

Posthumanist perspectives on Plant Conservation

Elena Carrió^{1,2*} and Eduardo Barona^{2,3*}

ABSTRACT

Plant conservation remains one of the most neglected areas of environmental governance. Unlike animal conservation, which has mobilized political and public support, plants remain socially and institutionally marginalized through entrenched forms of differential attention and epistemic hierarchies that privilege animals. This is reinforced by technocratic approaches that reduce conservation to population models and ecosystem services, overlooking its cultural and political dimensions. Meanwhile, critical humanities have advanced posthumanist frameworks, as a *Plant Turn*, that emphasize vegetal agency and propose moving beyond human-centered narratives. However, even this recognition risks being absorbed into anthropocentric logics that reduce plants to their usefulness alone. This article argues for a critical ecology of care, drawing on ecofeminism, Indigenous ethics, eco-Buddhism and Latin American political ecology. We propose care as a political and practical category to reorient plant conservation toward reciprocity, responsibility, and multispecies justice in a more-than-human world. This review contributes to ethnobiology and conservation by proposing a relational and posthumanist framework—a critical ecology of care—capable of reorienting plant conservation beyond technocratic and anthropocentric paradigms.

Keywords: Plant conservation; Posthumanism; Differential attention to plants; Care ecology; Critical ecology..

1 Department of Biotechnology-Plant Biology, E.T.S. of Agricultural, Food and Biosystems Engineering, Polytechnic University of Madrid. Ciudad Universitaria s/n, Madrid 28040, Spain.

2 Yelcho Foundation. c/ Huelva 338. Serra (Valencia). Spain.

3 Department of Sociology and Anthropology. Complutense University of Madrid. Ctra. de Húmera, s/n, 28224 Pozuelo de Alarcón, Madrid. Spain.

* Corresponding author ✉. E-mail address: EB (ebarona@ucm.es), EC (elena.carrio@upm.es)

SIGNIFICANCE STATEMENT

Plant conservation has long been constrained by technocratic and anthropocentric frameworks that overlook the cultural, ethical, and relational dimensions of human–plant interactions. This article contributes to ethnobiology and conservation by integrating posthumanist thought, care theory, and critical environmental humanities to propose a new conceptual lens—a critical ecology of care. By addressing a differential attention toward plants, the marginalization of local and relational knowledges, and the dominance of instrumental conservation paradigms, the manuscript offers an innovative theoretical approach that connects multispecies justice, reciprocity, and attentiveness to plants. This framework not only expands the conceptual foundations of plant conservation but also provides a relational and ethical grounding with clear implications for conservation practice, governance, and the study of human–plant relations. For these reasons, the manuscript advances debates that are central to the aims and scope of Ethnobiology and Conservation.

INTRODUCTION

Plant conservation constitutes one of the most sensitive yet neglected areas within contemporary environmental sciences. While animal conservation has managed to mobilize significant resources and political attention—often favored by the symbolic centrality of charismatic species (Cohen 2012; Wyatt and Hutchinson 2023)—flora remains systematically invisibilized in social, educational, and political discourses. This phenomenon has been described as plant blindness: the tendency to ignore the value of plants in comparison to animals, both in terms of perception and institutional prioritization (Ahi et al. 2018; Amprazis and Papadopoulou 2020; Bobo-Pinilla et al. 2024; Thomas et al. 2022).

While the term “plant blindness” has been widely used to describe the marginalization of plants in education and policy, recent scholarship has questioned its pathological and ableist implications, proposing instead to understand the phenomenon as a form of differential attention shaped by evolutionary and sociocultural processes (Albuquerque et al. 2025). In this article, we retain the analytical concern regarding the political and institutional consequences of vegetal marginalization, while reframing the phenomenon not as a cognitive deficit, but as a historically sedimented hierarchy of attention that becomes stabilized within conservation governance. This differential attention toward plants shapes public policies, resulting in lower investment in plant conservation programs, scarce presence in educational materials, and their relegation to the status of resources or background landscapes (Brownlee et al. 2023; Comeau et al. 2019).

This cultural bias overlaps with a conservation field still dominated by technocratic and biologist approaches. As Bennett et al. (2016) and Degele (2022) argue, conservation has historically been defined through the natural sciences, marginalizing contributions from the social sciences and humanities. This has reinforced a rationality centered on metrics, population models, and genetic databases which, while crucial, omit cultural, political, and ontological dimensions (Barranquero-Carretero and Sáez-Baeza 2015; Demeritt 2002;). In this framework, conservation is presented as a neutral exercise, when in fact it responds to discourses, values, and power structures that determine which nature is protected, how, and for whom (Biro 2011; Montaldo 2017).

Paradoxically, while plant conservation still struggles to integrate social and natural sciences within a humanist framework, critical humanities and contemporary philosophy have already begun to imagine posthumanist scenarios that decenter the human and recognize more-than-human agencies (Haraway 2016; von Verschuer 2021). This temporal and epistemo-

logical gap reflects a central tension: the mismatch between conservation institutions anchored in technocratic paradigms and critical narratives that have already challenged the limits of humanism. The so-called Plant Turn synthesizes this epistemic shift.

