

Towards an ecocentric image of the world

from the epistemological turn
to environmental democracy



Maria Laura Giacobello
Margareth Vetis Zaganelli
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Editora Poisson

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Authors

Maria Laura Giacobello

Holds degrees in Philosophy and Law, and a PhD in Methodologies of Philosophy. She is Associate Professor of Moral Philosophy at the Department of Ancient and Modern Civilizations (DICAM) of the University of Messina, where she also serves on the Academic Board of the PhD Program in Humanities. She coordinates the International Chair of Bioethics at DICAM, and is a member of Class IV (Literature, Philosophy, and Fine Arts) of the Accademia Peloritana dei Pericolanti (founded in 1729). Her professional and scientific affiliations include the Edgar Morin International Research Center for the Philosophy of Complexity, the Sicilian Section of the Italian Institute of Bioethics, and the University Center for Bioethics Studies (CE.S.B.). Her research interests focus on the thought of Max Weber, Hannah Arendt, Nicholas Georgescu-Roegen, Serge Latouche, Edgar Morin, and Van Rensselaer Potter. Core areas of investigation encompass the enhancement of critical subjectivity, anti-reductionist epistemology, and ethical complexity, alongside the relationship between ethics and economics, the concept of global bioethics, and the ethical implications of artificial intelligence.

Margareth Vetis Zaganelli

Full Professor at the Federal University of Espírito Santo (UFES). Professor of the Graduate Program in Public Management and Professor in the Undergraduate Law at the Federal University of Espírito Santo (UFES). Licentiate/Bachelor's degree in History, Bachelor's degree in Law and Master's degree in Education from the Federal University of Espírito Santo (UFES). PhD in Law from the Federal University of Minas Gerais (UFMG), with postdoctoral research appointments at the Università degli Studi di Milano-Bicocca (UNIMIB), the Alma Mater Studiorum Università di Bologna (UNIBO), the Università degli Studi del Sannio (UNISANNIO), the Università degli Studi "Gabriele D'Annunzio" Chieti-Pescara (UNICH), the Università degli Studi di Milano-Bicocca (UNIMIB), the Università degli Studi di Foggia (UNIFOGGIA) and at the University of Porto (UPorto).



Research interests: she is interested in interdisciplinary research in the fields of Law, Bioethics, and Philosophy, with a focus on human rights, emerging technologies, artificial intelligence, biolaw, health, democracy, and socio-environmental governance. Her studies particularly concentrate on the ethical, legal, and epistemological impacts of contemporary technoscientific transformations, articulating critical and multidisciplinary perspectives in dialogue with international debates.

Mateus Miguel Oliveira

PhD candidate in Juridical and Social Sciences at the Universidade Federal Fluminense (UFF), within the research line “Socio-Environmental, Rural and Urban Conflicts”, funded by the Brazilian Coordination for the Improvement of Higher Education Personnel (CAPES). Holds a Master’s degree in Law and Social Justice from the Universidade Federal do Rio Grande (FURG) (2023), within the research line “Human Rights, Diversity and Digital Society”, also funded by CAPES. Bachelor of Laws (LL.B.) from the Instituto de Ensino Superior e Formação Avançada de Vitória (IESFAVI) (2021). Currently pursuing a specialization in Sustainability Management at the Universidade Federal de Pelotas (UFPel), and technical training in Administration and Business Management (2015). He is a researcher at NINAH – Interdisciplinary Research Center on Nature and Humanity (CNPq/UFF) and has served as a teaching and research assistant in the LL.M. Program in Law, Innovation and Technology at the FGV Law Program, Fundação Getulio Vargas (FGV).

Research interests: his interdisciplinary research focuses on bioethics, biolaw, sociology and philosophy of law, with particular emphasis on the intersections between health, environment, technology, and socio-environmental justice. His current work is especially dedicated to debates on health and environmental governance, One Health, the Anthropocene, climate change, and their ethical, legal, and social implications. He also has academic experience in the fields of human rights, gender and law, law and literature, and human genetic engineering.

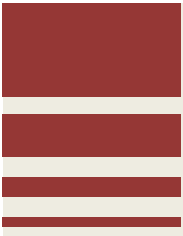


Foreword

Over the past few decades, the environmental crisis has shifted from a secondary concern to one of the most pressing issues of our time. We truly live in an era defined by ecological challenges. What once seemed like a problem for scientists or policymakers has turned out to be much deeper, shaping how we organize society and relate to life itself, as Hans Jonas clearly suggests. Indeed, climate change, loss of biodiversity, ecosystem damage, and ecocide –an emerging concept in the environmental debate– have brought us to a crucial crossroads. In this context, the book *Towards an Ecocentric Image of the World: From the Epistemological Turn to Environmental Democracy* becomes especially meaningful and relevant.

But this book does more than just describe the ecological crisis; its real strength lies in going further. It suggests that the crisis is actually a symptom of a deeper issue, rooted in how we have thought and acted for centuries. The crisis cannot be solved with technical solutions alone, because it is more than a practical problem. We need to change our way of thinking and our worldview, as Arne Næss would say. The three authors – Maria Laura Giacobello, Margareth Vetis Zaganelli, and Mateus Miguel Oliveira– argue that we cannot solve this crisis if we keep seeing the world only from a human-centered, or anthropocentric, perspective that treats nature as just a resource. This idea echoes Heidegger and strongly criticizes Western utilitarianism.

In light of this, the authors invite us to undertake a necessary shift toward an ecocentric point of view, recognizing nature for its intrinsic value and acknowledging human beings as part of a far broader web of life. This is the central point of an ecosophical worldview, indeed. At its core, what is at stake is not merely an environmental problem, but also a crisis of knowledge. The way modernity has separated human beings from nature –dividing subject/object, culture/nature in a dichotomic fashion– has enabled remarkable technological progress, yet it has also fostered a fragmented understanding of reality. Such fragmentation has made it possible to exploit nature without fully grasping the consequences of our actions. This book, therefore, calls for the recovery of a more integrated and systemic perspective, capable of recognizing the profound interconnectedness of all things. Morin or Potter can help us with this task.



Within this framework, the concept of the Anthropocene (Chapter 1) occupies a central position in this book. Beyond the scientific debates surrounding its formal recognition, the Anthropocene allows us to grasp a fundamental insight: human activity has reached a scale at which it directly shapes the systems of the planet. Yet this is not merely a scientific observation –it is, above all, a wake-up call. It compels us to reconsider our place in the world and to acknowledge that we are not separate from nature but deeply entangled within it.

From this starting point, the book develops a rich reflection on ecoethics (Chapter 2). It reminds us that the ecological question is not only technical or political, but also – and perhaps above all– an ethical one. In this regard, environmental ethics –I would say, environmental philosophy –is more than necessary nowadays. Questions like: “Who, or what, do we consider worthy of respect?”, “only human beings, or also other forms of life and entire ecosystems?”, are extremely relevant, in this sense. Expanding our moral horizon entails a profound transformation in our decisions, our responsibilities, and our very conception of justice.

One of the major strengths of this work lies in its ability to bridge philosophy and science(s). Drawing on systemic sciences and complexity (Chapter 3), the authors demonstrate that reality operates as a network of interdependent relations. This way of understanding the world is not only theoretically compelling but also provides a solid foundation for rethinking ethical norms and legal decision-making. In this sense, science and ethics, far from belonging to separate domains, emerge here as dimensions that must enter into dialogue.

The book also engages deeply with Pope Francis’ paradigm of integral ecology (Chapter 4) –an especially powerful framework insofar as it connects environmental, social, cultural, and economic dimensions. This paradigm reminds us that we cannot meaningfully address the ecological crisis without also tackling inequality, poverty, injustice, and cultural diversity. Once again retaking Commoner, we should start from the idea that everything is interrelated, and we are part of a broader system of life. This perspective opens the way to the notion of environmental democracy and justice. For this reason, environmental democracy, as presented in this work, goes beyond merely ensuring access to information or participation.



It calls for a transformation in how collective decisions are made. It implies giving voice to diverse forms of knowledge and often-marginalized communities. The goal is to build forms of governance that are more open, more inclusive, and better suited to the complexity of our current world, heavily influenced by the development of emerging technologies.

Another particularly innovative contribution of the book lies in its analysis of the rights of nature (Chapter 5): indeed, the idea of recognizing ecosystems as subjects of rights represents a profound shift in legal thought. The authors carefully examine both the theoretical foundations and the practical applications of this approach, especially in Latin American contexts. Without overlooking the challenges involved, they demonstrate that this perspective holds real potential to transform the way we protect the environment.

Importantly, the analysis does not remain at an abstract level. The book rigorously addresses the institutional conditions required for these ideas to become effective in practice. It explores governance frameworks and implementation strategies capable of ensuring that the rights of nature move beyond symbolic declarations and become concrete tools of protection (Chapter 6).

Another important strength of this work is its openness to multiple forms of knowledge. It does not remain confined within Western intellectual traditions, but also incorporates Indigenous perspectives, Latin American constitutional experiences, and other worldviews. This pluralism is not merely an added feature; rather, it is an essential condition for thinking about ecological justice in a truly global sense.

Ultimately, this book invites us to question some of the most deeply rooted assumptions of modernity, such as the separation between humanity and nature and the primacy of instrumental rationality. It calls for a profound epistemological and ethical transformation in order to develop a more balanced relationship with our *oikos* (i.e., our common home).

For all these reasons, this is an extremely timely and necessary book, in my opinion.



At a time when the ecological crisis is becoming increasingly urgent, this work offers an excellent and clear synthesis of its main themes, providing a rigorous yet accessible overview that allows readers to grasp the magnitude of the problem while keeping in view potential pathways for its resolution.

The quality of the bibliography also deserves special mention: it is extensive, carefully curated, and highly useful. For those who wish to approach or deepen their engagement with environmental ethics, this volume constitutes an outstanding point of entry, offering solid and up-to-date references that may guide the reader through a growing field of knowledge. Moreover, one of the significant strengths of this volume lies in its international and interdisciplinary approach. In this regard, the authors – Maria Laura Giacobello, Margareth Vetis Zaganelli, and Mateus Miguel Oliveira – are internationally recognized scholars whose work brings together diverse fields such as philosophy, law, and environmental studies, thereby enriching the depth and breadth of the analysis developed throughout the book.

In a world marked by uncertainty and increasing ecological challenges, this book offers clarity, depth, and a concrete invitation to rethink our place on Earth. It reminds us that the crisis we face is not merely a problem to be managed but an opportunity to transform the ways in which we dwell on the Earth.

Luca Valera,

Philosophy Department, Universidad de Valladolid (Spain)

CHIC –Cape Horn International Center (Chile)

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INTRODUCTION

The environmental issue, with its economic and social impact, stands today at the very center of philosophical and scientific debate. The ecological transition has entered international arenas with disruptive force and is listed among the priority objectives of the United Nations 2030 Agenda for Sustainable Development. Adopted under Resolution 70/1 of September 2015, entitled “*Transforming Our World*”, this document establishes a global action program whose guidelines are inspired by the recognition of the close ties between human well-being and the health of natural systems, in an integrated and systemic vision of the different dimensions of development. Still in 2015, the ecological problem leapt into media attention with the publication of Pope Francis’s encyclical “*Laudato Si*” and the signing of the legally binding Paris Agreement on climate change, within the framework of the 1992 United Nations Framework Convention (the *Rio Agreement*).

To rigorously address the imminent ecological crisis, however, it seems necessary above all to free it from manipulations that present it as mere propaganda or marketing material, inevitably offering a simplified reading, and instead return it to its real complexity. We might then recognize that we are facing a profound transformation in our relationship with the world, whose signs date back at least to the beginnings of the industrial age, but which we have simply chosen to ignore. In this context, it is less a matter of confronting an imminent danger than of mitigating the effects of a threat that has already materialized, looming over future generations, with whom institutions have only recently begun to concern themselves (Latour, 2020).

More than fifty years after what can be considered the founding act of ecological awareness, the publication of the 1972 *Report on the Limits to Growth*, it is undeniable that the main actors of global governance continue to embody the greatest paradox of our time: they avoid the need to make adequate decisions to confront this troubling scenario, which demonstrates the substantial incapacity to build cosmopolitan and supranational interests.

Beyond facile environmental sensationalism, which certainly does not favor the ecological cause, it is necessary to establish accurate communication, including through the media, capable of raising the awareness of civil society, the scientific community, and

governmental institutions, so that the commitment of each may converge toward an action that, at this stage, can only be global. It is time to change course (Morin, 2020).

At this new and dramatic crossroads of history, it is also possible to imagine solutions as drastic as they are ambitious, such as subscribing to an *Earth Constitution* (Ferraioli, 2022): creating a World Federation of States willing to renounce their absolute sovereignty in order to build a global and universal constitutional order encompassing all the peoples of the planet. Considering that humanity already constitutes a planetary civil society, a state of peoples, and that global questions require global solutions (Ten Have, 2020), it becomes realistic to begin thinking of a form of *global constitutionalism*.

If the climate target seems too high, there is talk of redefining the balance of sustainability¹, and the political strategies developed since 2019 with the European *Green New Deal* arouse a certain scepticism from many who consider them reckless, the question of the severity of the ecological crisis cannot be so easily dismissed as mere “green hope”, with the accusation of fueling an ideological approach.

