

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### Abstract

The general objective of this research is to analyze the environment conceptually and ecological vulnerabilities based on the anthropocentric, transitional, and ecocentric paradigms because of their different definitions and subjects. For this purpose, through a deductive method, a descriptive, theoretical, and qualitative literature review was developed from direct and indirect documentary sources. As a result, the ecocentric paradigm, based on the rights of nature, broke with the anthropology of environmental vulnerability and legal monism because it considers living beings, non-living beings, and spirits as vulnerable to relationships that disharmonize the buen vivir. The analysis of vulnerability linked to the environment and nature aims to break with the limited and negative approach of

### Resumo

*O objetivo geral desta pesquisa é analisar conceitualmente, com base nos paradigmas antropocêntrico, em transição e ecocêntrico, diante de suas diversas definições e sujeitos, as vulnerabilidades ambiental e ecológica. Para tanto, por meio de método dedutivo, foi desenvolvida uma revisão de literatura descritiva, teórica e qualitativa a partir de fontes documentais diretas e indiretas. Com isso, o paradigma ecocêntrico, baseado nos direitos da natureza, rompeu com a antropologia da vulnerabilidade ambiental e com o monismo jurídico por considerar os seres vivos, os seres não vivos e os espíritos como vulneráveis a relações que desarmonizam o bem viver. A análise da vulnerabilidade ligada ao meio ambiente e à natureza visa romper com a abordagem limitada e negativa da sua concepção. Entende-se que o meio ambiente e a*



its conception. It is understood that the environment and nature, in the face of their interaction with human beings, will never be invulnerable, as it is impossible to deny any form of intrinsic “fragility” and dependence on human relationships of care. This research concludes that vulnerability, despite having different meanings in each paradigm, is a shared, constitutive, and connective characteristics between the existence of human beings and nature.

**Keywords:** environment; environmental paradigms; nature; vulnerability.

*natureza, diante de sua interação com o ser humano, nunca serão invulneráveis, pois é impossível negar qualquer forma de “fragilidade” intrínseca e de dependência das relações humanas de cuidado. Esta pesquisa conclui que a vulnerabilidade, apesar de ter significados diferentes em cada paradigma, é uma característica compartilhada, constitutiva e conectiva entre a existência do ser humano e a natureza.*

**Palavras-chave:** meio ambiente; natureza; paradigmas ambientais; vulnerabilidade.

## Introduction

Environmental vulnerability is related to human perception of the impacts of ecological quality degradation on their lives. It is about the conception of the human environment. In this perspective, the State, through law, must protect and empower those in positions of environmental inequity. The limitation of environmental vulnerability is that humans – even in the face of scientifically proven harmful effects of climate change, which are already felt, especially by the most vulnerable – have not respected ecological integrity. This behavior constitutes privileged irresponsibility regarding vulnerability, referring to human acts of ignoring that their actions affect (make vulnerable) others, the environment, and themselves.

Vulnerability is a constitutive and structural concept concerning humans. Humans are part of the environment, understood as the set of natural, artificial, and cultural elements that promote the balanced development of life in all its forms. For the human right to a quality life to be assured, ecological balance must be maintained so that present and future generations can satisfy their needs.

In this perspective, environmental vulnerability is usually quantitatively associated with measuring the natural environment’s capacity to support humans. Due to the environment being treated as an object, its qualitative relationship with the word “vulnerability” is not usual, except when referring to its effects on human well-being. Strict environmental vulnerability concerning Earth overload is based on weak sustainability, focusing on conditions for economic exploitation of natural resources to prevent depletion and maintain a minimal ecological existence for human quality of life.

In a paradigm shift toward the ethics of the Earth or deep ecology, breaking with the anthropology of environmental vulnerability, nature as a subject of rights (no longer an object) comes to be understood as intrinsically vulnerable and susceptible to states of vulnerability caused by human intervention and institutions on it. It is also a structure capable of making humans vulnerable (as in social relations where individuals and institutions expose each other to intolerable arbitrariness), primarily reflecting its degradation.

In this work, it is worth noting that the analysis of vulnerability related to the environment and nature – referred to as environmental and ecological exposures – aims to break with the limited and negative approach to its conception. It is understood that the environment and nature will never be invulnerable in their interaction with humans because it is impossible to deny any form of intrinsic “fragility” and dependence on human care relationships (such as environmental preservation and conservation).

Regarding methodology, this research’s theme is vulnerability and vulnerable subjects in environmental and ecological paradigms. Given the various possibilities of its approach, the operational concepts that compose the main variables of the theme are vulnerability and environmental paradigms.

This study uses the concept of vulnerability to explain how individuals and communities can be susceptible to negative impacts while also being open to beneficial social connections and interactions. This approach highlights a nuanced understanding of vulnerability, emphasizing the balance between potential threats and opportunities for positive engagement.

Environmental paradigms are understood as particular perspectives for understanding the ethical relationship established by humans with the environment. In this context, the vulnerability will be investigated based on three environmental paradigms: (1) the “dominant paradigm” represented by anthropocentrism (with emphasis on its extended and intergenerational conception); (2) the “transition sub-paradigm” (and consequently, interaction) between anthropocentric and ecological paradigms; (3) the “radical paradigm” of ecocentrism under the Latin American conception of the rights of nature.

It is worth noting that the presentation of paradigms in this order breaks with linear logic (from past to future) and the belief in humanity’s natural and inevitable progress in modernity because ecocentrism, as an epistemology alternative to the hegemonic model, is characterized as a counter-paradigm rescuing local knowledge of subaltern subjects.