It is important to note that the shift toward recognizing plants as active and responsive beings has already been extensively developed within transdisciplinary anthropological and ethnoecological research. Ethnobiological studies grounded in Indigenous peoples’ praxis have long documented relational engagements with plants that challenge their treatment as passive resources. From anthropology, Lewis Daly’s work among the Makuxi of Amazonian Guyana, demonstrates how plants are approached as persons embedded in reciprocal, sensory, and affective relationships that guide everyday practices of subsistence and care (Daly 2015; Daly et al. 2016). Complementing these ethnographic perspectives, experimental research in plant biology has shown that plants possess capacities for perception, learning, and responsiveness, thereby questioning mechanistic views of vegetal life (Gagliano 2018). Similarly, Glenn Shepard’s work in Amazonia highlights how plants participate in sensory ecologies and multinatural landscapes, acting as communicative agents within Indigenous social and ecological worlds (Shepard and Daly 2022). Together, these approaches demonstrate that the recognition of vegetal agency is not a recent theoretical innovation, but a convergence of long-standing Indigenous practices, ethnobiological research, and transdisciplinary inquiry.

Other authors such as Hall (2011), Lemm (2022) and Marder (2013), and have argued that plants should cease to be conceived as passive backdrops to life and instead be recognized as agents with capacities for action, communication, and relationality. Myers (2015) has demonstrated, through experimental biology, how plants develop sensitive strategies of response and adaptation, while Ryan (2012) has defended an aesthetics of the vegetal that links perception and ethics. Kohn (2013) and Tsing et al. (2017) have expanded this turn by showing that forests and fungi think and act, configuring life forms that cannot be understood within an exclusively human framework. The Plant Turn thus represents not only a philosophical challenge but also an opportunity to reframe conservation through a relational and posthumanist ontology.

Yet, acknowledging vegetal agency also raises a critical dilemma. As Kohn et al. (2018) warn, much environmental policy that claims to be ecocentric still maintains a utilitarian logic: plants are protected insofar as they provide ecosystem services, sequester carbon, or function as resources for climate mitigation. This reduction entails a risk: domesticating vegetal agency within anthropocentric frameworks that con-

tinue to subordinate their modes of existence to immediate human interests. Horta (2010) has pointed to an analogous issue in animal ethics: conservation measures such as predator reintroductions to “restore balance” often mask an ecocentrism that ultimately remains functional to human priorities. Applied to plants, the warning is clear: recognition of agency is insufficient unless translated into normative and practical criteria that attend to the interests of plants themselves and not merely their instrumentalization for human ends.

In this regard, care theory offers both a critical and practical horizon to reorient plant conservation. As Puig de la Bellacasa (2017) argues, care must not be understood as a private or affective gesture, but as a political and material category that organizes worlds. Ecofeminism has conceptualized care as resistance to extractivist or productivist logics, reclaiming reciprocity and empathy as foundations of the human–nature relationship (Merchant 2020; Pettersen 2024; Plumwood 2002; Salleh 2017). From ecotheology and Indigenous ethics, care has been emphasized as a principle of relational justice and intergenerational responsibility (Brazal 2021; Whyte 2018).

Care, as historically practiced by many Indigenous peoples, is not merely conservative or preservative but fundamentally generative: a form of everyday praxis grounded in reciprocity, attentiveness, and affective commitment through which human–plant relations actively sustain, shape, and even create biodiverse landscapes. Far from operating as an abstract ethical ideal, such practices—embedded in agroforestry, exchange, ritual, and subsistence—produce observable ecological effects over time, demonstrating that care has long functioned as a practical mode of living with and reproducing life itself (Zent et al. 2022; Esbach et al. 2021; D’Alessandro 2024; Rosetti 2025; Salazar et al. 2025).

Also, Eco-Buddhist perspectives, in turn, highlight interconnection and interdependence as ethical foundations of more-than-human life (Simonds 2023). Across these perspectives, care is not an ornamental moral value but a political practice aimed at sustaining diversity and the multiplicity of life forms.

However, applying this framework to modern plant conservation implies a radical shift. It entails moving the emphasis away from ecosystem services toward the construction of caring relationships with plants, understood as agents of shared worlds. This translates into rethinking species prioritization criteria, the definition of protected areas, and the evaluation of restoration programs: not solely in terms of their utility to humans, but of their capacity to sustain symbiotic networks and their own forms of existence. As Van Dooren et al. (2016) remind us, cultivating arts of attentiveness toward other species is a necessary con-

dition for imagining more inclusive and sensitive environmental governance.

This article aligns with that commitment. We propose articulating a critical ecology of care that, in dialogue with the Plant Turn, challenges the technification of plant conservation and opens space for more just, sensitive, and relational practices. Our contribution is twofold: first, to expose the limits of conservation anchored in entrenched hierarchies of attention and utilitarian conservation frameworks; and second, to explore the potential of care, understood as a political category, to reorient conservation toward a posthumanist horizon that decenters the human and recognizes the plurality of life forms that sustain the common.

The aim of this review is to critically examine the ways in which technification, anthropocentrism, and differential attention toward plants continue to shape plant conservation theory and practice, and to articulate a posthumanist and relational alternative grounded in care ethics. The review is structured as follows: first, we describe the methodological approach and theoretical scope of the analysis. We then discuss three major conceptual challenges—technification, institutionalization of differential attention toward plants, and the Plant Turn—before proposing an integrated framework of critical ecology of care. We conclude by outlining the implications of this approach for conservation governance and ethnobiological research.