The nature of the malaise that now threatens to devastate human civilization (Morin & Kern, 1994) reveals the unequivocal complexity of a problem rooted in the currently dominant Western paradigm of thought: we are, in reality, faced with a multiple systemic crisis (ecological, economic, political-cultural, and moral) which, along with Edgar Morin, one of the best-known theorists and epistemologists of Complexity (Morin, 2001c; Morin, 1993; Morin, 2011), we may define as a *polycrisis* (Morin, 2015, p. 45; Morin & Kern, 1994, p. 93). Human quality of life, the decay of political institutions, ecosystem balance, biodiversity protection, and economic and moral choices are intertwined in a complex dynamic that can only be grasped by an expanded, interdisciplinary vision. The prevailing approach, which tends to treat problems in isolation rather than as interconnected, is therefore doomed to failure, as it insists on ignoring the deep anthropological roots of the challenges afflicting the global system.²

¹ The concepts of “sustainability” and “sustainable development” date back, in their original formulation, to the Report (1987) of the World Commission on Environment and Development (Brundtland Commission), which elaborated the concept of development that guarantees the needs of current generations without compromising the ability of future generations to meet their own needs. It also states that the concept of sustainable development implies limits, not absolute limits, but those imposed by the present state of technological and social organization in the use of environmental resources and by the capacity of the biosphere to absorb the effects of human activities (Della Seta; Guastini, 2007, p. 361). Sustainability has also been identified by some with the *challenge of complexity* (Tiezzi, 1991; Tiezzi; Marchettini, 1999).

² Precisely in this sense, Arne Næss clarifies that deep ecology differs from superficial ecology in the radical nature of the questions it poses. See below.

Based on these premises, this book examines the convergence between ecoethics, systemic sciences, integral democracy, and the rights of nature, understanding these frameworks as epistemological, cultural, and normative foundations for rethinking the relationship between law, society, and nature. The central question guiding the research is: to what extent does the translation of these perspectives into legal institutions, particularly the proposal to grant legal personality to ecosystems, represent a substantive innovation capable of overcoming merely instrumental responses?

Thus, the research is structured around six main hypotheses, aligned with the structure of the chapters: (i) the recognition of the Anthropocene as a civilizational inflection point reveals the limits of anthropocentrism and requires a paradigmatic shift in law and political thought; (ii) this shift unfolds through a turn toward ecoethics, which redefines the moral foundations of the human–nature relationship; (iii) systemic sciences provide essential analytical and epistemological tools for understanding socioecological complexity and interdependence; (iv) the paradigm of integral ecology, articulated with environmental democracy, enables the incorporation of plural cosmologies, local knowledge, and participatory mechanisms into legal and political processes; (v) the recognition of the rights of nature, particularly through the attribution of legal personality to ecosystems, constitutes a substantive normative innovation, though conditioned by institutional and procedural effectiveness; (vi) the implementation of these rights depends on robust socio-environmental governance arrangements, multilevel, participatory, and ecologically oriented, capable of translating normative recognition into concrete protection.

The methodological approach adopted is qualitative, critical, and interdisciplinary, combining different approaches. The study included a systematic bibliographic review of the literature on environmental ethics, philosophy of law, and socio-ecological sciences in line with the systemic and interconnected approach adopted in this research; a hermeneutic analysis of constitutional texts, case law, and international instruments; a comparative study of Latin American and European experiences; and normative formulation, assessed according to criteria of legal coherence, ecological effectiveness, and democratic legitimacy.

Finally, we conclude that the integration of these frameworks not only outlines a consistent theoretical framework but also opens space for institutional innovations

capable of redefining socio-ecological protection on a more just, participatory, and sustainable basis. Ultimately, a proper understanding of environmental issues requires, first and foremost, recognizing their epistemological and evaluative foundations. This is an issue that extends beyond technical or resource management, assuming an essentially ethical dimension, linked to the very way we conceive of life, justice, and interspecies dignity.

CHAPTER 1

The Anthropocene and the Limits of
Anthropocentrism: Toward a
Paradigmatic Shift

The human being has historically been conceived as the center of a universe that he himself helps to destabilize. This statement synthetically captures the interconnected notions of anthropocentrism and the Anthropocene. Throughout history, the moral conception of humanity has been developed from its centrality and sovereignty in relation to other non-human beings, consolidating an anthropocentric view in which “man” occupies the center of the universe – an image symbolically expressed, for example, in Leonardo da Vinci’s “Vitruvian Man” (c. 1490). Under this paradigm, the relationship between humanity and nature has been structured from a dualistic perspective, in which nature is reduced to the condition of object, resource, or instrument.

From an epistemological standpoint, this model raises several problematizations. Philosophical traditions such as Cartesian dualism contributed to reinforcing the separation between subject and object, mind and matter, legitimizing the instrumentalization of nature. Likewise, the modern scientific project, especially in Francis Bacon, conceived knowledge as a means of dominating and controlling natural forces. In political philosophy, social contract theories largely excluded nature from the sphere of moral and legal consideration, restricting it to the domain of exteriority. In the economic field, particularly within classical and neoclassical traditions, nature was reduced to a factor of production, devoid of intrinsic value. These different philosophical, scientific, and cultural contributions converged toward the construction of a utilitarian ethic that justified the systematic exploitation of natural systems.

The utilitarian and exploitative purposes attributed to nature gave rise to modes of production and social organization based on the exploitation, domestication, and domination of species and ecosystems. However, these models reveal evident limits, especially in the face of the depletion of natural systems and the finitude of ecological resources. As already noted by Marx and Engels in the nineteenth century, the metabolic rift between society and nature, particularly in unequal relations between city and countryside, evidences a structural imbalance in the conditions of ecological reproduction (Foster, 2015, p. 90).

Therefore, there is currently an intensification of processes of environmental degradation and ecological collapse resulting from the predatory exploitation of nature. Phenomena such as pollution, deforestation, intensive mining, contamination of water, soil, and air, as well as the depletion of finite natural “resources”, have produced effects

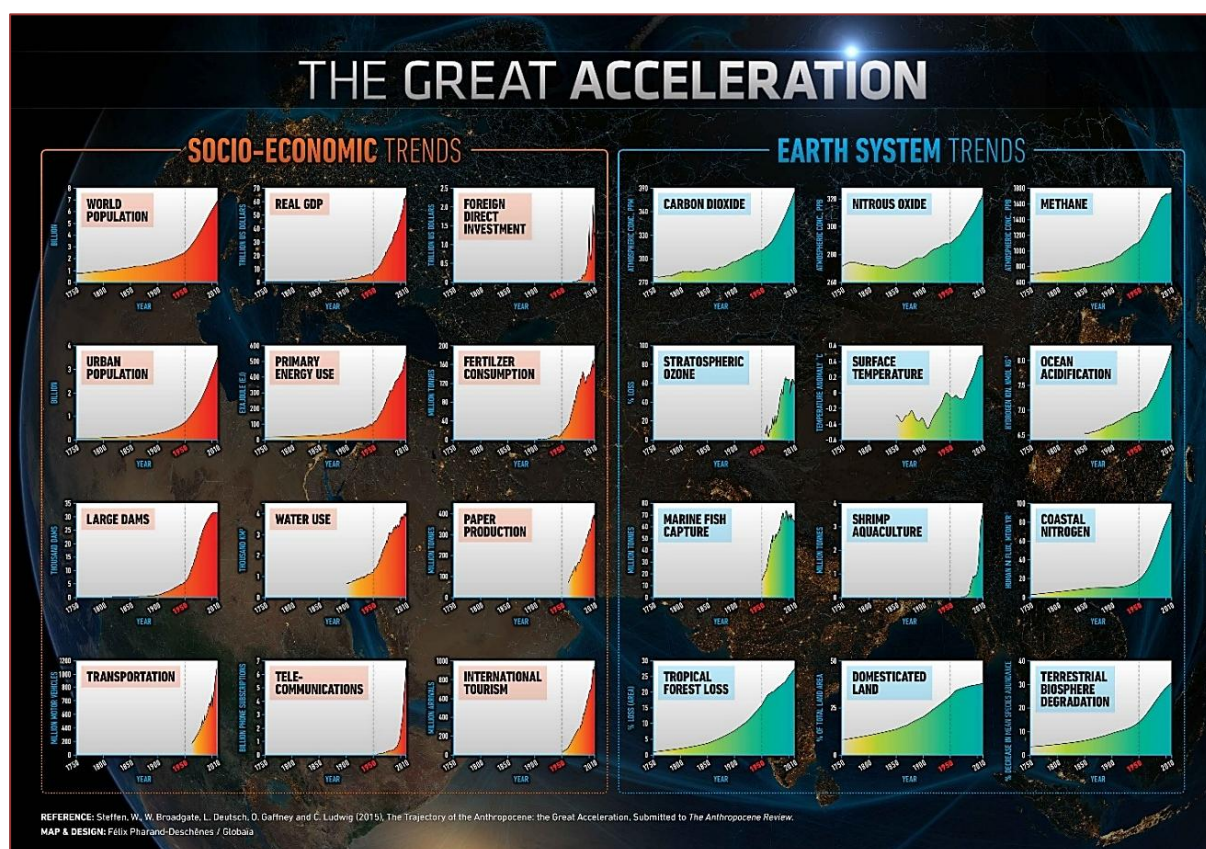
such as desertification, accelerated biodiversity loss, worsening extreme events, and what has already been described as “global boiling”. Among these processes, climate change stands out as one of the most concerning manifestations of anthropogenic impacts on the Earth system.

Indeed, catastrophic events resulting from the collapse of nature are becoming increasingly frequent and intense, ranging from geological to climatic changes. In the face of a context of global crises and emergencies, various theories have been developed, seeking to elucidate causes and consider viable solutions to emerging and future problems. In this perspective, the concept of the “Anthropocene” inaugurates the twenty-first century, designating the proposal of a new geological epoch characterized by the significant influence of human activities on Earth systems. Coined by the Dutch chemist Paul Crutzen (1933 - 2021) – awarded the 1995 Nobel Prize in Chemistry for his study on the formation and decomposition of ozone in the atmosphere – during an academic event in the mid-1990s, the author proposed the term “Anthropocene” to express the current geological epoch in which human actions intervene in geomorphological conditions, emerging as a central interpretative category.

Etymologically derived from the Greek “anthropo”, meaning “human” and “cene”, meaning “era” or “epoch”, the “Anthropocene” refers to the “epoch of humans” that would succeed, in geological terms, the Holocene (the epoch that began at the end of the last glacial period, about 11,700 years ago). For this reason, it is important to situate the debate as one that originates within the broader field of the Natural Sciences, especially in geological studies of Earth sciences. In its scientific approach, studies on the Anthropocene are inserted into a broader understanding of Earth’s geological time – approximately 4.56 billion years – comprising divisions into Eons, Eras, Periods, Epochs, and Ages, each containing further subdivisions representing different historical phases of the planet (Liccardo, 2018).

Since its formulation, the concept of the “Anthropocene” has gained increasing scientific notoriety and interdisciplinary articulation. Initially, it achieved broader scientific projection with the publication of the article “Geology of mankind” (2002) in the journal *Nature*, in which Crutzen argues that “For the past three centuries, the effects of humans on the global environment have escalated [...] It seems appropriate to assign the term ‘Anthropocene’ to the present, in many ways human-dominated, geological epoch,

supplementing the Holocene” (Crutzen, 2002, p. 23), also suggesting that the initial marker of this epoch would date back to the late eighteenth century, coinciding with James Watt’s steam engine project in 1784 and the broader process of the Industrial Revolution. In 2007, he co-authored with Will Steffen and John McNeill the article “The Anthropocene: Are Humans Now Overwhelming the Great Forces of Nature?” in the journal *AMBIO*, emphasizing that human-induced environmental transformations intensified with the so-called “Great Acceleration”: a concept referring to the rapid increase in human activities and their impacts on the Earth system.



The understanding that the “Anthropocene” designates a rupture in the planet’s biophysical conditions is characterized by profound changes in hydrological, biogeochemical, and ecological cycles. Accelerated biodiversity loss, alterations in hydrological cycles, and modifications in biogeochemical processes highlight how human

interventions disrupt ecological balance, which is why an increasing number of scientists recognize that the impacts observed in the Earth System exceed the natural variability typical of the Holocene, confirming the emergence of a new geological epoch in which human action becomes the main transformative agent of the environment (Silva *et al.*, 2020, p. 506).

Despite its relevance, the concept of the Anthropocene remains controversial regarding its formal recognition as a geological epoch. Scientific debate is marked by disagreements over its starting point and by difficulties in establishing consensual stratigraphic criteria (Belli, 2016; Zalasiewicz *et al.*, 2011). This lack of consensus is largely due to the diversity of historical transitions that may be considered as the beginning of this new epoch. Studies on the potential new geological epoch suggest different markers, ranging from the emergence of humans and the discovery of fire to the agricultural revolution, European colonization of the Americas, and the Industrial Revolution, such that “scientists are yet to agree on the advent of the Anthropocene, but several studies point to different transitions in Earth’s history” (Simangan, 2020, p. 211).