Regarding nature, this research departs from the dual or dichotomous

theoretical foundation between humans and nature. The adopted concept of nature, which is the assumption of ecological vulnerability, does not refer to the Western conception but to the Latin American one equivalent to *Pacha Mama* in a broad sense. According to this perspective, humans are part of the environment; through it, they conceive themselves and their worlds (cosmovisions). In this view, nature is a community that has expanded both socially and ecologically. This interconnectedness underscores the importance of ecological sustainability and social inclusivity in fostering a thriving and resilient environment.

Therefore, according to the chosen and presented operational concepts, the approach to the theme is limited, in the anthropocentric paradigm, to the focus on environmental justice, in the transition paradigm to environmental and ecological justice, and the radical paradigm to the rights of nature. This will result in the analysis, according to deductive reasoning, of environmental vulnerability to ecological vulnerability.

The general objective of this research, for each paradigm, is to analyze environmental and ecological vulnerabilities and vulnerable subjects according to their various definitions and subjects. The specific objectives pursued in this research are: (1) to investigate the anthropocentric conception of environmental vulnerability and vulnerable subjects according to environmental justice; (2) to explain, based on the intersection between environmental and ecological justices, the conception of environmental and ecological vulnerability and vulnerable subjects; (3) to describe the ecocentric conception of ecological vulnerability and vulnerable subjects according to the rights of nature.

Given the above, the problem of this research is: how do environmental and ecological vulnerabilities differ, based on the proposed paradigms, concerning their concepts and subjects?

This investigation hypothesizes that environmental and ecological vulnerabilities differ fundamentally in their conceptualization and identification of subjects based on the proposed paradigms. Environmental vulnerability is primarily human-centric, focusing on human susceptibilities to dangers, risks, damages, injustices, and disasters that result from unbalanced human intervention in the environment. In this framework, humans are the primary vulnerable subjects, and the environment is considered an external object and structure contributing to human vulnerability. Conversely, ecological vulnerability adopts a holistic perspective, breaking away from the anthropocentric view by recognizing nature as a moral subject. This perspective views nature, including elements such as water, forests, climate, and non-human animals, as intrinsically and institutionally

interconnected and susceptible. Thus, ecological vulnerability encompasses the qualitative susceptibility of all natural entities, acknowledging their intrinsic value and mutual dependence.

The hypothesis suggests that while environmental vulnerability centers on human impacts and risks, ecological vulnerability emphasizes a broader, integrated approach, recognizing the vulnerability of the entire ecosystem and its components.

In terms of methods, this qualitative and descriptive theoretical research is a literature review conducted through documentary and monographic techniques based on primary and secondary bibliographic sources. These sources were partially systematized in search of reflection on the state of the art and new lines of investigation on the theme.

The scientific contribution of this work is to highlight that vulnerability, not typically an internal legal concept, when related, in an interdisciplinary manner, to philosophy, provides elements for improving the understanding, generally colloquial, of Law about it. The conceptual framework of this study concerning the “new” theory of vulnerabilities will focus on the approaches of Martha Albertson Fineman and Estelle Ferrarese.

Faced with setbacks in Brazilian Environmental Law due to organized state irresponsibility – such as changes in conservation and preservation rules to meet the economic interests of a few, the adoption of scientifically disordered public policies, and the dismantling of managing and oversight bodies – the environmental vulnerability paradigm needs more significant interaction with the ecological vulnerability perspective. In light of this, this article is structured in three sections: the first addresses the environmental vulnerability paradigm from the perspective of environmental justice; the second presents the intersection of the vulnerability sub-paradigm from the viewpoint of environmental and ecological justice; the third explains the ecological vulnerability counter-paradigm driven by the rights of nature.

## **1 Vulnerability from the anthropocentric paradigm of environmental justice**

In 2020, humans, animals, and nature, faced with the Sars-CoV-2 pandemic and the disasters of wildfires and deforestation, revealed that human actions amplify environmental vulnerabilities and result in consequences beyond their control. The human, inherently vulnerable, threatened its existence by subjugating nature to accumulate capital and satisfy its unlimited and emotionally driven

consumption needs created by the economy and supported by the neoliberal state (Morin; Kern, 2005).

Human ecological illiteracy – that is our biologically, socially, and cognitively limited perception of the complex connections between organisms, social systems and ecosystems governing the planet’s dynamic balance and supporting life – has exceeded ecological limits, both local and global (Capra, 2005). This contributed to a civilizational poly-crisis, where causes generate effects that, in turn, reflexively act back on the causes, resulting in a feedback loop of vulnerability (Morin; Kern, 2005).

From the perspective of environmental vulnerability, grounded in the extended anthropocentric paradigm, humans are susceptible to natural and anthropogenic dangers, risks, and disasters. In other words, everyone is vulnerable. In addition to humanity’s environmental dependency, which requires a quality environment and resource consumption for survival, there are certain subjects who are more than typically vulnerable because they are more exposed to its effects, despite contributing the least to its degradation. This is because, in addition to their inherent vulnerability within the human body (in an anthropological sense), they are susceptible to the emerging embedded vulnerability stemming from societal relations and social institutions (Fineman, 2019).

In this context, it is essential to note that institutions designed to manage human and environmental vulnerabilities play a significant role in creating, maintaining, and extending vulnerabilities. At the same time, these institutions also play a vital role in addressing vulnerability because, as an inevitable human condition, exposure makes everyone dependent on each other and institutions. Therefore, institutional support, such as rights, resources, and care policies, is needed for the enablement (not to be confused with independence) and “de-privatization” of the dependence of vulnerable individuals (Fineman, 2019).

In the studies of Environmental Law in Brazil, three prevailing theories on human vulnerability to the environment are identified: the risk society, environmental justice, and environmental disasters. These theories are anthropocentric as they focus on the effects of environmental dangers, risks, damages, injustices, and tragedies on the quality of human life. However, these approaches only partially align with classical anthropocentrism. Their sociological reflections broaden the discussion on human susceptibility to environmental damages, particularly for those facing precarious housing, incomes below the national average, underemployment or unemployment, race and gender different from the modern heterosexual white male, low or no educational attainment, disabling diseases, political

underrepresentation, among other intersecting vulnerabilities (Acselrad; Mello; Bezerra, 2009; Crenshaw, 2002).