METHODS

This article is based on a narrative and integrative review focusing on conceptual and theoretical contributions rather than exhaustive bibliographic coverage. The selection of literature was guided by three criteria: (1) relevance to contemporary debates on plant conservation, technification, and posthumanism; (2) conceptual significance within ecofeminism, Indigenous ethics, and care theory; and (3) their influence on multispecies and more-than-human studies. The review integrates scholarship from conservation science, environmental humanities, philosophy, anthropology, and critical social science, and assembles them through a posthumanist analytical lens. This approach allows us to identify conceptual tensions, illuminate existing blind spots, and articulate an alternative framework—critical ecology of care—emerging from the intersection of these fields.

As a narrative review, this article does not seek to replace existing conservation methodologies, but to identify conceptual and relational entry points that can inform governance and management practices. In this sense, the proposed Critical Ecology of Care operates as a complementary framework that can be in-

tegrated into existing planning structures rather than as an alternative technical protocol.

Particularly, ethnographic and ethnobiological research by authors such as Lewis Daly and Glenn Shepard demonstrates the value of grounding analysis in Indigenous praxis, where care, reciprocity, and sensory engagement with plants structure everyday practices and ecological outcomes (Daly 2015; Daly et al. 2016; Shepard and Daly 2022). Drawing on these approaches allows this study to treat care not as an abstract ethical stance, but as an observable and analyzable set of practices.

DISCUSSION

Technification in Plant Conservation

The field of conservation has historically been characterized by a strong tendency toward technification, where the management of ecosystems and species is conceived as a problem to be solved through models, metrics, and technical solutions. In the realm of plant conservation, this inclination has been particularly marked: most programs focus on population monitoring, genetic modeling, and ex situ preservation of germplasm (Chiang et al. 2018; Du et al. 2018). While these tools are crucial for addressing immediate threats, their dominance has marginalized the social, cultural, and ontological dimensions that also shape the survival of plant species (Bennett et al. 2016; Degele 2022).

This technical predominance is not neutral. As Biro (2011) has argued, every conservation policy is shaped by ideologies and power structures that determine which nature is protected, how, and for whom. Technification reproduces this logic: by privileging quantitative data and population-based approaches, it obscures affective and cultural relationships with plants, as well as conflicts of environmental justice linked to their management. Davis (1986) had already warned that reducing conservation to a set of technical practices amounts to denying its political dimension, while Montaldo (2017) reformulated this in terms of a “critical ecology”: there is no conservation without discourse, and such discourses shape the environmental priorities of the future (Louder and Wyborn 2020).

Plant conservation offers a paradigmatic case. Flora usually appears in public policies as a provider of ecosystem services, rather than as a subject of value in itself (Kopnina et al. 2018). Protection is justified because plants mitigate climate change, regulate hydrological cycles, or provide resources to human communities—not because their agency and right to persist in the world are recognized (Hall 2011; Marder 2013). This partly explains the limited social mobilization around flora compared to fauna, which is more easily

imbued with charismatic or emotional values (Wyatt and Hutchinson 2023). Technification not only obscures this symbolic inequality but also reproduces it, consolidating a utilitarian conservation regime.

Differential attention toward plants—often described in the literature as plant blindness (Amprazis and Papadopoulou 2020; Thomas et al. 2022)—can be read, in this sense, not as a cognitive failure but as a phenomenon that becomes politically reinforced through processes of technification. By focusing on abstract variables—biomass, productivity, diversity indices—conservation programs stabilize and institutionalize attentional hierarchies, reinforcing the perception of plants as passive backgrounds or measurable resources, and further weakening their social recognition. Studies in environmental education have shown that textbooks and teaching materials tend to marginalize plants or present them mainly in terms of their human uses (Ahi et al. 2018; Brownlee et al. 2023). This reinforces a vicious circle: technification consolidates differential attention toward plants, and once institutionalized, this hierarchy legitimizes and reproduces technocratic approaches.

Moreover, the technification of plant conservation carries practical consequences beyond the educational sphere. Species prioritization often depends on economic or instrumental criteria: more resources are allocated to plants with pharmaceutical, agricultural, or commercial potential, while species without apparent value remain structurally marginalized in management policies (Salatino and Buckeridge 2016). In this regard, Kopnina et al.’s (2018) warning about instrumental ecocentrism becomes urgent: when vegetal care is reduced to what is useful to us, anthropocentrism is perpetuated under new forms.

In response to this logic, several authors have proposed reconfiguring conservation through critical perspectives. Van Dooren et al. (2016) suggest cultivating “arts of attentiveness” toward the more-than-human as a political practice; Puig de la Bellacasa (2017) insists that care must be understood as a material category that organizes worlds, rather than as an accessory value; and Lemm (2022) argues that recognizing vegetal agency requires displacing the ethical and political center of conservation beyond the human. These proposals converge on the same point: questioning the hegemony of technification and opening the way for posthumanist frameworks that recognize the plurality of agencies and values at stake.