In the field of Earth sciences, where the proposal originated, discussions take on a more technical character. In 2009, the International Commission on Stratigraphy (ICS), one of the bodies of the International Union of Geological Sciences (IUGS), convened a group of specialists – including geologists, paleontologists, and other scientists – to form the “Anthropocene Working Group”, with the objective of investigating whether evidence in the geological record confirmed a significant change in the Earth System. The group members were tasked with identifying “measurable impacts”. Crawford Lake, in Canada, became one of the key indicator sites of human interventions in geomorphological conditions, where residues of nuclear tests, pesticides, fossil fuel combustion, and microplastics deposited in its sediments were identified.

However, after more than 15 years of intense debates and scientific investigations, in February 2024 the members of the Subcommission on Quaternary Stratigraphy (SQS) voted against the proposal for formal recognition of the Anthropocene, deciding that the changes observed on Earth are not yet profound enough to characterize the beginning of a new geological epoch, thus maintaining the current epoch as the Holocene. According to the joint statement by the IUGS and ICS regarding the SQS vote: “Despite its rejection as a formal unit of the Geologic Time Scale, the Anthropocene will nevertheless continue to be

used not only by Earth and environmental scientists, but also by social scientists, politicians and economists, as well as by the public at large. It will remain an invaluable descriptor of human impact on the Earth system” (ICS, 2024).

This decision, however, does not put an end to the debate. On the contrary, it highlights that the “Anthropocene” cannot be reduced to a strictly geological issue, as it involves epistemological disputes, different scientific paradigms, and interpretations about the functioning of science itself. The debate concerns not only the identification of evidence but also disciplinary authority and the way different fields of knowledge participate in the construction of knowledge. The emergence of Earth system sciences as a transdisciplinary field already demonstrates that understanding planetary changes requires the articulation of natural, social, and historical knowledge. The humanities, in turn, contribute by problematizing narratives of global responsibility, highlighting historical, colonial, and economic inequalities in the production of environmental impacts.

It is thus considered that the shift from the Holocene to the “Anthropocene” has at least served to guide scientific debates, predominantly of an epistemological nature within the natural and Earth sciences, through the identification of measurable changes based on stratigraphic data (Colacios; Andrade, 2021, pp. 43–45). However, it is also important to recognize that this concept produces effects in the fields of the human and social sciences, as scholars from these areas have raised questions regarding the starting point of this new geological epoch, as well as the causes, consequences, and purposes of discussing the “Anthropocene”. Authors such as Bruno Latour (2014), Donna Haraway (2016), Clive Hamilton (2016), Dipesh Chakrabarty (2018), among others, have explored its philosophical, political, and cultural implications, expanding the debate beyond geology.

In this sense, scholars who analyze the “Anthropocene” from the perspective of the human and social sciences, varying according to theoretical approaches, propose different hypotheses. While Crutzen dates the origin of the Anthropocene to the late eighteenth century (Crutzen, 2002, p. 23), other historical markers may also be considered, such as the beginning of European colonization in 1610, the identification of radiation from nuclear power plants and bombs in 1964, or more generally, the post-Industrial Revolution period (Colacios; Andrade, 2021, pp. 45–46).

This discussion reveals the tension between approaches that seek to define a clear beginning for the Anthropocene and those that recognize the continuity of human impacts over millennia. While some specialists point to the 1950s as the starting point of a new epoch, others argue that such delimitation ignores environmental transformations that occurred much earlier. This underscores the importance of a careful analysis of geological records and historical-social processes that have shaped the planet.

This interdisciplinary expansion also highlights one of the main criticisms of the concept: its tendency to “homogenize” humanity as a single agent responsible for planetary transformations. This generalization tends to ignore the profound historical and structural inequalities that characterize the production of the socio-environmental crisis and, more than that, makes it difficult to identify responses and solutions (or possible alternatives) to address the environmental, climatic, economic, cultural, and structural issues encompassed by the concept of the “Anthropocene”.

In response to this limitation, several theoretical-conceptual derivations have emerged as alternatives or complements to the “Anthropocene”, such as the concept of the “Capitalocene”, proposed by Jason Moore, which emphasizes that human impact on Earth results from the logic of capitalism, driving ecosystem destruction in the name of profit and economic expansion, thereby redefining how we understand the relationship between society and the environment. Moreover, Moore raises the central question of how human beings, embedded in a complex network of organizations and processes, interact with the web of life, highlighting the urgency of re-evaluating the foundations of global development (2016, p. 3).

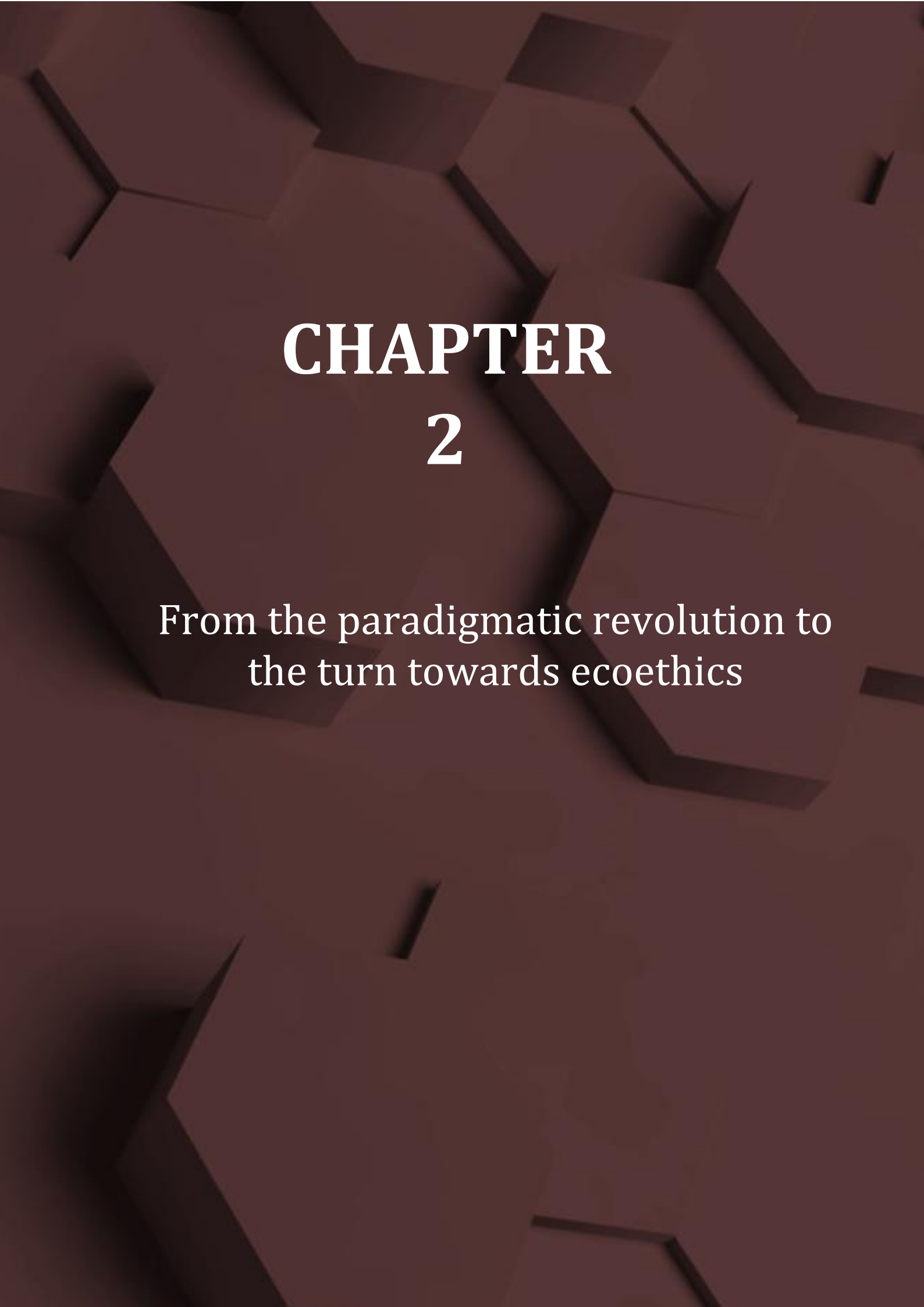
Another way of thinking about human–nature relations within the framework of the “Anthropocene” is articulated through the concept of the “Plantationocene”, proposed by Anna Tsing, who argues that the colonial plantation model not only provided the economic conditions for European industrialization and imperial expansion but also shaped the modern conception of race, the alienation and conditioning of the modern worker, as well as the disciplining of spaces and the objectification of land, women, plants, and animals (Tsing, 2015, p. 180). For Malcolm Ferdinand, it is within plantation systems that the entire technical-political-discursive arrangement for producing the “non-human other” emerges: the Black and the Indigenous, as well as animals, plants, and other beings,

as objects subject to exploitation and denial of the world, leading him to propose the concept of the “Negrocene” (Ferdinand, 2022, p. 82).

In light of these formulations, Donna Haraway argues that “[...] the relevance of naming it Anthropocene, Plantationocene, or Capitalocene has to do with scale, rate/speed relations, synchronicity, and complexity” (Haraway, 2016, p. 139). In this sense, the Anthropocene is not merely a geological category but a limit-event that demands rethinking the epistemological foundations of modernity and the forms of multispecies coexistence. To this end, she proposes multifaceted and atemporal concepts and ideas, grouping these possibilities under the term “Chthulucene”: “past, present, and what is to come” (Haraway, 2016, p. 140).

Thus, the scientific discussion on the “Anthropocene” reveals not only a terminological or stratigraphic dispute but a genuine conflict between paradigms of knowledge. It is a question that involves not only empirical evidence but also values, interpretations, and ways of understanding the relationship between humanity and nature. In this sense, the “Anthropocene” can be understood as an epistemological turning point, in which different fields of knowledge are called to dialogue in the face of a crisis that is simultaneously ecological, social, and civilizational.

Therefore, more than defining a new geological epoch, the debate on the “Anthropocene” inaugurates the need for a paradigmatic transformation in the way we conceive ethics, law, and the very human position in the world. It is within this horizon that the transition from an anthropocentric rationality to perspectives that recognize interdependence among beings and the centrality of life as a value takes shape, paving the way for reflections on ecoethics, integral ecology, and, subsequently, the rights of nature.



CHAPTER 2

From the paradigmatic revolution to
the turn towards ecoethics

Any critical reflection aimed at guiding human behavior – namely, ethics – directly depends on how we understand ourselves and our relationship with the world. To reinterpret the place of the human being within the broader ecosystem therefore means to modify the paradigm of thought from which the scope of moral relevance is decided.

The question must first be approached from an epistemological standpoint, for it is impossible to grasp the complex unity of humanity through a disjunctive mode of thinking, which conceives our humanity in an insular way, separate from the surrounding cosmos and outside the physical and living matter of which we are constituted (Morin, 2001a, p. 48). Indeed, in order to apprehend the true *human condition* and discern its essence, it is necessary to initiate a reconversion of knowledge to the principles that govern life itself, in harmony with an evolutionary and historical rationality¹, capable of discerning the meanings emerging from the incessant interweaving of the web of life.

If we consider the evolution of the relationship between humans and nature through the specific metamorphoses of Western science, we can observe that, starting from an original mythical-religious cognitive attitude (Hadot, 2006), in the Modern era knowledge ultimately immobilized the world within a mechanical framework, detaching it from time, history, and becoming, and reducing it to a mechanism governed by a few universal laws.²

The divorce between humans and nature was thus decreed by the calculating rationality consecrated by classical science, which, in pursuing the myth of omniscience, sought to attain an absolute point of view, guaranteed by an abstract position of separation from context: hence the origin of the *modern* dissociation between subject and object. By separating the knowing subject from the known object, the mechanistic gnoseological paradigm isolates humans from their environment (Della Seta & Guastini, 2008), compromising the awareness of their belonging to nature and of their place within it. This mutilating framework, by reducing nature to reified objectivity (Prigogine & Stengers, 1999, p. 31), emancipates humans from any responsibility toward it,

¹ On the project of modern science aimed at promoting the myth of an a-historical reason, which abstracts every phenomenon from its context in order to objectify it (Prigogine & Stengers, 1999).

² In this regard, Edgar Morin observes that Western science was founded on the positivist elimination of the subject on the basis of the idea that objects, existing independently of the subject, could be observed and explained as such. The idea of a universe of objective facts, purified of all value judgments, of all subjective distortions, thanks to the experimental method and verification procedures, has allowed the prodigious development of modern science ultimately painting that bleak picture in which the subject is either the 'noise' – that is, the disturbance, the distortion, the error that must be eliminated to achieve objective knowledge – or the mirror, a simple reflection of the objective universe (Morin, 1993, p. 37).

legitimizing a predatory attitude whose disastrous outcomes are evidenced by the current ecological crisis. In this way, Modern science has delivered to us a “disenchanted”³ and manipulable world, ultimately revealing the intimate aim of the paradigm of separation: the control of nature. As Edgar Morin observes, nature is not only *physis*, chaos, and cosmos together: it is what connects, articulates, and enables profound communication between the anthropological, the biological, and the physical. We must thus rediscover Nature in order to rediscover our Nature, as the Romantics perceived it, *authentic guardians of complexity during the century of the Great Simplification* (Morin, 2001b, p. 435).

If the ancient alliance between humans and nature has been broken, overcoming modernity means accessing a higher degree of awareness, through a path that, starting from the negation that estranged us from the world, turns toward the affirmation of a more conscious dialogue.