In the anthropocentric environmental paradigm, unlike the subsequent paradigms, only humans are recognized to have intrinsic value (they have value in themselves). This grants them the status of moral subjects with interests, rights, and duties concerning the environment. In this perspective, humans instrumentally value the environment as an object, considering it helpful in satisfying their unlimited needs. Expressions like natural resources, environmental services, and natural capital, among others, demonstrate human economic and Cartesian conceptions of the environment (Lourenço, 2019).

Classical anthropocentrism, on which Environmental Law developed in the 1970s, considered humans as liberal subjects – independent, skillful, capable, and self-sufficient. Initially, their concern was about the environment’s vulnerability regarding the possible scarcity of natural resources for exploitation and the effects of degradation on human health. Over the years, in their ethical relationship with the environment, humans, still presenting themselves as its sole recipients, began to protect the environment “[...] regardless of its direct utility, in the pursuit of preserving the functional capacity of the natural heritage, with ethical ideals of collaboration and interaction” (Leite; Ayala, 2020, p. 61, free translation)<sup>1</sup>. This led to the conception of moderate or expanded anthropocentrism.

Present and future generations were recognized as vulnerable subjects, leading to the legal duty to safeguard natural conditions to satisfy their interests and needs. This marked the intergenerational anthropocentric conception, with expanded and intergenerational anthropocentrism being the prevailing currents in the Brazilian legal system, derived from the interpretation of article 225 of the 1988 Federal Constitution (Sarlet; Fensterseifer, 2019).

In the anthropocentric perspective, according to the risk society, all humans are environmentally vulnerable because they are exposed to dangers (concrete, linear, and local damages resulting from first-generation environmental problems) and abstract risks (related to susceptibility to complex, intertwined, limitless, transboundary, and global damages from second-generation ecological issues). Some individuals and groups have lower resilience to these risks (Canotilho, 2010). The emergence of the climate crisis inaugurates a third generation of environmental damages characterized by enhancing the effects of the previous ones. In this context, human vulnerability is interpreted as a predisposition of some

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<sup>1</sup> From the original: “[...] independentemente de sua utilidade direta, na busca da preservação da capacidade funcional do patrimônio natural, com ideais éticos de colaboração e interação”.

populations to be more affected by harmful environmental events or an inability to cope with ecological damages and disasters (Ferrarese, 2016).

Certain environmental damages are tolerated by society. On the other hand, there are other risks, as probabilities of damages, that are managed based on the principles of prevention and precaution, to prevent their occurrence, because if they do occur, they trigger processes of vulnerability (Leite; Ayala, 2020). However, the institutions themselves (such as the State) that are responsible for empowering people in situations of vulnerability sometimes, through action or omission, end up producing them. It is no surprise that the State, as an ideological entity, promotes vulnerabilities, just like the economy and the law, among other structures. To avoid victim-blaming, vulnerable individuals should be provided, based on material equality, with access to resources, care, and rights provided by those who produce inequality for the “de-privatization” of their dependence (Fineman, 2019).

The concept of vulnerability presupposes dependency on care. Therefore, institutions need to understand that even after enabling assistance, individuals do not cease to be vulnerable. Besides manifestations of vulnerability stemming from the human body itself (in anthropological terms) due to everyone’s dependency on care, termed embodied vulnerability, they are also influenced by social and institutional contexts that produce them, termed embedded vulnerability. There is no independence from vulnerability, and dismantling rights under the liberal discourse that individuals should fend for themselves represents a misunderstanding of what vulnerability means and who the vulnerable subjects are. Invulnerability is, therefore, a fiction (Fineman, 2019).

Confronting the hypothesis, just as individuals are vulnerable, structures (or organizations) are also vulnerable subjects. In the broad conception of the environment as a set of natural and artificial elements resulting from human integration and intervention, its social and ecological concepts are indissociable.

Therefore, the environment is configured as a structure that makes people vulnerable and is subject to the power of others. Based on the social system, environmental vulnerability is functionalist and mechanistic, focusing on the adaptive dynamics of humans (resilience) to ecological events impacting their quality of life. Per ecology, vulnerability is an attribute of ecosystems and their components to disturbances. It presents itself as “not only resilience but also an assessment of the integrity or health of ecosystems,” in line with expanded anthropocentrism (Porto, 2011, p. 40, free translation)<sup>2</sup>.

2 From the original: “não apenas como resiliência, mas também como avaliação de integridade ou saúde de ecossistemas”.



In the face of conflicts arising from the unequal distribution of costs resulting from unsustainable economic growth – where profits are concentrated among a few who, in privileged irresponsibility, ignore that their actions make others, themselves, and nature vulnerable – vulnerable individuals have articulated themselves to confront environmental injustices. The environmental justice movement originated in the United States in 1980, marked by the government’s authorization, without consulting the population, to install a toxic waste landfill in the city of Afton. The location, predominantly inhabited by black people in extreme poverty, made them more susceptible to environmental contamination, portraying them as less resilient to exposure to environmental hazards and undesirable land uses (Acselrad; Mello; Bezerra, 2009). Although race and class are inseparable in this case, “race proved a more potent indicator of the overlap between where people lived and where toxic wastes were deposited”<sup>3</sup> (Acselrad; Mello; Bezerra, 2009, p. 20).