In sum, the technification of plant conservation is not only a methodological problem but also an ontological and political one. The hegemony of quantitative and instrumental approaches has not produced plant marginalization by itself; rather, it has institutionalized differential attention in ways that consolidate a conservation regime which, far from over-

coming anthropocentrism, reproduces it in new forms. Addressing this configuration involves articulating a critical ecology of care that complements—and in some cases displaces—technocratic approaches, opening space for narratives and practices that recognize plants as agents of shared worlds. far from overcoming anthropocentrism, reproduces it in new forms.

From Differential Attention to Institutionalized Political Hierarchies

The concept of plant blindness has gained relevance over the past two decades to describe a phenomenon that extends beyond a simple cognitive bias: the persistent tendency to ignore plants, underestimate their ecological value, and relegate them to a passive background in contrast to the centrality granted to animals (Amprazis and Papadopoulou 2020; Thomas et al. 2022; Wandersee and Schussler 2001). However, recent scholarship has suggested that rather than reflecting a perceptual deficit, this tendency may be better understood as a form of differential attention that, under specific sociocultural and institutional conditions, becomes sedimented into durable hierarchies of value (Albuquerque et al. 2025).

Various studies have shown that this asymmetry is reproduced from primary education through to higher education, where plants are often presented merely as examples of photosynthesis or food resources, with little recognition of their ecological complexity or agency (Ahi et al. 2018; Bobo-Pinilla et al. 2024; Brownlee et al. 2023).

Differential attention toward plants, in this sense, is not simply a matter of individual perception but an institutionalized epistemic obstacle that shapes how biodiversity is conceived and how conservation policies are designed. By rendering plants marginal within dominant frameworks, it restricts our ability to imagine conservation models in which the vegetal occupies a central place. As Ellis (2018) and Franco et al. (2020) argue, this marginality also erodes the transmission of local and generational knowledge linked to plants, weakening the continuity of cultural and ecological practices that sustain biodiversity.

The problem is therefore political. Wyatt and Hutchinson (2023) demonstrate how this asymmetry of attention is reflected in international legislation: legal frameworks tend to prioritize charismatic fauna and economically valuable species, leaving flora in a secondary position. Even in global agreements such as the Convention on Biological Diversity, the dominant language often instrumentalizes plants as “genetic resources” or “ecosystem services,” rather than recognizing them as forms of life with intrinsic value. This institutional marginalization reinforces a vicious cycle: absent from legislation and public discourse, plants re-

ceive less media and educational attention, which in turn legitimizes their lack of political prioritization.

The phenomenon can also be understood as a reflection of what Marder (2013) calls the “denied subjectivity” of plants: their condition as living beings without voice in the political sphere. Hall (2011) has proposed a “philosophical botany” that recognizes plants as subjects with intrinsic value, while Lemm (2022) insists that the Plant Turn is inseparable from dismantling the anthropocentric frameworks that sustain this invisibility. In this sense, what has been described as plant blindness may be more accurately interpreted as the effect of ontological hierarchies through which regimes of knowledge and power configure which lives count and which do not (Biro 2011; Foucault 1978;).

The consequences of this asymmetry are tangible. In education, biology textbooks continue to marginally represent plants (Brownlee et al. 2023), while environmental education programs often prioritize animals for their potential to generate empathy (Sanders et al. 2018). In conservation practice, this translates into asymmetry in resource allocation: while programs for threatened fauna attract funding and public mobilization, flora rarely achieves comparable levels of support (Salatino and Buckeridge 2016).

A posthumanist critique allows this discussion to be expanded. Rather than treating the differential attention toward plants as the direct cause of vegetal marginalization, the issue can be understood as the political and institutional sedimentation of differential attention within conservation regimes. Differential attention, shaped by evolutionary and sociocultural processes, does not in itself reduce plants to background or resource. It becomes problematic when it is stabilized within educational systems, governance structures, and dominant ontological frameworks that normalize the secondary status of plant life. This institutionalization produces a hierarchical ordering of beings in which plants are systematically framed as resources, scenery, or functional components of ecosystems. Such ontological marginalization deepens further when Indigenous Peoples’ perspectives and practices are excluded from conservation narratives.

Ethnobiological research demonstrates that, in many Indigenous lifeworlds, plants are understood as active agents that shape human bodies, affects, and vital capacities, including non-tangible dimensions of life. Among the Jodí of the Venezuelan Amazon, for example, plants participate directly in processes of healing, bodily formation, and the restoration of health and continuity, exercising a genuine form of agency rather than serving as passive resources or symbolic referents (Zent 2009; Zent 2013). Similarly, Daly’s work in Amazonian Guyana shows how plants are engaged as relational persons whose sensory and affective qualities influence human well-being and so-

cial reproduction (Daly 2015). Ignoring these practices reinforces a reductive understanding of vegetal life and obscures the ways in which care, health, and ecological continuity are actively co-produced through human–plant relations.

Addressing this condition involves more than simply increasing the visibility of plants in education or policy; it also entails reconfiguring the epistemic and normative framework of conservation, as well as recognizing the value of Indigenous knowledge not as an accessory, but as a central component of the narrative. This entails, as Van Dooren et al. (2016) suggest cultivating arts of attentiveness and practices of care that make it possible to see plants not as objects of management, but as agents of shared worlds.

In this sense, recent initiatives in education and cultural mediation offer promising avenues to counteract entrenched hierarchies of attention. Experiences such as demonstration gardens (Bechtold et al. 2022) or biodiversity logbooks (Edwards and Pollastri 2022), show that it is possible to generate a different perception of the vegetal when relational and more-than-human approaches are prioritized. However, these initiatives still occupy a peripheral position compared to dominant frameworks.