In this horizon, the time has come to abandon the mechanistic and reductionist paradigm which, under the aegis of a *naturalist* ontology characterized by *separation* (Benasayag & Cohen, 2022, p. 18), confines a wholly alienated human being within that silent world of matter described by Monod (1997). The fabric of life remains invisible to the short-sighted gaze of calculating and instrumental thought, which operates by introducing ruptures and disjunctions where reality instead reveals continuity and connections. It is necessary to value a conjunctive rather than a disjunctive logic, capable of restoring a systemic perspective⁴, through a different approach to knowledge, such as that promoted by the thought of Complexity⁵.

Thus, the scientific and philosophical coordinates emerge that make possible access to an epistemological and ontological perspective through which the role of humans within the ecosphere can be rethought. In systemic thought, the image of the network replaces that of the *building* (Bocchi & Ceruti, 2007, pp. 1-24) in the metaphor of

³ The concept of the *disenchantment* of the world was originally developed by Max Weber, as the outcome of a process leading to the definitive loss of the original religious sense expressed by man's commitment in every field of life, in favor of the illusion that everything can ultimately be dominated by instrumental and calculating reason alone (Weber, 1989; Weber, 2006; Weber, 1988).

⁴ Reference to Ludwig von Bertalanffy is a must: see below.

⁵ The theory of Complexity calls into question the very epistemological attitude conveyed by Western rationality, in the drift expressed by the absolutization of calculating reason, which, despite the astonishing successes achieved from a technical-scientific point of view, proves to be inadequate in penetrating the meaning of life. For a path from reductionism to complexity, among the vast literature: Capra, 2006; Capra, 2008; Giordano, 2021; Gembillo, 2008; Anselmo, 2005.

knowledge (Capra, 2006, p. 51), revealing itself as a revolutionary epistemological tool. As a pattern of organization shared by all living systems (Capra, 2006, p. 96), this image also acquires ontological significance (Benasayag, 2020; Faraone, 2021, pp. 96-116). As Arne Næss, founder of deep ecology (Næss, 1993; Næss, 1994), emphasizes, it is necessary to reactivate that *ecological self* (Næss, 2015, p. 106) which speaks to us of our constitutive openness to the other, since the individual and the environment, in concrete reality, exist only in the complexity of interaction.

In this respect, Fritjof Capra, physicist, systems theorist, and founder of the *Center for Ecoliteracy* in Berkeley, California, emphasizes that the power of abstract thought has led us to view the natural environment, that is, the web of life, as if it were composed of discrete parts, exploitable by different interest groups, and this belief has alienated us from Nature and our fellow humans, thereby degrading us. At this juncture, to regain our full human nature, we must regain the experience of connection with the entire web of life. This reconnection, *religio* in Latin, lies at the very heart of the spiritual foundation of deep ecology (Capra, 2006, p. 325).

The thought of Complexity can evidently prove to be the ideal theoretical constellation in which to inscribe the ecological paradigm that, from an ethical perspective (Giordano, 2011, pp. 95-129), calls for adopting the well-being of the entire ecosystem as the supreme value.

Indeed, in the 1970s, with the development of so-called “environmental ethics” (Donatelli, 2012), the ecological issue also began to take shape as a moral problem. The theoretical assumption of the dominant anthropocentric vision - according to which only human beings are morally relevant, so that any abusive attitude toward the environment carries no intrinsic disvalue unless it harms the human species - was then called into question. And yet, despite the undeniably anthropogenic nature of the recognition of value, which emerges only within a horizon of meaning constituted by ethical judgment, through which humans attempt to morally orient their behavior, it should not be forgotten that even if only humans, as generators of ethics, are capable of identifying value, this does not imply that such value must be directed solely toward themselves (Battaglia, 2023, pp. 37-56; Di Domenico, 2009).

Once the ecological perception that all living beings are members of communities linked in a web of profound interdependence translates into firm awareness, a radically

new ethical system emerges, from which follows the human commitment to recognize moral obligations toward nature, understood as a good to be protected in itself and not merely as an instrument. This different approach to knowledge, at the level of values, confers upon the environmental issue a specific ethical dimension. It therefore appears most urgent to introduce into science the norms of *eco-ethics* (Capra, 2006, p. 22).

The presupposition of this ethical rethinking lies precisely in the extension of the boundaries of what is morally relevant, which underlies any possible ecological transition, with the consequent recognition of the global relationship as the fabric in which to weave the meaningful references of human existence as an ethical program. By contrast, in Western tradition, the scope of ethics has long been confined exclusively to the sphere of relations among humans.

In this sense, eco-ethics lays the foundation of an ethical project revolutionary in relation to the past (Giacobello, 2023), beginning from a value axiom that grounds the moral fullness of systemic totalities: for humans, *the global relationship* is both *home and dwelling* (Di Domenico, 2009, p. 9). From the specifically eco-ethical perspective, the value of life, in its innumerable and increasingly complex articulations, is qualified as a precisely *systemic* value, grounded in the ethical consideration of totality, within which intrinsic purposes are inscribed; a value based on the real condition of life as interrelation, ratified by the first law of the science of ecology⁶: *everything is interconnected* (Commoner, 1972).

It is important to note, therefore, that within eco-ethical reflection, the affirmation of the value of life as a global instance is the outcome of a path alternative to those usually taken. It emancipates itself both from an anthropocentric perspective, which anchors respect for the ecosystem in its instrumental utility for human survival, and from a merely biocentric perspective, which refers to an ontological foundation of meaning. The way eco-ethics conceives and values life - human and non-human - within the global relationship is anchored in a systemic approach to knowledge and ethics, capable of reconciling and overcoming both anthropocentric and biocentric interpretations (Andreozzi, 2016). By identifying intrinsic purposes not only in individuals but also in systemic unities emerging from the network of relations among parts, one arrives at the

⁶ The term ecology, first used by Ernst Haeckel in 1866 to indicate the study of the interaction between organisms and their environment from a biological perspective, is defined in the human context as "the science of the relationship between human culture and the nature of the Earth, or between the technosphere and the biosphere," as the human species is inherently biocultural or biotechnological (Moltmann, 2017, p. 23).

foundation of a more radical value, inclusive of diverse shades, emerging from being as manifestation of a meaningful relation, transcending both extrinsic conditions and moral affirmations in themselves.

For the contribution of thinkers like Aldo Leopold (2019), precursor of environmentalism, we have learned that the Land as a community is the basic concept of ecology; yet we also know that the awareness that it is something to be loved and respected is *an extension of ethics* (Leopold, 2019, p. 18). According to Leopold, ethics is a kind of *evolving community instinct* (2019, p. 210), which he describes through what he calls the ethical sequence: if the first and second stages of morality concern, respectively, the rules that govern relations among individuals and those between individuals and society, it is now time to elaborate an ethic concerning the relationship between humans, the Earth, animals, and plants. The third stage of ethics is not merely an evolutionary possibility but also an ecological necessity (2019, p. 211)⁷, once the awareness is acquired that there exists a close interdependence among all parts of the ecosystem, from which humans cannot detach themselves, and which demands the adoption of an *ethic of respect*⁸ capable of grasping the inseparable connection between human interests and environmental values (Battaglia, 2022, pp. 107-140). Indeed, for Leopold, adopting an ethical attitude means curbing one's freedom in evolutionary competition in order to culturally promote socially useful behavior.

It is therefore no coincidence that Leopold is a fundamental source of inspiration for the American biochemist and oncologist Van Rensselaer Potter, conventionally considered the founder of bioethics⁹, a discipline that the scholar particularly valued in

⁷ Indeed, it seems that Fritz Jahr (1895-1953), a German Protestant theologian, philosopher, and educator, had already expressed this necessity in Europe in the years 1926/27. In a 1927 editorial entitled "Bioethics: A Reflection on the Ethical Relationship of Humans with Plants and Animals, concerning the ethical relationships between humans and the plant and animal world", he refers to what he would have liked to become the bioethical imperative: "Respect every living being in principle as an end in itself and treat it, as far as possible, as such" (Jahr, 2020, pp. 29-32). On this, see: Spagnolo, 2010, pp. 9-14; Rinčić; Muzur, 2019; Muzur; Rinčić, 2011, pp. 385-394; Zagorac, 2011, pp. 141-150; Muzur; Sass, 2012; Oliveira; Lima, 2023, p. 31).

⁸ Awakening ecological awareness, in the spirit of an ancient practice of welcoming the true nature of existence, means mobilizing that ethic of absolute reverence for all life that Albert Schweitzer intends to promote, in opposition to the mechanistic and materialistic vision of a fragmented and despiritualized nature conveyed by the paradigm of modern science (Schweitzer, 1957; Andreozzi, 2016).

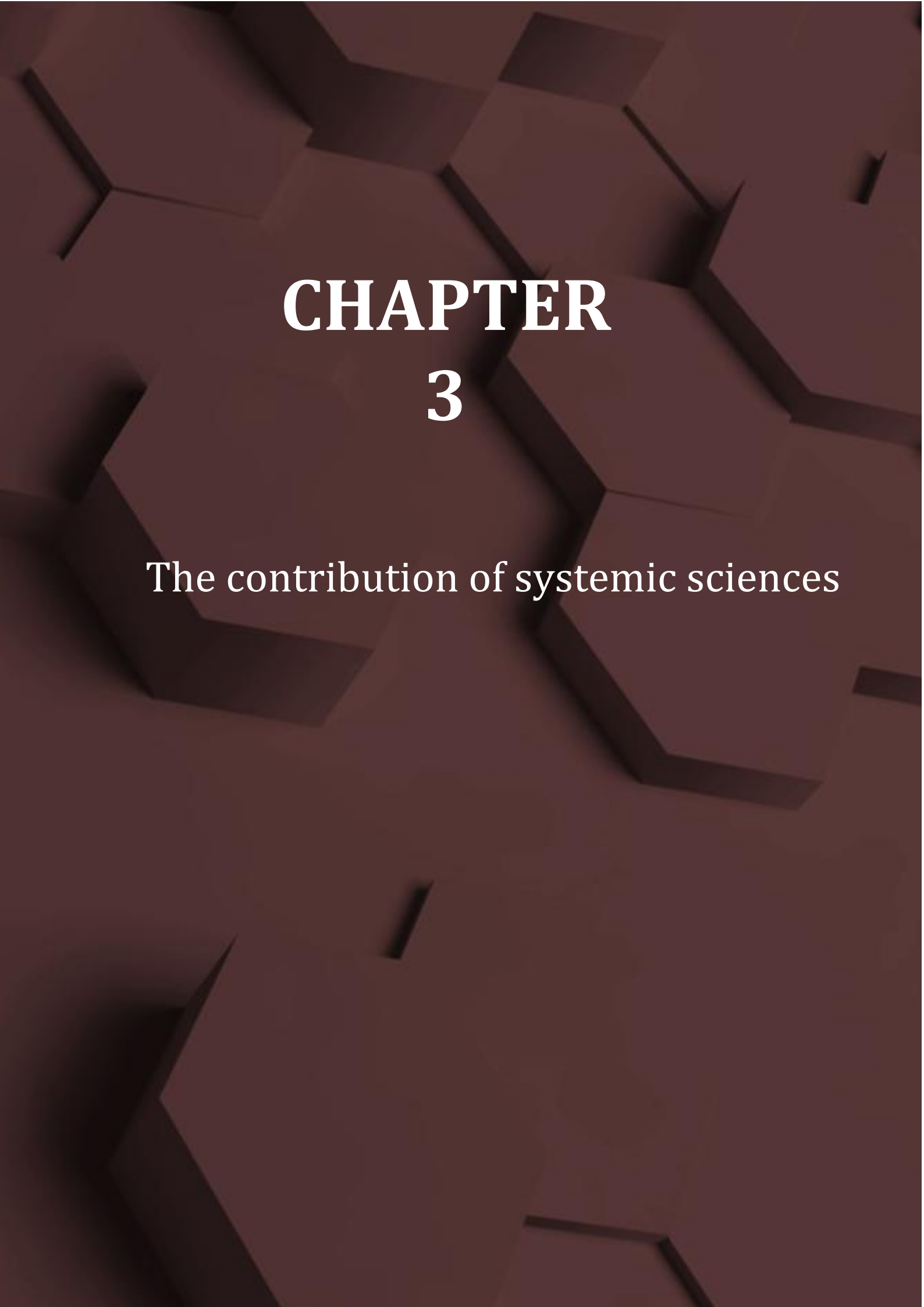
⁹ Bioethics is an interdisciplinary field of study founded in the 1970s. Its purpose is to open up a truly alternative vision, the articulation of which requires a renewal of ethics in light of a broader scope encompassing medical, social, cultural, and environmental concerns. In this direction, "global" bioethics therefore aims to reconcile the two souls of bioethics (medical and ecological) following the acquired awareness of the close connection between human health and ecosystem balance (Giacobello, 2019).

its global sense¹⁰. Potter laid the epistemological foundations of an interdisciplinary field of study, aimed at integrating human values and biological facts in order to seek a better balance between the human and the natural world, within the perspective of an *enlightened anthropocentrism* (2000, p. 30). Thus, regarding Leopold, Potter observes that he was indisputably the first bioethicist, since he was the first to relate and define in ecological terms the words 'land' and 'ethics,' the first to imagine a new ethical foundation for human conduct, the first to theorize an ecological ethic (which he called the land ethic), and the first to clearly illustrate why this was necessary (Potter, 1988, p. XIII).