This realization underpinned the emergence of environmental racism, defined as “the disproportionate – intentional or not – imposition of hazardous waste on communities of color”<sup>4</sup> (Acselrad; Mello; Bezerra, 2009, p. 20, free translation). Over the years, the movement expanded its social conception of races more exposed to adverse environmental externalities resulting from predatory economic exploitation. It emphasized that political underrepresentation and market interests due to the lower value of properties in impoverished areas are also causes of environmental injustice (Acselrad; Mello; Bezerra, 2009).

From a distributive perspective, environmental injustice came to be understood as allocating a more significant burden of ecological damages from unsustainable development to the most vulnerable subjects due to their lower economic, political, and educational conditions for the opposition. As these subjects are considered inferior within the racist and patriarchal structure of society, which depends on their subordination to maintain privileges, cases of environmental injustice have less resonance (Acselrad; Mello; Bezerra, 2009).

Notably, in various parts of the world, such as Brazil, vulnerable individuals have opposed and claimed their rights, even if they are not explicitly framed as an environmental justice movement. This includes movements led by figures like Chico Mendes, fighting for rubber tappers, those affected by dams, indigenous

3 From the original: “a raça se revelou um indicador mais potente da coincidência entre os locais onde as pessoas viviam e aqueles onde os resíduos tóxicos foram depositados”.

4 From the original: “a imposição desproporcional – intencional ou não – de rejeitos perigosos às comunidades de cor”.

people, and many others who confronted traditional entities based on white environmentalism.

In peripheral and semi-peripheral countries where companies from developed countries migrated to exploit natural resources due to economic cost-benefit, existing sub-pollution, and the aesthetic and healthy concerns of “rich” nations about their local environment, environmental movements were designated, distinguishing them from those in the global North, as “popular environmentalism” or “environmentalism of the poor”. These movements addressed struggles against environmental impacts that mainly affected the economically disenfranchised and disadvantaged, the majority of their population (Alier, 2007).

Environmental justice, a movement that adapted to ecological popular struggles and politically articulated a diversity of vulnerable subjects, is conceptualized as:

[...] the set of principles and practices that: a) ensure that no social group, be it ethnic, racial, or class, bears a disproportionate share of the negative environmental consequences of economic operations, federal, state, and local policy decisions, as well as the absence or omission of such policies; b) ensure fair and equitable access, direct and indirect, to the country's environmental resources; c) ensure broad access to relevant information about the use of environmental resources and the disposal of waste and the location of environmental risk sources, as well as democratic and participatory processes in defining policies, plans, programs, and projects that concern them; d) favor the constitution of collective subjects of rights, social movements, and popular organizations to be protagonists in the construction of alternative development models that ensure democratization of access to environmental resources and sustainability of their use<sup>5</sup> (Acsehrad; Mello; Bezerra, 2009, p. 14-15, free translation).

Environmental justice contributes to understanding vulnerability and who the vulnerable are because “its approach centrally incorporates the voices of affected populations while making explicit what and who loses or gains in the face of

5 From the original: “[...] o conjunto de princípios e práticas que: a) assegurem que nenhum grupo social, seja ele étnico, racial ou de classe, suporte uma parcela desproporcional das consequências ambientais negativas de operações econômicas, de decisões de políticas e de programas federais, estaduais, locais, assim como da ausência ou da omissão de tais políticas; b) assegurem acesso justo e equitativo, direto e indireto, aos recursos ambientais do país; c) assegurem amplo acesso às informações relevantes sobre o uso dos recursos ambientais e a destinação de rejeitos e localização de fontes de riscos ambientais, bem como processos democráticos e participativos na definição de políticas, planos, programas e projetos que lhes dizem respeito; d) favoreçam a constituição de sujeitos coletivos de direitos, movimentos sociais e organizações populares para serem protagonistas na construção de modelos alternativos de desenvolvimento, que assegurem a democratização do acesso aos recursos ambientais e a sustentabilidade do seu uso”.

economic and social processes in the territories where populations live”<sup>6</sup> (Porto, 2011, p. 50, free translation). Analyzing the environmental justice movement, which is anthropocentric, the inseparability between embodied and embedded vulnerabilities becomes evident, as morally unacceptable oppressions, although avoidable, are structurally imposed on inherently vulnerable subjects. Environmental justice primarily focus on the natural world outside human impacts. Understanding that nature is also a vulnerable subject, it becomes necessary to investigate vulnerability from an ecological perspective, in interaction with the social view. The intersection of environmental and ecological justice reshapes the understanding of vulnerabilities, performing a greening of this comprehension.

## **2 The intersection of environmental and ecological vulnerabilities: a subparadigmatic transition**

The primarily distributive theory of environmental justice focuses on the recognition that, in the face of the deterritorialization of natural resources by globalized economic interests, individuals with lower resilience are susceptible to more significant environmental harm and less environmental protection due to their intersecting conditions of race, income, gender, and political underrepresentation, among others. This theory proposes the reappropriation of ecological potentials through the political mobilization of vulnerable subjects based on their cultural values and community interests.

This theory needs to broaden its conception to systematically understand that nature is not merely a support for the human system but an integral part of the justice community. It emphasizes that humans, in their social relationships, make both themselves and nature vulnerable. Unlike alternative paradigms, this sub-paradigmatic approach aims to deepen and connect environmental justice with ecological vulnerability (Schlosberg, 2007).

It is worth highlighting that Rachel Carson, in 1962, in the book *Silent Spring*, addressed together situations of environmental and ecological vulnerability by reporting the harmful effects that the excessive use of insecticides causes to human health and nature. Also, in the food security and climate justice movements, the simultaneous application of the notions of environmental justice and ecological justice is evident, which consider both human communities, as well as

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<sup>6</sup> From the original: “o seu enfoque incorpora de forma central as vozes das populações atingidas, ao mesmo tempo que explicita o que e quem perde ou ganha diante de processos econômicos e sociais nos territórios em que vivem as populações”.

nature, as vulnerable subjects (Schlosberg, 2007). It is important to mention that the doctrine of Brazilian Environmental Law has increasingly sought its interaction with the ecological paradigm.