In sum, what has been termed plant blindness should not be understood as a cognitive deficit, nor as an inherent perceptual failure. Rather, the critical issue lies in the ways in which differential attention—shaped by evolutionary and sociocultural processes—becomes institutionalized within educational systems, legal frameworks, and conservation governance. It is this political stabilization of attentional hierarchies that produces a durable ordering of beings, in which plant life is systematically framed as secondary, instrumental, or background. Addressing this condition therefore requires more than increasing the visibility of plants. It entails transforming the epistemic and normative structures that naturalize their marginal status: shifting from seeing plants as resources to recognizing them as agents, and from conceiving their conservation as a utilitarian imperative to understanding it as a practice of political, ontological, and relational care.

The Plant Turn and Vegetal Agency

In recent years, within philosophy, anthropology, and the environmental humanities, what has been termed the Plant Turn has gained momentum: an epistemic and political shift that recognizes plants as agents rather than as passive backdrops to life (Hall 2011; Lemm 2022; Marder 2013). This turn responds both to scientific evidence showing that plants actively participate in the construction of ecosystems and to the philosophical need to overcome the anthropocen-

trism that has historically rendered their relevance invisible (Myers 2015; Ryan 2012).

Michael Marder (2013), in his proposal for a “philosophy of vegetal life,” argues that plants should be understood as singular modes of life, whose temporality, growth patterns, and capacity to inhabit space configure a form of subjectivity. Matthew Hall (2011) has similarly proposed that plants possess intrinsic value and should be recognized as “vegetal persons,” with direct ethical implications for their conservation. Vanessa Lemm (2022) has gone further, emphasizing that the Plant Turn is not only an ontological recognition but also a political opportunity: by acknowledging vegetal agency, conservation must be restructured through a posthumanist horizon that decenters the human as the sole subject of care and value.

Scientific evidence reinforces this reinterpretation. Research in plant biology has demonstrated that plants exhibit chemical communication, epigenetic memory, and sensitive responses to stimuli, which have been interpreted as indicators of nonhuman forms of agency (Gagliano 2018; Trewavas 2014). Myers (2015) documents how experimental biology has reshaped the perception of plants, portraying them as organisms actively negotiating their environments. These findings do not imply equating plants with animals, but rather recognizing multiple forms of life and action that challenge traditional categories in biology and philosophy.

However, acknowledging vegetal agency also opens an ethical and political dilemma. As Koprina et al. (2018) warn, there is a risk that this agency will be instrumentalized within anthropocentric frameworks, reducing plants to their capacity to provide ecosystem services or mitigate climate change. In such a case, the Plant Turn would be neutralized, absorbed by the same instrumental rationality it seeks to transcend. This is a central issue: recognizing plant agency must also entail rethinking normative criteria and conservation practices so they are not subordinated solely to immediate human interests (Horta 2010; Plumwood 2002). Moreover, recent ethnobiological work introduces the concept of plant-anthropo-genesis to describe how plants and people co-produce lifeworlds through reciprocal human and botanical labor, highlighting that vegetal agency is embedded in material practices and socioecological formations rather than merely conceptual categories (Flachs et al. 2024).

The debate becomes particularly relevant in plant conservation contexts. Species prioritization is often determined by economic or symbolic utility, relegating those without direct human value (Salatino and Buckeridge 2016). In contrast, Lemm (2022) proposes expanding the political community to include the vegetal, so that conservation is not determined exclusively by anthropocentric logic but instead incorporates a more-than-human horizon.

Anthropological research has long engaged with questions now associated with the Plant Turn by documenting Indigenous understandings of plants as active agents within relational lifeworlds. Ethnographic work by Lewis Daly and Glenn Shepard shows how plants are approached as persons endowed with sensory and affective capacities that shape human practices, bodies, and forms of care, thereby situating vegetal agency within everyday social and ecological relations rather than abstract theory (Daly 2015; Daly et al. 2016; Shepard and Daly 2022). Also Kohn (2013) has argued that Amazonian forests think and configure their own relational orders, while Tsing et al. (2017) have shown how fungi and plants generate interdependent worlds that sustain the common. These perspectives resonate with the Plant Turn by situating the vegetal at the center of a relational ontology, where life is not organized in rigid hierarchies but in networks of co-constitution.

The impact of the Plant Turn is twofold. On the one hand, it transforms how conservation is conceived: no longer as resource protection, but as the construction of caring relationships with forms of life endowed with agency. On the other hand, it opens a political and ethical horizon in which plants are no longer marginal but are recognized as integral participants within relational ecologies, rather than as a privileged or dominant subject. This relational perspective aligns with Indigenous approaches long practiced by many Amazonian Peoples, which emphasize the value of multiple subjects coexisting on the same ontological plane through care, reciprocity, and attentiveness (Zent et al. 2022). From this perspective, plant conservation becomes a key arena for rethinking environmental justice, sustainability, and governance without reproducing hierarchical ontologies (Pettersen 2024).