In this perspective, Leopold thought inscribes itself within that ethical project of which bioethics is an authentic manifestation, aimed at overcoming the moral disorder of a *conscience that no longer knows how to inhabit the world* (Di Domenico, 2009, p. 23). His land ethic can therefore be considered the founding act of eco-ethics (Procacci, 2012, pp. 17-76), understood as a framework that assumes the well-being of the ecosystem as a value in itself, capable of handing us wisdom for dwelling on our planet, but also as the expression of a *new ecological humanism*¹¹ and a metamorphosis of our very way of thinking (Morin, 2017). Eco-ethics thus presents itself as the new ethic that is urgently needed, in which dialogue with science and technology becomes indispensable and which expresses a global way of thinking, since it is concerned with totality (Procacci, 2012, p. 35).

¹⁰ The notion of "global" bioethics was introduced by Potter himself in his famous 1971 text, "Bioethics: A Bridge to the Future". However, since the focus of the global perspective, centered on promoting a better quality of life throughout the ecosystem, was soon marginalized in favor of the prevailing consideration of the problems of human health and medicine, the global vocation of his reflection was subsequently reaffirmed and clarified in 1988, with the essay *Global Bioethics: Building on the Leopold Legacy* (Potter, 2000; Potter, 1988).

¹¹ This requires, in addition to political commitment, a philosophy of ecological education, to also revolutionize the way of thinking, as Luigina Mortari (2020) explains, in which she promotes an ecologically oriented ethical education.



CHAPTER 3

The contribution of systemic sciences

Today we have the opportunity to develop a scientific vision of the organicistic nature of reality, thanks to the contribution of scholars such as James Lovelock, the British biophysicist and chemist who, in the 1970s, formulated the famous “Gaia Hypothesis” (Lovelock, 2021), transforming the ancient idea that the Earth is alive into a scientific theory (Lovelock, 1991, p. 25). By restoring life to the Earth, we can learn to share responsibility for what is defined as the *terrestrial organism* (Leopold, 2019, p. 203; Anselmo, 2020), realigning our common sensibility with the ceaseless *song of life* (Lovelock, 1991, p. 23).

What matters here is that science itself now provides full awareness that our native planet functions as a single, integrated system and that the “Earth system” can be considered as consisting of physical, chemical, and biological components (Lewis & Maslin, 2019, p. XIII). In essence, human history, along with that of life in general, is indissolubly interwoven with the evolution of planet Earth. More than ever, then, in the Anthropocene¹, human beings must learn to understand their own power and the responsibility that follows from it. As Hans Jonas, an unsurpassed philosopher of the problem of responsibility, remarked, even the irresistibly unleashed Prometheus, to whom science grants unprecedented powers and economy provides incessant impulse, now calls for an ethics which, through self-restraint, prevents its power from turning into a disaster for humanity (Jonas, 1999, p. XXVII; Gensabella Furnari, 2008).

At the foundation of the paradigmatic revolution of thought that grounds the ethical turn lie the systemic sciences emerging in the twentieth century (Morin, 2000a, p. 22) - ecology, earth sciences, and cosmology - capable of reuniting the fundamental entities around which the great existential questions have always revolved: nature, the world, the Earth. As Morin observes, they shatter the old reductionist dogma of explanation through the elementary (Morin, 2000a, p. 22), and thus reaggregate knowledge dispersed by reductionist approaches, taking complex systems as their field of inquiry. For this reason, systemic natural sciences contribute to rethinking the human

¹ This is the current geological era, characterized by the preponderance of the global impact of human activity on the Earth's ecosystem, in which humans are reshaping the Earth and its systems. The term Anthropocene, developed in the field of natural sciences, was used for the first time in the 1980s by the biologist Eugene Stoermer and then popularized in the scientific debate, at the beginning of the new millennium, by the Nobel Prize winner for chemistry Paul Crutzen, to define the transition from the Holocene, which began around 11,000 years ago, to the subsequent geological phase, characterized by the prevalent weight of human activities on the global ecosystem, from climate change, to soil erosion, to ocean warming, to the extinction of numerous species (Crutzen, 2005; Crutzen; Stoermer, 2000, pp. 17-18; Amodio; Carofalo; Salottolo, 2019; Lewis; Maslin, 2019).

condition, for they allow us to situate humanity within nature, rather than isolate it from it. Indeed, to know the human is not to separate it from the Universe, but to situate it within it (Morin, 2000a, p. 34), to apprehend the uniqueness of the human condition: *a speck of the cosmic diaspora at the apex of the epic of organization* (Morin, 2000a, p. 34), an expression of that principle of interconnection that prevents the cosmos from dissipating at birth.

Ecology, in particular, is for Morin *the first new science* (Morin, 1988, p. 126), since, systemic by vocation, it acquires knowledge by grasping the organizational interactions among parts of different kinds. Defined as the field of biological sciences that studies the relations between living beings and their environment, ecology perceives each phenomenon as self-determined in its relation with the context. For the first time it is a science, not philosophy, that confronts us with the problem of the relationship between humanity and living nature. (Morin, 1988, p. 127). The Greek term *oikos* lies at the root of the word ecology, precisely indicating life as house, *the living house of existence* (Morin, 1988, p. 124), substantiated through the articulation of living beings: the eco-dimension can never be isolated from the auto-dimensions of life, of which it is constitutive. Within this conceptual horizon, the environment is conceived as the organization of interactions among all living beings within a territorial unit, rather than as an external entity. It is not a geophysical dimension, but an organizing reality: this is the idea of ecosystem, on which ecological science is founded. Hence, ecological science is exemplary for the learning of systemic knowledge, since its basis is the notion of ecosystem (Morin, 2015, p. 235). In Western culture, the concept of environment was elaborated between the seventeenth and twentieth centuries and, unlike that of nature, to be understood as a class of entities, it possesses an intrinsically relational character, since it is always “of” someone or something: “It is a whole instituted in its relation with the living” (Casetta, 2023, p. 21).

According to Morin, living beings are thus eco-dependent: they can construct and maintain their existence, autonomy, individuality, and originality only within the ecological relationship, that is, in and through dependence on their environment. From this arises the alpha idea of all *ecologized* thought: the independence of every living being requires dependence on the surrounding environment (Morin, 2001b, p. 235).

Precisely because it emerges as the science of ecosystems, ecology gives voice to the need to think of everything as belonging to a broader organization, and by opening a

different access to knowledge and to the configuration of reality, it allows a permanent nexus to be established among different disciplines. This means imagining a systemic approach to knowledge, as conceived by theoretical biologist Ludwig von Bertalanffy², who, in the 1960s, introduced a genuine epistemological earthquake.

The theory of living systems teaches us, above all, to connect ecological and human communities, which share the same organizational principles. While from ecosystems in general we cannot learn specifically human values, which arise from the cultural expression of human biological nature in its full complexity, it is true that only by questioning the ecosystem can we learn what Fritjof Capra calls the *wisdom of Nature* (Capra, 2006, p. 328), the foundation of all eco-competence under the principle of interdependence. Beyond any reductionist filter, an approach to knowledge aimed at penetrating the actual dynamics of life reveals how every individual organism is essentially relational. As Capra observes, all members of an ecological community are interconnected within an immense and intricate network of relationships: *the web of life*. They derive their essential properties and their very existence from their interactions with other members. Interdependence, the mutual dependence of all life processes, constitutes the very nature of all ecological relationships (Capra, 2006, p. 328).

In this perspective, individual and environment can be thought separately only through abstraction. Thus, from the awareness of the intrinsic relationality of each entity with respect to all others arises a different image of reality, one that projects the positivity of interconnection and nourishes ecosophical reflection³. According to Arne Næss, *ecosophy* (Drengson; Devall, 2010) is therefore a philosophical system of the world inspired by the conditions of life in the ecosphere and, consequently, taking into account the ecological responsibilities of humanity.

This means opening up a new horizon, where humanity may inscribe the awareness of being part of a system (De Angelis, 1996), along with the renunciation of the dream of absolute domination: in the age of complexity, human action is shaped by a new

² *General Systems Theory* ushered in a revolutionary approach to knowledge, attentive to the communication between the system and its surrounding environment, for which the parts are merely abstractions and reality is determined exclusively by relationships. Systems thinking breaks down the isolation of objects to return them to their context, opening the way to contextual thinking and promoting an environmental intelligence, in which every phenomenon expresses systemic properties, that is, properties emerging exclusively from the interdependence of the parts and never belonging to each of them considered in isolation (Von Bertalanffy, 2010).

³ Næss states that, for the ecosophist, the complex network of interrelationships is an integral part of our existence: although it can lead us into difficulties or risks, due to our severely limited knowledge, the connection with the whole is regarded as a positive value, in which we participate and for which we care (Næss, 2015, p. 165).

way of being within the ecosystem (Benasayag, 2020, p. 116). By adopting a systemic vision and abandoning the dichotomous logic that ratifies the traditional opposition between subject and object, man and nature, it becomes possible to return the parts to the whole, allowing the human being to return to its environment.

The first knowledge to be acquired, in search of a new path, is thus the recognition of the real condition of humanity as a component of a broader system whose balance conditions the well-being of all its parts. Even at the summit of nature, the human still belongs within it: not only is humanity subject to the ecological determination to which all life is subject (Morin, 1998, p. 100), but its ecological dependence actually increases in direct proportion to its independence, since autonomy grows within the relation itself, and is nourished by it. For this reason, while it advances toward conquering the biosphere, human society cannot escape it, nor evade the fundamental principles of ecological relation. When humanity, through the global subjugation of the biosphere, becomes the hyper-parasite (Morin, 1998, p. 100) of the living world, the threat of disintegrating eco-organization, implicit in the power conveyed by its knowledge, becomes the greatest danger to its own survival. Hence, *the creature that triumphs over its environment destroys itself* (Bateson, 2021, p. 537) and the dualistic vision opposing man and environment must be necessarily overcome.

To reflect on human identity ultimately means recognizing our terrestrial matrix, understanding that throughout the globe “the destiny of humanity is collectively at stake” (Morin, 2020, p. 115). Our earthly identity card assigns us a planetary consciousness: each of us comes from the Earth, belongs to the Earth, is on the Earth (Morin; Kern, 1994, p. 55). Learning the human condition therefore entails accepting our belonging to a community of shared destiny between humanity and nature, and embracing the telluric responsibility that follows (Morin & Kern, 1994, p. 191), with the commitment to recognize ethical dignity for new subjects hitherto ignored. Future generations and the Earth as an ecosystem (Gembillo, 2018) fully enter the moral community, investing humanity with responsibility for safeguarding their well-being and very possibility of existence. It can rightly be said, with Morin, that the community of destiny of humanity, which is the hallmark of the planetary era, must inscribe itself into the community of destiny of the Earth (Morin & Kern, 1994, p. 56).

By virtue of ecological reflection, attention then shifts to the problem of relationships, reactivating the communication between nature and culture, science and consciousness, fact and value, interrupted by classical science which, with its reductionist approach, subdivides phenomena and prevents any total or global awareness (Morin, 1988, p. 127)⁴. There is, therefore, a direct connection between the current developments of ecological science and the emergence of a true “ecological consciousness”: This does not mean that consciousness is produced by science, or that science is produced by consciousness. It means rather that ecological science feeds ecological consciousness with its data and problems, and ecological consciousness stimulates ecological science with its anxieties and its demands. Ecological consciousness is not only the awareness of the degradation of nature. It is also, following ecological science, the awareness of the very character of our relation with living nature. This awareness arises from the double idea that society vitally depends on natural eco-organization and that this organization is deeply involved, transformed, and degraded in and by our social processes (Morin, 1988, pp. 127-128).

A behavior can then be considered right and proper if it contributes to preserving the integrity and identity of the ecosystem, that is, if it conforms to its naturality. This is the perspective recently explored by the new field of *geoethics*, which seeks to articulate ethics and environmental issues within a coherent vision of existence, based on geoscientific knowledge of the planet (Peppoloni & Di Capua, 2021), allowing the deduction of a normative concept from an ecological principle.