According to the approach of environmental and ecological justice, a healthy and balanced environment for human beings requires respect for the rights of nature. Ecological justice, which demands an ethical change in man's anthropocentric relationship with nature based on deep ecology, is based on the principle that everything is interrelated in bonds of reciprocity and complementarity, and that ecological integrity, which refers to the dignity of nature, must be recognized and respected. Because of its intrinsic value, non-human nature is included in the scope of justice without this representing moral equivalence or rights in relation to human beings, but rather a commitment on their part to live in accordance with its limits. The ecological perspective, by detaching the category of subject of law from the person, makes nature, despite not being an active agent of justice, a recipient of it (Schlosberg, 2007).

Justice, despite its different concepts and interpretations, from an environmental perspective, is considered “[...] a human construction applicable only to human behavior; it is a way of understanding our individual and collective human actions through an ethical framework”<sup>7</sup> (Schlosberg, 2017, p. 76, free translation). However, this does not mean that justice should be aimed only at the relationships between human beings, since human beings relate to non-human animals and to the ecological processes that sustain life. In this way, “human actions affect not only other human beings, but also a wide range of other animals and ecosystems”<sup>8</sup> (Schlosberg, 2017, p. 76, free translation).

The vulnerability of nature is used by human beings as a justification for exploiting it under the pretext of caring for it. Human behavior in the natural world impacts “the capacity of non-human animals and ecosystems to develop and function as the kind of beings they are”<sup>9</sup> (Schlosberg, 2017, p. 76, free translation). In sub-paradigmatic terms, environmental and ecological justice focus on understanding that “human actions undermine the life projects of other human beings and cultures, other animals and species, and the very flows of ecosystems

7 From the original: “[...] uma construção humana aplicável apenas ao comportamento humano; é uma forma de compreender nossas ações humanas individuais e coletivas por meio de uma estrutura ética”.

8 From the original: “as ações humanas afetam não apenas outros seres humanos, mas também uma ampla gama de outros animais e ecossistemas”.

9 From the original: “a capacidade de animais não humanos e ecossistemas de se desenvolverem e funcionarem como o tipo de seres que são”.

and planetary processes”<sup>10</sup> (Schlosberg, 2017, p. 76, free translation).

In fact, based on this paradigm of environmental and ecological intersection, in March 2019, in the judgment of Resp. 1.797.175/SP, the Supreme Court of Justice (STJ) recognized the ecological dimension of the dignity of the human person by attributing dignity and rights to non-human animals as members of the same moral community shared with human beings (Sarlet; Fensterseifer, 2019).

The artificial separation between humans and nature was “a conveniently created fiction that ignores our integration and responsibility for human and non-human systems, communities and practices”<sup>11</sup> (Schlosberg, 2017, p. 76, free translation). Ecological justice broadens the perspective of environmental justice by bringing recognition to the functioning of ecosystems beyond those who live in them and depend on them directly. Ecological vulnerability, in this perspective, recognizes that all beings and systems are, in an embodied and embedded way, vulnerable. Ecological injustice is a form of vulnerability. When the potential functioning of ecological support systems is corrupted, ecological injustice is committed, the effects of which are reflected in human beings, all non-human beings and the systems that need the integrity of nature for their own development (Schlosberg, 2017).

Vulnerability in the perspective of environmental and ecological justice, which is based on dignity and integrity as intrinsic values, must be analyzed under the articulated dimensions of distribution, recognition and representation. In this context, vulnerability, in a deepening of the anthropocentric paradigm, does not only refer to the unequal distribution of the costs of environmental damage and the benefits of environmental protection, but considers the institutionalized socio-cultural processes (recognition) which, through subordination, disable the functioning of human beings, other species and ecosystems and build the maldistribution of resources (distribution) in relation to individuals, groups and nature, including for future generations of humans and non-humans (representation). In this approach, breaking with the concept of anthropocentric intergenerationality, the value of the natural world is recognized, subjectively and temporally, not only for those present and those to come, but also for the nature of the future, thus broadening the understanding of vulnerable subjects (Schlosberg, 2007).

Being vulnerable from an environmental and ecological perspective doesn't

10 From the original: “as ações humanas minam os projetos de vida de outros seres humanos e culturas, outros animais e espécies, e os próprios fluxos de ecossistemas e processos planetários”.

11 From the original: “uma ficção convenientemente criada que ignora nossa integração e responsabilidade por sistemas, comunidades e práticas de humanos e não humanos”.

merely involve the disproportionate imposition of risks and damages on certain individuals or the disruption of ecosystem integrity. It also encompasses sociocultural issues, such as the lack of recognition of vulnerable subjects due to deeply rooted institutional stigmas and speciesism, alongside unequal political expression and representation. This results in their marginalization, delegitimization, and invisibility (Ferrarese, 2016).

In this paradigm, environmental racism is interpreted in terms of recognition. Vulnerable subjects are those who are not recognized as subjects of rights due to institutionalized political and cultural contempt. The joint approach of environmental and ecological justice focuses not only on human groups and communities, but also on other species and ecological systems. Non-human animals and ecological processes, because their capacity is not recognized, are also framed as vulnerable subjects (Schlosberg, 2014).

Human beings, in their privileged irresponsibility, do not recognize the vulnerability of others, of their own species or not, or of nature itself (Ferrarese, 2016). Recognizing nature as a vulnerable subject that faces resistance is possible on the basis of its bodily integrity, since all beings depend on ecological processes, and the importance of respecting it for present and future social communities (Schlosberg, 2014).