In sum, the Plant Turn is not only a theoretical shift but also an invitation to radically rethink plant conservation practices. Recognizing plant agency involves confronting the anthropocentrism implicit in current policies and opening pathways toward a critical ecology of care, in which the vegetal is not treated as an object of management but as a co-constitutor of shared worlds.

Towards an Ecology of Care

Against the hegemony of technification and the anthropocentric bias that permeates plant conservation, care theory offers a critical pathway to reconfigure both the ethical horizon and concrete management practices. In this context, care cannot be understood as a private or affective gesture, but rather as a political and material category that organizes worlds (Puig de la Bellacasa 2017). To recognize it means placing relations of interdependence and vulnerability at the

center of environmental reflection, challenging the primacy of metrics and immediate human interests.

Critiques of the nature/culture dualism and hierarchical ontologies have been central to anthropological and social theory for several decades. Early and influential contributions by Descola (1986) and Viveiros de Castro (1986) challenged Western dualisms through the analysis of Amerindian relational ontologies, while subsequent work by Latour (1991), Ingold (1998), and Pálsson (1996) further developed non-dualistic and relational approaches to human–nonhuman relations.

Parallel to these debates, Latin American Political Ecology has long interrogated extractivism, technification, and development paradigms in close connection with Indigenous territorial struggles. Concepts such as *Buen Vivir*, biocultural heritage, and ontological conflicts have articulated alternative socio-ecological horizons grounded in pluriversal understandings of territory, community, and more-than-human interdependence (Escobar 2008; Gudynas 2011; Toledo and Barrera-Bassols 2008). These traditions demonstrate that relational approaches to conservation are not solely a product of European posthumanist theory, but are deeply embedded in regional intellectual and political trajectories.

Within this broader intellectual tradition, ecofeminist scholarship has offered a complementary critique by examining how dualistic frameworks are intertwined with patriarchal logics of domination. Ariel Salleh (1997) connected this process to political economy, arguing that ecological metabolism and care labor are invisibilized and exploited by capitalism. Val Plumwood (2002) denounced how the nature/culture dualism and patriarchal logics of domination naturalized the subordination of plants, treating them as inert resources. Carolyn Merchant (2020) showed how scientific modernity transformed nature into a machine stripped of agency, legitimizing the unlimited exploitation of vegetal life. More recently, Pettersen (2024) has emphasized that care, understood through an ecofeminist ethic, enables the overcoming of anthropocentrism and opens the political field to the more-than-human.

It is important to say that these critiques are not merely theoretical, but have direct implications for how conservation is conceived and practiced today. Contemporary debates on conservation have shown how technocratic and exclusionary models continue to reproduce nature–culture divides and relations of domination, calling instead for relational and co-inhabitative approaches (Büscher and Fletcher 2019). At the same time, Indigenous ethnobiological research demonstrates that such relational frameworks are not novel proposals, but long-standing practices grounded in care, reciprocity, and the recognition of multiple subjects coexisting on the same ontological plane. Among the Jodí, for example, care operates as

a relational principle that sustains life and continuity without privileging one form of being over others (Zent and Zent 2022).

Yet, as Ticktin (2011, 2021) warns, care can also become an ambivalent practice: in humanitarian contexts, it has served both to sustain life and to legitimize regimes of exclusion and inequality. Translated into conservation, this risk appears when care is institutionalized in programs that prioritize species for their economic or charismatic value, while others are neglected. In this sense, care may be co-opted by technocratic or neoliberal logics that empty it of its transformative potential. This is why, following Plumwood (2002), care must be conceived as a political and material category, not merely as affect or compassion. Recognizing the shared vulnerability of humans and plants, as Ticktin (2016) proposes, allows the emphasis to shift from utility to ontological interdependence, bringing plant conservation closer to a praxis of more-than-human relational justice. Ethnographic research in Amazonia demonstrates that this praxis has long been implemented by Indigenous Peoples, where care toward plants is embedded in everyday practices of reciprocity, healing, and ecological continuity (Zent 2013; Daly 2015).

Other traditions have also placed care at the center of ecological thought. In Indigenous ethics, Kyle Whyte (2018) has argued that care constitutes a principle of intergenerational and relational justice: it is not only about conserving species for future use, but about sustaining the conditions of reciprocity that make shared life possible. In eco-Buddhism, Simonds (2023) has articulated an ethic of care based on interconnection (*pratītyasamutpāda*) and the recognition that life is shaped by co-dependence. This vision converges with care theory in shifting the focus from autonomy to relationality.

Translating these proposals into plant conservation entails a profound shift. It means that prioritization criteria should not be limited to economic utility or contributions to ecosystem services, but must also consider plants' own forms of existence, regeneration, and agency (Lemm 2022; Marder 2013;). This implies, for example, that a species with no apparent human value—without agricultural, pharmaceutical, or ornamental use—may nonetheless be prioritized as part of broader symbiotic and ecological networks (Hall 2011). It also implies rethinking protected areas not as “biodiversity warehouses” but as spaces of mutual care between humans and plants, where management incorporates practices of attentiveness, reciprocity, and justice (Van Dooren et al. 2016;).

Empirical examples illustrate how this shift can be materialized. Community gardening and ecological restoration programs focused on pollinator care have shown that relational practices generate both eco-

logical benefits and cultural transformations (Lynch 2025). Pedagogical initiatives such as biodiversity diaries in environmental education (Edwards and Pollastri 2022) or urban demonstration gardens (Bechtold et al. 2022) enact an ecology of care by making plants visible and fostering bonds of responsibility with them. These experiences suggest that care is not an abstract concept, but a praxis capable of transforming social perception and orienting inclusive policies.