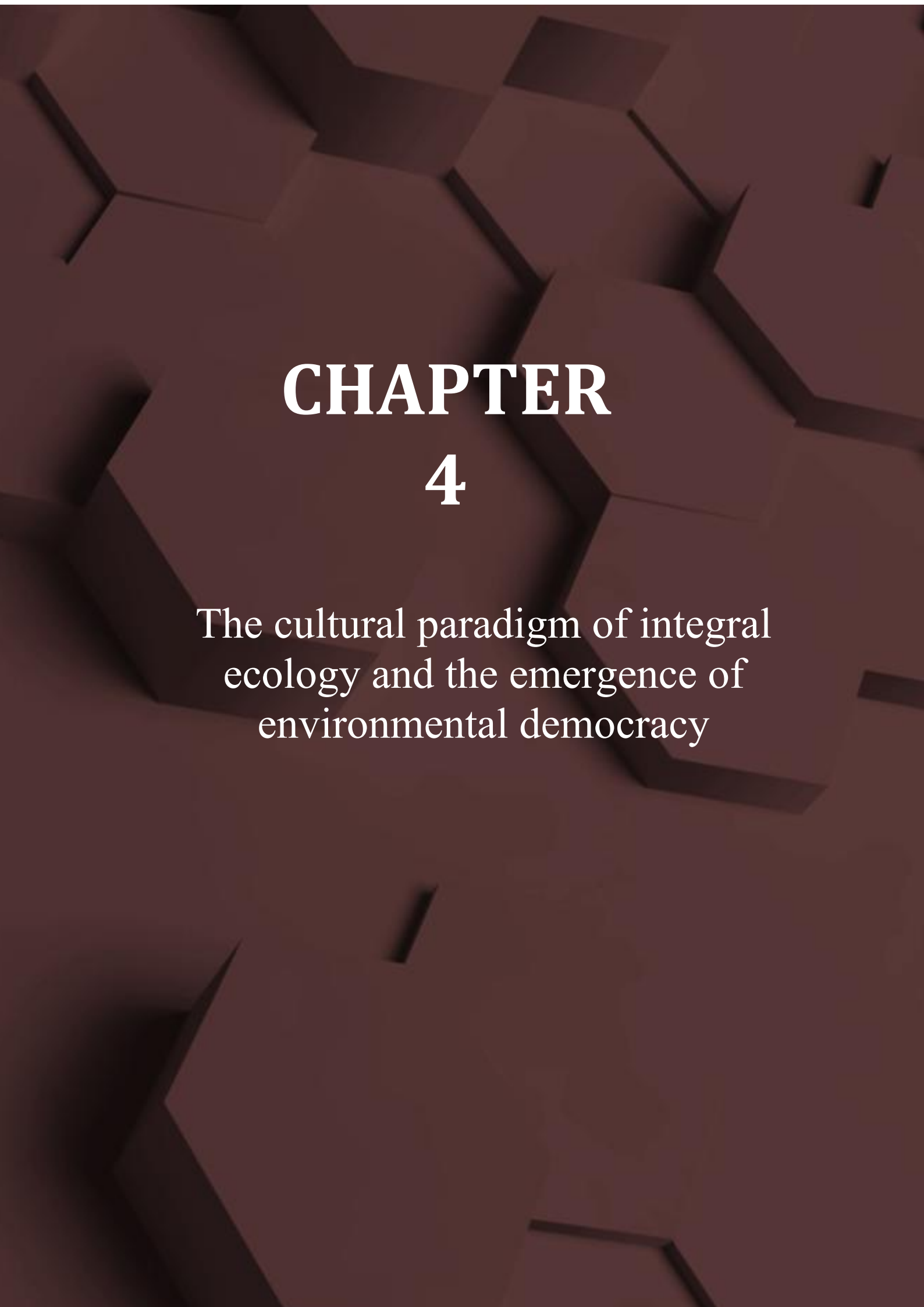
Indeed, it is the proven circularity between intellectual knowledge and moral knowledge, science and ethics, knowing and ought (Morin, 2005; Giacobello, 2013) that finally generates the need to refer to a new moral order, one that transcends specific cultural settings or traditionally accepted systems of values. Starting from an adequate understanding of the real human condition that of a being deeply rooted in a broader ecosystem, we must restore to humanity the complexity of its identity, at once natural and cultural, for we are, simultaneously inside and outside nature. We are children of the

⁴ In fact, ecology re-establishes the radicality of the relationship between nature/culture, humanity/animality, which was found disjointed in Judeo-Christian civilization: man created in the image of God in the Bible, destined for immortality by St. Paul; a disjunction aggravated in today's civilization: man who becomes master and possessor of nature according to Descartes (Morin, 2015, p. 87).

cosmos, but because of our humanity, our culture, our mind, our consciousness, we have become strangers to this cosmos from which we were born (Morin, 2000a, p. 34).

It follows that we must overcome every reductionist-mechanistic approach to the environment, which is neither a reifiable resource nor a mechanism to be technically managed, but rather, it constitutes us within the framework of co-evolutionary circularity⁵. The Earth is, in this sense, a creative being, incessantly generating life.

⁵ On the idea of co-evolution between man and nature, it is obligatory to refer to James Lovelock, the scientist who introduced an organicist turn in the conception of nature (see above), but also to the autopoietic theory of the Chilean neurophysiologists Maturana and Varela (1999, p. 80), who speak of structural coupling in the man/environment relationship.



CHAPTER 4

The cultural paradigm of integral
ecology and the emergence of
environmental democracy

The trajectory outlined by the brief excursus on the philosophical and scientific foundations of ecological thought reveals a progressive realization: every individual existence must be understood within a framework of interdependent relations with the ecosystem and with other beings, since it is constituted in and through the fragility of bonds and of the community to which we all belong (Benasayag, 2020, p. 115).

This renewed ethical awareness also received the seal of the project of *integral ecology* (Giacobello, 2021, pp. 433-445; Zeppegno, 2020, pp. 311-316), present in the already mentioned Encyclical Letter *Laudato si'* (Francis, 2015), in which Pope Francis calls for a complex perspective on life. A vision that found continuity in 2023, eight years later, in the Apostolic Exhortation *Laudate Deum*, and which, according to Edgar Morin, arrives providentially by responding to the need to think the complexity of the ecological crisis (Morin, 2020b, p. 7). In Chapter IV of the second Encyclical Letter, the term *integral ecology* is explicitly used to highlight the awareness that, in reality, everything is connected. The adjective integral proves particularly appropriate, as it emphasizes both the global dimension of the problem and the depth of the relationships that bind together the inhabitants of the Common Home, inextricably interwoven within the living fabric of the Earth. From this arises the appeal to care for the Common Home, based on a scientific and ethical understanding that environmental problems and human needs are intrinsically linked, to the extent that “once the human being declares independence from reality and behaves with absolute dominion, the very foundations of our life begin to crumble” (Francis, 2015, §117).

In this sense, the Encyclical points to the need to recognize the Earth not merely as an economic asset, but as a *sacred space*, with which living beings interact and from which they draw elements to nurture and define their identity (Laszlo, 2008). As the Pope affirms: “Interdependence obliges us to think of *one world with a common plan*” (Francis, 2015, §164), once again invoking the foundational principle of ecology that *everything is interconnected*. In the same horizon, in 2023, he further observed that the ecological issue is “a global social issue and one intimately related to the dignity of human life” and concluded by qualifying climate change as “a tragic and striking example of structural sin” (Francis, 2023, §3).

During his pontificate, Francis resisted the monolithic logic of totalizing economism and succeeded in influencing the conscience not only of the faithful but also

of all the inhabitants of the *Common Home*. Indeed, humanity as a whole cannot fail to feel interpellated in the face of the staggering acceleration of the climate crisis and the inevitable planetary awareness of the errors and horrors of a predatory economy.

The reflections of *Laudato si'* move toward overcoming the excess of anthropocentrism, something traceable to certain strands of Christian thought (Bondì, 2023), by introducing ecological concern through a call to human responsibility toward an Earth that does not belong to him, in respect for “the laws of nature and the delicate equilibria existing between the creatures of this world” (Francis, 2015, §68). The innovative spirit of the Encyclical lies precisely in the intention of severing the Christian tradition from the Promethean conception, thus introducing into the concept of Creation the idea that all creatures possess equal dignity.

Pope Francis, therefore, employed the language of ecology in his Encyclical even before, in 2022, such values were incorporated into the Italian constitutional order as foundations of civic life. Beyond the concern for the health of ecosystems, the Encyclical underlines the importance of preserving biodiversity, noting, for example, that when we speak of biodiversity, at most we think of it as “a deposit of economic resources available for exploitation, with no serious thought for the real value of things, their significance for persons and cultures, or the concerns and needs of the poor” (Francis, 2015, §190).

It is forgotten, in short, that without biodiversity ecosystems cannot function. And indeed, the dramatic loss of species, genetic variety, ecosystems, habitats, and landscapes that characterizes our era constitutes one of the most serious consequences of the ecological crisis (Padoa-Schioppa, 2021, pp. 70-78), which also manifests itself as a biodiversity crisis¹, accelerated by the exponential growth of the human population. Among the voices raised in defense of the Earth, the Church resonates through an Encyclical addressed to all the inhabitants of the Common Home, inviting them to a global ecological conversion. By rejecting despotic and distorted anthropocentrism, the proposal of integral ecology converges with the perspective of *enlightened anthropocentrism* introduced in bioethics by Van Potter. The human being, in the role of guardian² rather

¹ The concept of biodiversity understood as “the very stuff of life” was coined by the biologist E. Osborne Wilson (1999).

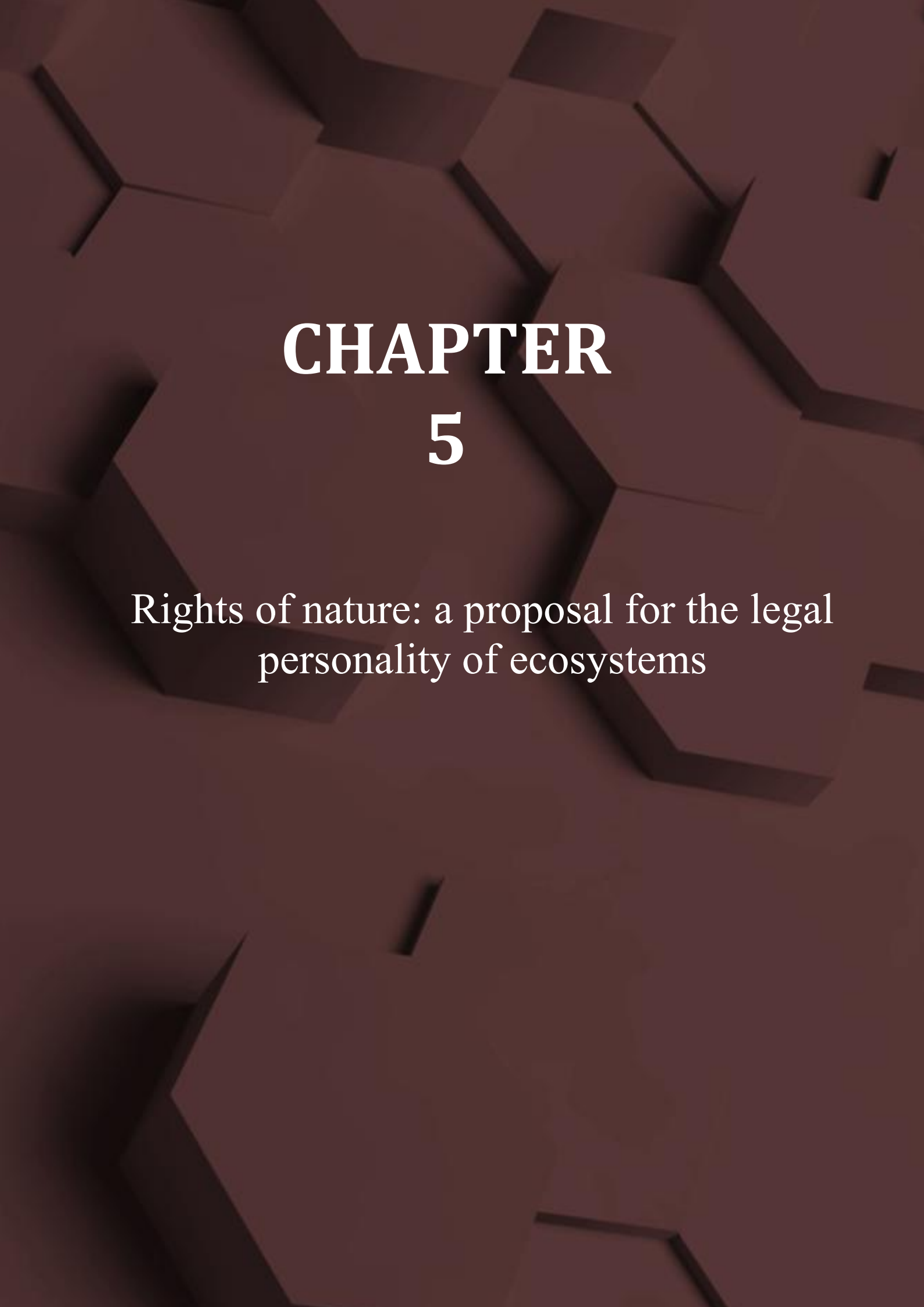
² Man's attitude towards caring for the planet is also rooted in Genesis 2:15, where we can read: “The Lord God took the man and put him in the garden of Eden to cultivate it and keep it”.

than master of the Common Home, is now called to acknowledge the looming crisis, which is not only ecological but also social, ethical, and cultural³; in a word, integral.

Thus, if today the path of blind and absolute anthropocentrism proves unviable for the very survival of human life, the living world calls for the return of humankind to the *Common Home*, which is also “our garden” (Morin, 2020, p. 115), so that humanity may assume an enlightened perspective capable of leading it to stewardship and care for the living world. In other words, human beings must learn to discern a symbiotic coevolution through reciprocal transformations between an unconscious biosphere and a humanity that is becoming increasingly aware of its becoming and of the becoming of the world (Morin, 1988, p. 134). This is probably the only viable path to confronting the ecological crisis, which is, in reality, a crisis of the very way we think about the world and conceive of nature: in other terms, a crisis of meaning.