The intersecting paradigm of environmental and ecological justice therefore does not only focus on the unequal appropriation of natural resources, disproportionate exposure to environmental risks and damage or exclusion from decision-making, but also takes into account the capacities of individuals, species and ecosystems. The following paradigm, on the other hand, is radical in relation to the previous approaches because it is based solely on ecological vulnerability, because it recognizes the intrinsic value of nature, which is understood as a local social and ecological community of which human beings are a part, and from which they form their harmonious vision of the world.

Nature's ecological vulnerability restructures the environmental perspective by recognizing nature as a vulnerable subject, no longer treating it differently from human beings. In this approach, nature is subject to environmental and ecological injustices, as disproportionate risks and damage are imposed on it by human beings, and its functioning is incapacitated by human interventions in it, which exposes its already vulnerable body to vulnerable situations. Nature itself becomes the holder and representative of its own rights. Living beings, non-living beings and spirits are considered bodily vulnerable, as well as structurally vulnerable in the face of relationships that disharmonize *buen vivir*.

### 3 Ecological vulnerability and rights of nature: the radical paradigm

The new constitutionalism in Latin America<sup>12</sup>, driven primarily by Ecuador and Bolivia, (re)establishes, based on legal pluralism, the culture of communal living (or “living in fullness”), which presupposes that “everything in life is interdependent and interconnected”<sup>13</sup> (Wolkmer; Augustin; Wolkmer, 2012, p. 56, free translation). *Buen vivir* aims to reformulate the human relationship – currently based on “living better, consuming more, to the detriment of others and nature”<sup>14</sup> – with *Pacha Mama* (a term broader and more loaded in significance than just “planet” or “nature” in the “western” sense) (Wolkmer; Augustin; Wolkmer, 2012, p. 57, free translation).

As *Pacha Mama*, nature is considered an expanded social and ecological community of which all beings are a part, embedded in an environmental and territorial context where life reproduces and unfolds (Acosta, 2016). In this conception, breaking away from individualistic perception, communities, comprised not only of humans but also all living and non-living beings and spirits, are naturally vulnerable subjects (embodied vulnerability) (Fineman, 2019).

Due to an ecocentric ethic, nature (*Pacha Mama*) is recognized as having intrinsic value and rights. Inspired by Andean cosmovision, plural in subjects and realities, there is a profound shift based on sustainability ethics, grounded in ancestral knowledge as opposed to hegemonic dogmas, including spirituality and how humans perceive and relate to life in all its forms (Lourenço, 2019). Socially produced vulnerabilities manifest when the community undergoes disharmonious

12 “[...] the ‘new’ constitutionalism represents a paradigm shift from the classic constitutional theory of Eurocentric modernity. Emerging as a product of new social and political processes, it manifests as a radical movement that arises from a historical praxis constituted by struggles, commitments, and overcoming. Academic knowledge dissolves into popular and indigenous knowledge. This ‘new’ constitutionalism does not emerge, nor is it an unfolding of thought from the central European and North American academies. Still, rather, it stems from indigenous communities, peasants, and the native peoples of the Andes. Now, creativity, originality, and identity fostered in the South replace the mimicry, colonialism, and inferiority imposed by the North” (Wolkmer, 2013, p. 10, free translation). From the original: “[...] o ‘novo’ constitucionalismo incide em ruptura de paradigma com a teoria constitucional clássica da modernidade eurocêntrica. Sendo produto de novos processos sociais e políticos, surge como movimento radical que se instaura a partir da práxis histórica constituída por lutas de resistências, comprometimentos e superações. Os saberes acadêmicos se dissolvem nos saberes populares e originários. Este ‘novo’ constitucionalismo não surge, tampouco é desdobramento do pensamento e das academias centrais europeias e norte-americanas, mas, das comunidades indígenas, camponesas e dos povos originários dos Andes. Agora, a criatividade, a originalidade e a identidade gestada no Sul substituem o mimetismo, a colonialidade e a inferioridade imposta pelo Norte”.

13 From the original: “na vida tudo é interdependente e está interconectado”.

14 From the original: “viver melhor, consumir mais, em detrimento dos outros e da natureza”.

relationships, disrespecting *buen vivir*.

The constitutionalization of the rights of nature in some Latin American countries was the result of the revival of values, the legitimization of new social actors and the reception of plural realities in confrontation with the current colonizing political-legal doctrine. Traditionally, ecocentric ethics were not contemplated in Latin American constitutionalism, which reproduced Eurocentric and Anglo-American matrices characterized as anthropocentric, liberal, and individualistic (Wolkmer; Augustin; Wolkmer, 2012).

The emergence of nature's rights goes beyond mere norms; they are objectives to be pursued by the State and society. It is essential to note that nature (*Pachamama*), in this context, is considered a living being. This paradigm aims to break away from "[...] classical views of development associated with unlimited economic growth and anthropocentrism"<sup>15</sup>, as they are destructive and contrary to systemic balance, harmony with nature, others, and oneself (Moraes, 2013, p. 190, free translation).

According to ecocentrism, rooted in holism, collective natural entities such as ecosystems, processes, species, and biological systems are moral subjects, not individuals. Due to the interdependence between living organisms and the environment, "the idea of the individual as an instrumental value is subordinated to the need for the preservation and stability of collective systems"<sup>16</sup> (Lourenço, 2019, p. 165, free translation). In this paradigm, vulnerability is related to systemic dependency on care.

Thus, nature is established as a subject of rights because human life is impossible without it (Acosta, 2016). The rights of nature oppose the domination of the environment, the destruction of the Earth, and the "[...] quantifying rationality that ignores life and cultural diversity"<sup>17</sup> (Wolkmer; Augustin; Wolkmer, 2012, p. 57, free translation). Therefore, the defense shifts toward the intrinsic values of nature, "[...] viewing it not as a thing or object but as a 'space of life'"<sup>18</sup> (Wolkmer; Augustin; Wolkmer, 2012, p. 65, free translation). Principles such as reciprocity, complementarity, solidarity, respect, and balance unfold from this perspective (Wolkmer; Augustin; Wolkmer, 2012) There is an interdependence between all

15 From the original: "[...] as visões clássicas de desenvolvimento associadas ao crescimento econômico ilimitado e ao antropocentrismo".