The ecology of care does not seek to replace technical tools, but rather to complement them and, in some cases, correct their biases. Against technocratic conservation centered on metrics and utility, it advocates for relational conservation oriented toward sustaining shared worlds. Against anthropocentrism that reduces plants to resources, it recognizes their agency and intrinsic value. Against the institutionalization of hierarchies that renders the non-charismatic marginalized, it cultivates arts of attentiveness that expand the gaze toward vegetal diversity.

In this sense, care operates as a critical principle that allows for the articulation of a posthumanist conservation. It is not only about attending to plants because they are useful to us, but about caring with them as co-inhabitants and co-constituents of the common. By placing care at the center of plant conservation, the field is redefined: it ceases to be subordinated to technocratic logic and becomes a political project of more-than-human relational justice.

Conceptual Tensions and Paths Forward

Proposing plant conservation from a posthumanist and care-oriented perspective involves engaging with conservation institutions historically shaped by technocratic approaches centered on metrics and indicators (Bennett et al. 2016). A key challenge lies in translating the insights of the Plant Turn and the ecology of care into practices capable of reshaping conservation priorities and decision-making processes.

Another risk is co-optation. As Van Dooren et al. (2016) warn, concepts such as “attentiveness” to the more-than-human can easily be absorbed by green marketing narratives or corporate initiatives that seek symbolic legitimacy without altering their extractive logics. A similar issue arises with care: when reduced to superficial awareness campaigns, it loses its critical and political dimension (Puig de la Bellacasa 2017). Indigenous traditions, however, offer an ontological and epistemological grounding that resists such reductions. Ethnographic and ethnobiological research shows that care is not a detachable value or rhetorical device, but a constitutive mode of relating to human and non-human beings embedded in everyday practices, ritual obligations, and reciprocal responsibilities (Rivera Andía 2019; Zent and Zent

2022). In this sense, incorporating care into plant conservation should avoid becoming a rhetorical resource that legitimizes utilitarian policies, and instead function as a framework capable of transforming prioritization criteria, management practices, and power structures. To reduce its vulnerability to co-optation, such a framework needs to be grounded in shared governance arrangements and clearly articulated decision-making responsibilities. Care, therefore, is not evaluated through discourse alone, but through observable shifts in authority, accountability, and long-term stewardship commitments.

The dilemma of anthropocentrism persists as a transversal challenge. As Koprina et al. (2018) highlight, even policies that present themselves as eco-centric may reproduce anthropocentric logics by prioritizing the usefulness of plants for climate mitigation or ecosystem service provision. Recognizing vegetal agency therefore involves rethinking the normative foundations of conservation: what does it mean to care for a species or an ecosystem not because it serves us, but because it forms part of a web of life with intrinsic value? The difficulty lies in designing action frameworks that uphold this principle without falling into vagueness or into the impossibility of operationalization.

Diverse epistemologies offer complementary ways of understanding and caring for plant life. While dominant scientific approaches often prioritize quantification, Indigenous, peasant, and community-based knowledge systems foreground relational practices of care that operate through attentiveness, responsibility, and lived experience (Chua et al. 2020; Whyte 2018). Integrating these perspectives into plant conservation involves opening spaces for epistemic co-production and valuing multiple forms of knowing and doing, rather than translating all practices into standardized technical indicators (Fox et al. 2017). From this perspective, conservation becomes an inclusive process that expands institutional imaginaries and enables more plural, situated, and relational approaches to sustaining plant life (Degele 2022).

Finally, the political dimension of the ecology of care presents an additional challenge. If conservation is assumed not to be neutral but rather traversed by discourses and power conflicts (Biro 2011; Montaldo 2017), then speaking of care demands asking who cares, what is cared for, and for whom. Care can become a democratizing principle if it opens decision-making to local communities, ecological collectives, and non-hegemonic knowledges. But it can also be instrumentalized by state or corporate actors who selectively determine which lives are worthy of care and which may be sacrificed. Critical ecology reminds us that any framework of care must be examined in relation to the power structures within which it is embed-

ded (Barranquero-Carretero and Sáez-Baeza 2015).

In sum, the incorporation of a posthumanist and care-oriented approach into plant conservation faces three central challenges:

- Institutional translatability – how to integrate perspectives that are often dismissed within dominant policy frameworks as merely “philosophical,” despite being grounded in longstanding Indigenous practices that have demonstrably sustained life and ecological continuity (Zent 2013). In practical conservation contexts, reciprocity may be operationalized through demonstrable co-defined stewardship agreements and shared decision-making structures that recognize community authority and relational responsibilities within governance frameworks (Büscher and Fletcher 2019; Whyte 2018).
- Resistance to co-optation – ensuring that care is not reduced to rhetoric but transforms concrete practices.
- Real displacement of anthropocentrism – avoiding the absorption of vegetal agency into utilitarian frameworks. Here, vegetal agency can be acknowledged by incorporating plant life cycles, regeneration dynamics, and locally recognized relational obligations into management planning and monitoring processes, drawing on ethnobiological and anthropological research that documents plants as active participants in socio-ecological continuity (Daly 2015; Shepard and Daly 2022; Zent and Zent 2022).