In conclusion, the environmental issue, beyond any populist sensationalism, demands a rigorous approach, grounded in philosophical and scientific foundations that can adequately sustain the urgency of an ecological conversion, based on a paradigmatic revolution that teaches us to inhabit the Earth in a non-destructive and non-self-destructive way: as human beings, we are the apex of the conscious phase of the universe and must assume the responsibility connected with the power of knowing that we know (Caporali, 2012, pp. 101-102).

³ The degrowth economist Serge Latouche uses this definition to explain the extent of the crisis looming in our era which, in addition to being evidently economic and ecological, is certainly profoundly cultural (Latouche, 2011, p. 52).



CHAPTER 5

Rights of nature: a proposal for the legal
personality of ecosystems

With the consolidation of integral ecology, the environmental agenda progressively shifts from a predominantly technical domain to a broader political-normative field, demanding not only regulatory responses but also the institutionalization of deliberative practices capable of translating ecological interdependence into legitimate, inclusive, and democratically grounded public decisions.

In this perspective, *environmental democracy* is not merely a set of procedural mechanisms that guarantee access to information, participation, and justice, as provided by the Aarhus Convention of 1998, incorporated into European Union law through Directive 2003/4/EC of the European Parliament and of the Council (Sadeleer, 2011), but also a formative device of ecological citizenship, capable of integrating local knowledge, diverse cosmologies, and scientific concerns into an expanded public sphere. This need to “democratize” environmental protection becomes explicit in the debate on socio-environmental ethics, which points to the emergence of a new planetary consciousness and to the indispensability of participatory channels that articulate science, community, and state.

From a socio-legal perspective, environmental democracy operates on two complementary fronts: procedural, by strengthening instruments such as consultations, environmental councils, and mechanisms of social control that enable ecological demands; and substantive, by contributing to the reconfiguration of the collective legal subject through the expansion of the community of reference beyond human actors, including, for example, future generations and ecological values (Sampaio, 2016). In other words, normative legitimacy depends both on the quality of decision-making procedures and on the law’s capacity to recognize new forms of collective interest; this argument is supported by the proposition that ethics and ecology complement each other as the foundation of an order oriented toward ecological justice.

This articulation is particularly relevant to the recognition of ecological justice and the legal personality of ecosystems, whose conceptions argue that “the Earth possesses its subjectivity, its dignity, its otherness, its rights” (Soares, 2008, p. 363). In turn, the attribution of legal personality, without robust democratic processes, tends to remain rhetorical, since, in order to be effective, such a juridical figure must be supported by institutional mechanisms that ensure plural representation (including Indigenous peoples and traditional communities), restorative and reparatory instruments, and procedural frameworks that enable claims, monitoring, and enforcement of protective measures. Therefore, the democratization of environmental decisions transforms the legal personality of ecosystems from a normative statement into an operative institution, anchored in social legitimacy and implementation capacity.

Thus, by articulating integral ecology and environmental democracy, a theoretical-practical path is opened for the constitutionalization of the rights of nature: the protection of the Earth is not merely an axiological value, but demands an institutional architecture that combines participation, innovative legal instruments, and state obligations of reparation and prevention. It thus becomes necessary not only to discuss the substantive content of these rights of nature, but also to characterize the democratic procedures and procedural guarantees that render them effective, that is, to transform recognition into protection.

For this reason, it is argued that the legal recognition of ecosystems can translate into practice the horizon shifts discussed in the previous paragraphs. In this way, the aim is to highlight the articulation between theory and institutions, that is, how deep

conceptual transformations can be converted into legal arrangements capable of protecting the integrity of natural systems, thereby leading to a reflection on the cultural and epistemological origins of the problem, rather than only on its practical manifestations.

The historical dichotomy between humanity and nature, so present in the Western philosophical tradition, has durably influenced ethical and cultural foundations, reducing the scope of moral judgment to the human sphere. From this premise, a matrix of domination, exploitation, and domestication of nature emerged that traverses much of Western history. As Hans Jonas observed, throughout the stages linking Antiquity to Modernity, “the violation of nature and the civilization of man go hand in hand” (Jonas, 2006, p. 32).

In contrast to this tradition, concepts that challenge the anthropocentric paradigm have gained prominence in contemporary times, particularly the moral rights of nature, considered in their own teleology. This constitutes an epistemological and ethical innovation that claims interspecies equivalence in terms of dignity and protection, questioning the old hierarchy that subordinates other beings to human instrumental rationality.

These perspectives have not remained restricted to the theoretical plane. On the contrary, they have reverberated in socio-legal systems and international forums, bringing to light a repertoire of normative acts and diplomatic meetings that seek, in various ways, to safeguard environmental interests. Historical examples of this articulation include conferences such as Stockholm (1972), Geneva (1979), Rio-92, and the successive Conferences of the Parties (COPs), milestones in which political communities sought to translate scientific and ethical concerns into public agendas and international commitments.

In the Global South, and especially in Latin America, struggles in favor of the “Rights of Nature” have acquired significant legal density and civic projection, reaching, in several cases, the constitutional level and driving reconfigurations within the very state legal framework. This inflection, often associated with the so-called “new Latin American constitutionalism”, articulates a consistent critique of the neoliberal state model and projects forms of environmental protection grounded in social participation, legal pluralism, and sustainability-oriented economies (Martín, 2017, p. 35). In this horizon, the rights of nature assert themselves as a counter-hegemonic response to extractivist logics, not only as a normative innovation, but as a civilizational critique of the developmentalist paradigm and the commodification of life (Martínez; Acosta, 2017, p. 2954), by shifting the focus from accumulation to the expanded reproduction of life in its multiple dimensions.

At the legal and procedural level, these transformations reveal concrete potentialities that go beyond symbolic recognition. First, the rights of nature expand the range of active legal standing, allowing not only directly affected individuals, but also communities, civil society organizations, and, in certain cases, any person, to act in defense of ecosystems. This represents a significant opening of access to environmental justice, breaking with the traditional logic centered on individualized harm and recognizing nature as a holder of its own interests. In this sense, instruments such as constitutional actions, collective actions, and mechanisms for the protection of diffuse rights are mobilized to safeguard ecological cycles, ecosystem functions, and the integrity of natural systems.

In addition, a reconfiguration of the object of legal protection can be observed: it is no longer only about preventing environmental damage in function of human interests, but about guaranteeing the existence, regeneration, and continuity of ecosystems as such. This shift allows, for example, the adoption of more robust preventive and restorative measures, such as judicial orders for ecological restoration, suspension of degrading activities, and the development of restoration plans under judicial supervision. In procedural terms, this translates into the possibility of structural decisions, which are not limited to repairing isolated damages, but aim to reorganize institutional practices and public policies.

Concrete experiences in the region illustrate these potentialities. In Ecuador, after the 2008 Constitution, cases such as that of the Vilcabamba River demonstrated the possibility of judicially recognizing violations of the rights of nature and determining ecological reparation measures. In Colombia, although within a different constitutional arrangement, judicial decisions recognized rivers and ecosystems as subjects of rights, as in the emblematic case of the Atrato River, in which legal representatives were appointed to act on behalf of the ecosystem, ensuring its continuous protection. These examples indicate the emergence of an “ecological representation,” in which nature comes to have an institutional voice mediated by guardians, local communities, or public entities (Câmara; Fernandes, 2018).

Thus, the incorporation of procedural instruments oriented toward participatory governance is highlighted, such as public hearings, consultations with traditional communities, and continuous monitoring mechanisms, which seek to ensure not only the declaration of rights, but their effectiveness over time. Although such experiences face limits, such as the resistance of extractivist economic models and institutional fragilities, they demonstrate that the rights of nature open real possibilities for transforming environmental law, by introducing new forms of legitimacy, new subjects, and new modes of legal protection of ecosystems.

This Latin American current is also grounded in the recognition of the traditions and experiences of Indigenous peoples, Afro-descendants, peasant communities, and urban movements, elements that, in their historicity, reveal past colonialism and its consequences. Legal pluralism thus emerges not merely as a technical category, but as an instrument of democratic legitimacy that seeks to integrate different systems of knowledge and practices in the construction of socio-environmental responses (Pastor; Dalmau, 2010, p. 18).

Drawing parallels in the region, authors such as Malcom Ferdinand remind us of the need to jointly address social and environmental issues, recovering the founding traits of modernity that shaped the current ecological and political configuration of the Americas. Ferdinand emphasizes that “this double fracture erases the continuities in which humans and non-humans were confused as ‘resources’ that fed the same colonial project, the same conception of the Earth and the world,” and argues that repairing this fracture implies resisting the colonizing gesture that organized ways of inhabiting (Ferdinand, 2022, p. 43).

Naturally, there are divergences regarding which constitutions fully integrate this emancipatory movement: some authors argue that only charters enacted in the twenty-first century contain truly transformative content, while others maintain that earlier versions already contained the seeds of this thinking, including constitutions such as those of Brazil (1988) and Colombia (1991). Even so, there is reasonable consensus that

the so-called new Latin American constitutionalism takes clearer shape with the Constitutions of Venezuela (1999), Ecuador (2008), and Bolivia (2009), moments in which the possibilities of articulating pluralism, social rights, and non-anthropocentric categories gained greater prominence (Martín, 2017, p. 36).

Among the most notable innovations, and particularly relevant for this study, stands out the elevation of the Rights of Nature to the constitutional level, as observed in Ecuador (2008) and Bolivia (2009). This movement inaugurated a new way of thinking about law, integrating categories such as *Pachamama* and *Sumak Kawsay* into legal analysis, thus expanding the field of legal pluralism (Santamaría, 2017, p. 24). Regarding the Rights of Nature, the philosophies of *Pachamama* and *Buen Vivir* play a fundamental role in the Ecuadorian and Bolivian constitutions. Rooted in Andean conceptions, these philosophies contribute to the construction of an epistemological and ethical basis in which the Earth is perceived as a living organism, deserving of care and respect, and not merely as a resource to be instrumentalized (Calaça *et al.*, 2018, p. 156).

From an etymological and cultural point of view, the notion of *Pachamama* comes from Andean Indigenous peoples and is articulated as a cult and a relationship with the land. “Pacha” refers to the universe or world, and “mama” means mother, hence the powerful idea of “Mother Earth,” that is, the land that gives origin and sustenance to life, conceived as a living organism (Calaça *et al.*, 2018, p. 159). The concept of *Buen Vivir* (manifested in Bolivia as *Suma Qamaña* and in Ecuador as *Sumak Kawsay*) translates into a social ethic of complementarity, rejection of exclusion and discrimination, and the pursuit of harmony that integrates human life with Mother Earth, in respect for natural laws. In the words of some authors, it is a proposal that establishes “a culture of life, in opposition to a culture of death” (Moura, 2012, p. 18).

The awareness of the finitude of nature has driven not only the development of ecology as a scientific field, but also the emergence of environmental ethics as a normative horizon that challenges old assumptions about the relationship between humanity and nature. Faced with increasingly intense processes of ecological collapse, situated within the context of the Anthropocene, new epistemologies emerge that seek to overcome utilitarian and anthropocentric structures that govern nature and humanity.

In this regard, it is worth mentioning some theories of anthropocentrism, generally divided into two strands: radical anthropocentrism, which argues that “there are no duties regarding the use of nature, since it is viewed as an object; there are only rights of the human subject” (Pereira, 2020, p. 39); and mitigated anthropocentrism, which admits duties of care and rational use of natural resources, so that “this ethical approach legitimizes the existence of rules to control the use of natural resources, based on the material needs of humans and on interests that branch into conservation ethics and preservation ethics” (Pereira, 2020, p. 39).

Along similar lines of conceptual displacement, biocentrism affirms that there is inherent value in other living beings, regardless of human presence, since “life is considered a singular phenomenon, conferring intrinsic — and not merely instrumental — value on nature, which implies considering living beings as morally relevant entities beyond the human species” (Calaça *et al.*, 2018, p. 160). This represents a shift in perspective that, although subtle, reorganizes ethical priorities: nature ceases to be merely a backdrop and assumes the position of a moral protagonist.

In constitutional practice, however, this shift encounters limits. For example, the Bolivian Constitution of 2009, although enshrining rights to *Pachamama* in its preamble,

does not unequivocally advance in recognizing nature as an end in itself, maintaining an emphasis on human rights to a healthy environment and quality of life, which demonstrates the persistence of anthropocentric resonances (comparable to Article 225 of the Brazilian Constitution of 1988). In addition, as Martínez and Acosta (2017, p. 2940) point out, there is a structural tension between the formal recognition of the rights of nature and the continuity of economic models based on extractivism, which reveals a contradiction between constitutional discourse and state practice.

Ecocentrism, in turn, expands and radicalizes the evaluative horizon, postulating that not only living beings, but also the structures, processes, and abiotic elements of the natural world must be considered: “centering values in nature itself and defending equality between biotic and abiotic elements; there would be no absolute differentiation between human and non-human beings, granting nature the possibility of becoming a subject of rights” (Calaça *et al.*, 2018, p. 160). Consequently, the Ecuadorian constitutional experience of 2008 emerges as a paradigmatic example by recognizing nature as the holder of rights based on its own values, conceiving it, therefore, as a legal and moral subject with legitimate claims to protection.