16 From the original: "a ideia de valor instrumento do indivíduo é lastreada frente à necessidade de preservação e de estabilidade dos sistemas coletivos".

17 From the original: "[...] racionalidade quantificadora que ignora a vida e a diversidade cultural".

18 From the original: "trata-se de visualizar a natureza não como uma coisa ou objeto, mas como um 'espaço de vida'".



living beings (equality between biotic and abiotic beings) and ecological processes, aiming for communal life in harmonious coexistence, “[...] ensuring simultaneously the well-being of individuals and the survival of species, plants, animals, and ecosystems”<sup>19</sup> (Moraes, 2013, p. 192, free translation).

In addition to nature, the elements that compose it, following the culture of *buen vivir*, become rights holders. Thus, the focus shifts from human-centric rights to Mother Earth (nature) and its elements. It is emphasized that “the individual is not the only subject of rights and obligations”<sup>20</sup>, breaking away from the exclusivity of individual rights that characterized modernity (Wolkmer; Augustin; Wolkmer, 2012, p. 56, free translation). By incapacitating nature, ecological injustices make everyone (humans, non-humans, ecological processes, culture and spirituality) structurally vulnerable, since nature is recognized as a collectively vulnerable subject. In this approach, nature itself and its elements, such as water, forests, the climate, non-human animals, among many others, are configured as vulnerable beings.

In the new Latin American constitutionalism, human rights are “[...] the goods that are essential for the maintenance of life”<sup>21</sup> (Wolkmer; Augustin; Wolkmer, 2012, p. 51, free translation). These are considered, in this approach, to be “common goods”. The preponderance of their economic perception is thus ended; resources are therefore defended on the basis of their own values, regardless of their usefulness. They are then effectively considered as common community, participatory and plural management. The construction and content of human rights, from a critical perspective, “[...] are no longer established from the ‘top down’, but by strategies ‘from below’, that is, from the community in tune with the sustainability of nature”<sup>22</sup> (Wolkmer; Augustin; Wolkmer, 2012, p. 53, free translation).

Nature’s rights are “the rights to fully respect its existence and the maintenance and regeneration of its vital cycles, structures, functions, and evolutionary processes”<sup>23</sup> (Gudynas, 2010, p. 51, free translation). Ecuador and Bolivia, by incorporating nature’s rights into their constitutions in 2008 and 2009, did not

19 From the original: “[...] assegurar simultaneamente o bem-estar das pessoas e a sobrevivência das espécies, de plantas, de animais e dos ecossistemas”.

20 From the original: “o indivíduo não é o único sujeito de direitos e obrigações”.

21 From the original: “[...] os bens imprescindíveis à manutenção da vida”.

22 From the original: “[...] não são mais estabelecidos de ‘cima para baixo’, mas por estratégias ‘desde baixo’, ou seja, desde a comunidade em sintonia com a sustentabilidade da natureza”.

23 From the original: “os direitos de ser respeitada plenamente a sua existência e a manutenção e regeneração de seus ciclos vitais, estruturas, funções e processos evolutivos”.

relinquish sovereignty over their environmental elements (ensured by adopting terms like “strategic national good” by Ecuador and “strategic national resources” by Bolivia). No rules prevent their utilization in their texts; what is demanded, based on post-extractivism, is harmony and balance in exploiting the whole, primarily aiming to protect *Pacha Mama* and its elements responsible for providing conditions for life (Gudynas, 2010).

It is important to note that along with the recognition of intrinsic values and rights of Nature, classic rights, such as the right to a healthy environment and quality of life, are maintained in a formulation similar to most other Latin American constitutions. In this sense, “the ecocentric stance of the rights of nature does not invalidate, but rather accompanies the anthropocentric perspective”<sup>24</sup> (Gudynas, 2010, p. 56, free translation). Recognizing nature’s intrinsic values and rights does not deny or annul citizens’ rights to a quality environment.

Nature’s rights face challenges for implementation as they require ethical and economic changes. From an anthropocentric perspective, critics argue that nature lacks consciousness and rationality and, thus, cannot be recognized as a moral subject or the recipient of justice. However, it is essential to reflect: “If humans can take steps to think and defend the rights, aspirations, and opinions of other incapacitated humans, why can’t they do the same with nature?”<sup>25</sup> (Gudynas, 2010, p. 66, free translation). It should be considered that “it is human beings who have the ability to adapt to ecological contexts, and one cannot expect plants and animals to adapt to people’s consumption needs”<sup>26</sup> (Gudynas, 2010, p. 66, free translation).

In conclusion, it becomes evident that the ecocentric paradigm of nature’s rights, though expressly incorporated into the constitutions of a few countries like Ecuador and Bolivia, has gained jurisprudential traction in Latin America and globally amid the environmental crisis. Examples include cases such as the Vilcabamba River in Ecuador, the Whanganui River in New Zealand, and the Ganges and Yamuna Rivers in India, among others.

Therefore, nature’s rights expand the understanding of vulnerability, aiming not only to interpret it as an index or attribute related to the capacity to support

24 From the original: “a postura ecocêntrica dos direitos da natureza não invalida, mas acompanha a perspectiva antropocêntrica”.

25 From the original: “se os seres humanos conseguem dar o passo para pensar e defender os direitos, aspirações e opiniões de outros seres humanos incapacitados, por que eles não podem fazer isso com a natureza?”.