Overcoming these challenges is not merely an abstract aspiration, but a feasible and already existing process grounded in the articulation of theory and practice. Across multiple contexts, the insights of the Plant Turn, the ecology of care, and Indigenous and local knowledges are enacted through concrete conservation practices that resist technification and foster relational forms of governance. Reiterating and making visible these practices is a key responsibility of academic work, as it allows plant conservation to move beyond purely technical frameworks and toward genuinely more-than-human modes of governance.

Implications for Ethnobiology and Conservation

The conceptual framework developed in this review has several implications for ethnobiology and contemporary plant conservation. By foregrounding relationality, attentiveness, and multispecies ethics, a critical ecology of care helps counter the institutionalized hierarchies of attention that have historically marginalized

plant life (Wandersee & Schussler 1999; Hall 2011) and reframes plants not as passive resources but as participants in socio-ecological worlds (Marder 2013; Kohn 2013). This perspective encourages ethnobiologists to reconsider how knowledge about plants is produced, transmitted, and politically mobilized, emphasizing the situated and embodied practices through which human–plant relations are enacted (Haraway 2016).

The framework also strengthens dialogue between conservation science and local or Indigenous knowledge systems, which have long emphasized reciprocity, care, and long-term engagement with place (Vandebroek et al. 2010). Integrating these relational principles can help conservation programs move beyond technocratic and extractive models (Büscher and Fletcher 2019) toward culturally grounded, community-based strategies that acknowledge plants as co-constitutive actors in shared ecological systems (Tsing 2015; Van Dooren 2019).

Finally, adopting a care-informed and posthumanist approach broadens the ethical and political horizons of conservation by incorporating vegetal agency and multispecies justice (Plumwood 2002). For ethnobiology, this implies expanding conceptual and methodological tools to engage with the moral, affective, and political dimensions of human–plant interactions (Haraway 2016). Together, these implications point toward a transformative reorientation of conservation theory and practice—one that aligns closely with the aims of Ethnobiology and Conservation and offers pathways to address current socio-environmental challenges.

CONCLUSION

Plant conservation today faces a double tension. On the one hand, it remains anchored in technocratic frameworks that prioritize metrics and models, obscuring the political, cultural, and ontological dimensions of the relationship with the vegetal. On the other hand, it coexists with a growing body of philosophical and humanistic attention which, through the Plant Turn, has begun to recognize plant agency and to imagine posthumanist scenarios beyond anthropocentrism (Hall 2011; Lemm 2022; Marder 2013). This gap between institutional practice and critical theory constitutes both a problem and an opportunity.

The differential attention historically directed toward plants has become institutionalized in ways that limit our ability to conceive of plants as agents of shared worlds (Amprazis and Papadopoulou 2020; Thomas et al. 2022). Addressing this configuration does not simply involve increasing the visibility of plants in education or legislation, but transforming the narratives and governance structures that stabilize their marginal status. Recognizing their agency

involves shifting the focus from utility toward the intrinsic and relational value of the vegetal.

The ecology of care is proposed here not merely as a critical horizon, but as a lived praxis through which life is actively sustained and conserved across multiple contexts. Drawing from ecobuddhism (Simonds 2023), ecofeminism (Pettersen 2024; Plumwood 2002), and Indigenous ethics (Whyte 2018), care emerges as a political practice grounded in responsibility, reciprocity, and the maintenance of interdependent worlds. Numerous ethnobiological and anthropological studies demonstrate that care, when enacted in everyday practices, already operates as an effective mode of conserving life rather than as an abstract ethical ideal. While critical scholarship has rightly warned against the co-optation of care when reduced to selective or charitable gestures (Ticktin 2011, 2021), this article emphasizes care’s demonstrated capacity to function as a transformative praxis that reshapes relations, priorities, and responsibilities in more-than-human worlds.

Ultimately, a posthumanist plant conservation entails understanding that caring for plants is not merely about protecting resources but about building relations of relational and more-than-human justice. Committing to a critical ecology of care means conceiving conservation not as a neutral set of techniques but as a political project of cohabitation, reciprocity, and shared responsibility. Only then will it be possible to displace entrenched hierarchies of attention and open a horizon in which plant conservation ceases to be a peripheral field and instead becomes a central axis in the construction of sustainable and common futures.

By foregrounding care, relationality, and vegetal agency, this review offers conceptual foundations for more inclusive and culturally grounded approaches to plant conservation. Such a shift can strengthen ethnobiological research, support community-based conservation practices, and contribute to more-than-human governance frameworks capable of addressing current socio-ecological challenges.

DATA AVAILABILITY

This article is based exclusively on previously published literature. No new data were created or analyzed in this study, and therefore no datasets are associated with this work.

CONFLICT OF INTEREST

The authors have no conflicts of interest to declare.

CONTRIBUTION STATEMENT

Conceived of the presented idea: EB.
Carried out the data analysis: EC.
Wrote the first draft of the manuscript: EB.
Review and final write of the manuscript: EB, EC.
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DISCLOSURE OF AI USE

The authors used ChatGPT to assist improving language clarity. The content was reviewed and edited by the authors to ensure accuracy and appropriateness.

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