Ultimately, it is possible to affirm that the recognition and protection of these perspectives at the constitutional level decisively contribute to paradigm shifts that tend to overcome anthropocentrism. By promoting biocentric and ecocentric worldviews, Latin American constitutional reforms not only introduce new legal provisions, but also suggest a profound reorientation of political imagination: recognizing the plurality of modes of being and knowing also implies recognizing the multiplicity of subjects that deserve dignity and protection (Moura, 2012, pp. 15–16).

This epistemological and normative movement culminates in the recognition of the moral rights of nature, understood as part of a broad paradigmatic process that seeks to displace anthropocentric centrality. It is not merely a matter of including more subjects within the existing legal framework, but of questioning whether the fundamental categories of law – subject, object, interest – need to be rethought in order to accommodate this new ethical sensibility, thereby opening space for a more relational, plural, and ecologically grounded understanding of justice and legal order.

CHAPTER 6

Socio-environmental governance and
implementation of the rights of nature

The consolidation of the rights of nature as a normative horizon simultaneously reveals their transformative potential and their operational limits. If the legal recognition of nature as a subject of rights represents an inflection in modern legal thought, its effectiveness remains conditioned on the existence of institutional arrangements capable of sustaining it. In the context of the Anthropocene, marked by complex ecological interdependencies, the protection of living systems requires not only new legal categories, but forms of governance capable of articulating scales, actors, and instruments in an integrated manner.

Considering that the previous chapter focused on the theoretical, ethical, and constitutional foundations of the rights of nature, the present chapter operates a deliberate analytical shift: it is no longer a matter of justifying why nature should be recognized as a subject of rights, but of examining how this recognition materializes in concrete institutional practices. In other words, the focus moves from the normative plane to the operational one, investigating the conditions of possibility for the rights of nature to cease being symbolic statements and become effective mechanisms of socioecological protection.

The emergence of the Anthropocene redefines the conditions of environmental governance by shifting the understanding of ecological problems from localized events to systemic, cumulative, and transnational processes. Human action, as a geological force, produces effects that cross borders and temporalities, requiring coordinated responses. In this scenario, governance assumes a multilevel and interdependent character, in which local decisions have global repercussions and global dynamics condition local actions, challenging traditional models based on state centralization (Buss *et al.*, 2012).

This reconfiguration aligns with the formulations of Oran Young (2017), by highlighting that complex systems require institutional structures capable of dealing with uncertainty, nonlinearity, and multiscale interactions. Normative predictability and centralized control prove insufficient in the face of ecological variability. Thus, environmental governance comes to demand institutional flexibility, adaptive capacity, and coordination among different decision-making levels, redefining the classical parameters of regulation.

In this sense, the contributions of Elinor Ostrom (2010) reinforce the need for polycentric arrangements, in which multiple centers of decision coexist in a relatively

autonomous yet interconnected manner. These arrangements favor institutional experimentation, collective learning, and context-sensitive responses, essential elements for dealing with socioecological complexity. Governance in the Anthropocene, therefore, must be understood as a dynamic network of interactions among institutions, communities, and normative systems.

Environmental democracy emerges, in this context, as a structuring element of legitimacy. More than ensuring access to information, participation, and justice, it operates as a continuous process of constructing public decisions informed by multiple perspectives. As Sadeleer (2011) points out, such principles represent important advances, but their effectiveness depends on transforming the forms of deliberation and knowledge production, incorporating social, cultural, and ecological dimensions.

From a socio-legal perspective, environmental democracy operates in three complementary dimensions. At the procedural level, it strengthens participatory mechanisms and social control. At the substantive level, it expands the legal community by including future generations and ecological values (Sampaio, 2016). At the epistemic level, it integrates scientific, traditional, and local knowledge, challenging the modern epistemological hierarchy and broadening the bases of legitimacy of environmental decisions. This articulation is decisive for the operationalization of the rights of nature.

The attribution of legal personality to ecosystems, although relevant, tends to remain symbolic if not accompanied by effective institutional mechanisms. As Soares (2008, p. 363) observes, recognizing the dignity and rights of the Earth implies creating conditions for their claim and protection, which requires adequate legal, administrative, and political instruments. The institutional architecture of the rights of nature must, therefore, articulate different normative levels and operational instruments. Constitutional recognition, as in the cases of Ecuador and Bolivia, constitutes an initial step, but an insufficient one. It must be complemented by infra-constitutional legislation, administrative regulations, and implementation mechanisms that make these rights applicable in everyday public decision-making.

The issue of legal representation of nature constitutes one of the main challenges. Defining who speaks on behalf of ecosystems involves political and epistemological disputes. Comparative experiences indicate diverse models, ranging from state representatives to hybrid forms that include local communities. The case of the Atrato

River, in Colombia, illustrates a form of ecological representation that articulates legal and sociocultural dimensions (Cámara; Fernandes, 2018), expanding the legitimacy of protection.

At the procedural level, the rights of nature expand access to environmental justice by allowing the defense of diffuse and collective interests. The use of collective actions, structural measures, and preventive instruments shifts the focus from individual reparation to the protection of ecosystem integrity. This change redefines the object of environmental law, incorporating the regeneration and continuity of natural systems as central objectives.

In Ecuador, the Vilcabamba River case demonstrated the judicial application of the rights of nature with the determination of restorative measures. In New Zealand, the recognition of the Whanganui River as a subject of rights, combined with a shared governance model, reveals the feasibility of innovative institutional arrangements based on legal pluralism. These examples indicate that effectiveness depends on the capacity for institutional operationalization.

Despite advances, significant structural limits persist: scarcity of resources, institutional fragility, and the continuity of extractivist economic models compromise implementation. As Martínez and Acosta (2017) emphasize, there is a tension between legal recognition and economic practices that contradict it, revealing a dissonance between norm and reality. Furthermore, problems of representation and risks of political capture may undermine the transformative potential of these rights. The absence of clear criteria and effective mechanisms for monitoring and accountability contributes to the risk that the legal personality of nature becomes merely symbolic, without concrete impact on environmental protection.

In this context, the articulation between domestic and international law becomes fundamental. The transnational nature of the ecological crisis limits the effectiveness of exclusively national responses. State sovereignty must be reinterpreted as shared responsibility, incorporating duties of cooperation, prevention, and reparation in the protection of global commons. International environmental law offers relevant instruments of coordination, although it faces challenges such as fragmentation and low coerciveness. Its integration with national legal systems, mediated by environmental

democracy, constitutes an essential condition for effective socioecological governance, capable of dealing with the complexity of the Anthropocene.

In light of this, guidelines for a transformative governance of the rights of nature can be outlined, highlighting the strengthening of legal and epistemological pluralism, the construction of legitimate representation mechanisms, the improvement of procedural and restorative instruments, and the consolidation of participatory and multilevel arrangements. These elements point to a reconfiguration of environmental law oriented toward the integrity of living systems.

In summary, the implementation of the rights of nature represents the decisive point of their consolidation as a legal paradigm, involving a transformation that goes beyond the normative dimension and requires profound institutional changes. In the context of the Anthropocene, socio-environmental governance emerges as a historical necessity, whose effectiveness will depend on the capacity to articulate legal recognition, democratic legitimacy, and institutional action oriented toward ecological justice.



Conclusion: From the epistemological
turn to environmental democracy

The environmental crisis we are experiencing is not merely a technical problem nor a succession of isolated catastrophes: it is the acute expression of a civilizational collapse that tests the limits of knowledge, institutions, and political ethics itself. This book proceeds from the conviction that the corrective responses required no longer fit within the conceptual framework we have inherited — an anthropocentric and dichotomous horizon — and therefore calls for a genuine epistemological turn.

In this sense, the debate on the “Anthropocene” proves to be central, as it reveals that human action has become a geological force capable of profoundly altering Earth systems, destabilizing the ecological balances that sustain life. However, more than a scientific diagnosis, the Anthropocene exposes the contradictions of a civilizational model based on the unlimited exploitation of nature, calling into question the epistemological and normative foundations that sustain modernity. It thus becomes necessary to rethink who or what counts as a subject of protection, which values guide public decisions, and how these values can be translated into institutional arrangements capable of preserving the integrity of living systems. More than an environmental adjustment, what is at stake is a redefinition of the very foundations of law, politics, and collective life in a context marked by ecological interdependence and planetary limits.

In light of the analytical and normative path developed, it becomes evident that the task at hand is not merely to symbolically recognize nature as a subject of rights, but to construct effective institutional arrangements capable of transforming this recognition into concrete legal, institutional, and cultural practices. The epistemological turn discussed throughout this work is not limited to a theoretical exercise; it constitutes an indispensable condition for law to accompany the socioecological complexity of contemporary times. The very notion of the Anthropocene, by shifting the understanding of the relationship between humanity and nature, reinforces the need to overcome anthropocentrism as the dominant paradigm, opening space for biocentric and ecocentric approaches.

The experience of the “new Latin American constitutionalism” demonstrates that there are normative and political foundations for this transformation, albeit marked by fragilities in its implementation. In this sense, the challenge is not only to innovate conceptually, but to ensure that such innovation is translated into lasting institutional

capacities, capable of confronting entrenched economic interests and structural asymmetries.

The findings of this research confirm an ambivalent diagnosis: on the one hand, there is clear evidence of paradigmatic shifts, particularly within the scope of Latin American constitutionalism, that legitimize the emergence of biocentric and ecocentric categories; on the other hand, these advances often remain limited in practice due to persistent deficits: problems of representation, insufficient reparatory instruments, procedural limitations, and weaknesses in funding and technical capacity.

This tension largely reflects the very ambiguities of the “Anthropocene” as an analytical and political category: while it denounces human impact on the planet, it tends to homogenize responsibilities, obscuring historical, colonial, and economic inequalities in the production of the environmental crisis. The transition to a new paradigm, therefore, is neither linear nor guaranteed, but a contested process that requires recognition of these asymmetries. The institutional proposal presented here — based on rules of legitimacy for plural representation, reparatory and restorative mechanisms, adapted procedures, and participatory governance that integrates different forms of knowledge — constitutes a concrete normative response to these gaps and offers an operational roadmap for transforming rhetorical recognition into effective protection.

It is important to emphasize, however, that the effectiveness of these innovations cannot be resolved solely at the domestic level, since the articulation between sovereignty, environmental democracy, and international law constitutes an essential condition for consolidating the rights of nature as robust guarantees. The crisis of the Anthropocene is, by definition, transnational and interdependent, surpassing political borders and challenging the limits of the nation-state as the exclusive unit of governance. State sovereignty, understood not only as power but also as political responsibility, must be rethought in light of interdependent obligations: States remain holders of constitutional prerogatives, but also assume international duties of prevention, cooperation, and reparation, which impose limits on the unrestricted exercise of sovereignty when it comes to protecting planetary commons. In this sense, sovereignty is not weakened, but reconfigured, ceasing to be an isolated authority and becoming an element of a network of shared responsibilities oriented toward the protection of life systems.

In normative practice, this requires the development of instruments capable of reconciling internal democratic legitimacy, grounded in participation, plural representation, and social control, with multilateral commitments and transnational mechanisms of implementation and accountability. Environmental democracy, in turn, functions as a bridge between the internal legitimation of ecological policies and adherence to international standards and obligations. Participatory procedures and the recognition of plural actors, local communities, urban collectives, Indigenous peoples, and traditional communities, not only strengthen the legitimacy of state commitments, but also create the political conditions for international obligations to be internalized rather than perceived as external impositions. At the same time, international law provides coordination frameworks, regimes of responsibility, and transboundary mechanisms that enable a multilevel socioecological governance more consistent with the complexity of Anthropocene challenges.

From this perspective, the constitutionalization of the rights of nature must be accompanied by a hybrid and multilevel legal architecture: constitutional norms that recognize the intrinsic values of nature; legislative and administrative frameworks that operationalize these rights; judicial and extrajudicial mechanisms that ensure reparation, restoration, and prevention; and international instruments that reinforce accountability, cooperation, and co-responsibility among States. Without this articulation, there is a risk that recognition will remain merely symbolic, or worse, that it will produce fragmented and incoherent legal responses incapable of addressing the scale of the crisis. The consolidation of mechanisms of plural representation, robust reparatory instruments, and inclusive forms of governance that integrate scientific, traditional, and community-based knowledge thus emerges as a central condition of effectiveness.

Ultimately, it is necessary to recognize that socioecological protection is not merely a technical or regulatory issue, but an ethical, democratic, and civilizational imperative. The “Anthropocene,” as we conceive it, functions as a point of inflection that reveals the limits of the modern paradigm and calls for the construction of new normative and political horizons. This book contributes to this debate by articulating, in a critical and interdisciplinary manner, the theoretical, legal, and institutional foundations necessary for the construction of an order oriented toward ecological justice.

By proposing the reconfiguration of legal categories, the expansion of the subject of rights, and the incorporation of plural epistemologies, the aim is to offer not only a diagnosis of the crisis, but concrete pathways for its overcoming. Thus, embracing this commitment implies recognizing that law cannot remain confined within categories inherited from the anthropocentric paradigm, but must evolve to recognize in nature an intrinsic value and a dignity of its own. Overcoming the dichotomy between humanity and nature is not merely a theoretical aspiration, but a practical necessity: a paradigm shift that, by reconfiguring law, also promotes profound biocultural transformations, without which it will not be possible to ensure either ecological integrity or a just and viable future.

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