26 From the original: “são os seres humanos que têm capacidade de se adaptar a contextos ecológicos, e não se pode esperar que as plantas e os animais se adaptam às necessidades de consumo das pessoas”.

or operate ecological processes concerning direct and indirect effects on human life quality. Instead, from an ecocentric perspective, it involves natural and structural interdependence relationships within an expanded social and ecologically amplified community.

### Final considerations

After all, is a stone vulnerable? Is a tree vulnerable? Is the Amazon Rainforest or the Pantanal vulnerable? Is a wild animal vulnerable? Are cattle raised for slaughter vulnerable? Is a stray dog vulnerable? What about a domesticated pet? These are just a few of the numerous questions that can be posed regarding the intriguing theme of environmental and ecological vulnerability. In this sense, even in rhetorical inquiries with a provocative purpose, one needs to reflect: are the environment and nature vulnerable subjects? What are the implications for Environmental Law when recognizing the environment and nature as vulnerable? What are the policies for the “empowerment” of nature in the face of its embodied and embedded vulnerabilities?

Beyond the above questions, the pivotal question is: how does one overcome vulnerability? According to the adopted theoretical framework, human bodies (in an anthropological sense) are fundamentally vulnerable, and socially produced vulnerabilities are embedded in their social connections. Vulnerability is, therefore, insurmountable. All human beings are always vulnerable because, in their relationships, they are dependent on care. The vulnerabilities that manifest in the relationships between humans and institutions – which means not just being but being vulnerable – arise from a moral assessment of the intolerability of arbitrariness practiced by others.

In response to the research problem, this investigation evidences that environmental vulnerability, within an anthropocentric paradigm, focuses on human exposure to environmental risks and injustices due to imbalanced human intervention, thus identifying humans as the primary vulnerable subjects. Conversely, ecological vulnerability, framed within an ecocentric paradigm, views nature as a moral subject, encompassing the interconnected susceptibility of all natural entities, thereby recognizing the intrinsic value and mutual dependence of both human and non-human elements. This distinction underscores the necessity of addressing vulnerabilities through inclusive public policies that transcend human-centric perspectives.

Structures and humans in a privileged state of irresponsibility fail to recognize

that they create vulnerabilities and that they are subject to vulnerabilities. The disregard for the existence of vulnerability and, consequently, vulnerable subjects seeks, based on liberal conception, to be grounded in the fiction that everyone can be independent and autonomous. In this way, institutions privatize vulnerability, as they do not need to be responsible for them; after all, all subjects are assumed to be invulnerable, resulting in the dismantling of rights and the absence of public policies. It is a way of blaming the individual for being naturally and structurally vulnerable. It is worth noting that embedded vulnerability can cease, but this does not mean that the individual is immune to new occurrences or faced with the impossibility of encountering others. Institutions, despite being sources of vulnerability, play a role in the (re)habilitation of the capacities of vulnerable individuals.

While there is no doubt that the human being is vulnerable, there are uncertainties about what constitutes the environment's and nature's vulnerabilities. Due to its theme delimitation, this research investigated vulnerability from a philosophical standpoint, focusing on anthropocentric and ecocentric paradigms. In response to the research problem, in partial confirmation of the hypothesis, the concepts of vulnerability are analyzed under environmental and ecological justice and the rights of nature.

Environmental vulnerability, in an anthropocentric paradigm, is conceptualized as the exposure of humans to environmental injustices, as well as the potential for damage due to the incapacity of ecological processes to function, which, if realized, will impact the direct or indirect effects on human quality of life and environmental integrity. It is an expanded environmental vulnerability. Despite all humans being theoretically recognized as vulnerable, based on environmental racism, structural vulnerability is unevenly distributed. Only humans are, therefore, vulnerable subjects in this conception. As an object, the environment only has its vulnerability realized in the face of the degradation of ecological integrity. The human body and ecological processes are vulnerable to personal and institutional relationships. Like humans and other institutions, the environment is a structure that makes humans vulnerable, primarily due to a ricochet effect resulting from the degradation it causes.

In the sub-paradigm of environmental and ecological justice, which is still anthropocentric despite seeking intersections with ecocentrism, the concept of environmental vulnerability expands. It no longer focuses solely on the distributive dimension of justice but encompasses aspects of recognition and representation beyond humans. In this context, environmental and ecological vulnerability is

delimited as susceptibility to environmental and ecological injustices due to the absence of recognition of the capacity of vulnerable subjects, which delegitimizes their representation.

In this perspective, not only humans, intergenerationally, are recognized as vulnerable subjects in a bodily and structural sense, but also all species and nature (including the future). Nature is understood as the recipient of justice, which must have its integrity respected due to its dependence on humans. This approach emphasizes that institutionalized sociocultural processes can, through subordination to dominant interests, a manifestation of vulnerability, disable the functioning of the ecological system and result in the disproportionate distribution of resources, risks, and environmental damages to subjects. Confronting ecological racism is also part of the anti-racist struggle.

In the purely ecocentric radical paradigm, ecological vulnerability is understood as the relationships of natural and structural interdependence of the entire socially expanded environmental community. The vulnerable subject is nature (in the sense of Pacha Mama) and all its elements. In this conception, communities, which are not only formed by humans but all living beings, non-living beings, and spirits, are vulnerable subjects.

The ecological vulnerability of nature restructures the environmental perspective. In this context, nature is also subject to environmental and ecological injustices, as disproportionate risks and damages are imposed on it by humans, and its functioning is impaired by human interventions in *buen vivir*, exposing its already vulnerable body to vulnerable situations.

In conclusion, vulnerability, despite having different meanings in each paradigm, is a shared, constitutive, and connective characteristic between the existence of human beings and nature. Therefore, it is essential to understand environmental and ecological vulnerabilities, how they manifest, and how it is possible to rehabilitate oneself in response to them.

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