Proforestation Beyond the Human:
Forests, Climate Emergency, and the Undoing of Mastery

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Abstract

This article develops a philosophical and ecological argument for proforestation, understood as allowing existing forests to grow into their full ecological complexity, as a response to the climate emergency. It critiques the dominant human-centred framing in proforestation and forest–climate debates, in which forests appear primarily as carbon sinks, assets, or nature-based solutions deployed to stabilise the climate for human benefit. Drawing on ecological research, the paper shows how proforestation supports rich habitats for trees, animals, fungi, bacteria, pollinators, and insects, emphasising the importance of old-growth structures, deadwood, soil microbiomes, and mycorrhizal networks. At the same time, it engages Indigenous and relational philosophies and critical environmental thought to argue that forests must be recognised as more-than-human communities with their own temporalities and claims to existence. Proforestation, in this view, is not merely a technical mitigation strategy but part of a broader ethical and political reorientation: decentring human mastery, acknowledging historical injustices and Indigenous land rights, and embracing slower, longer timescales of responsibility. The article concludes that proforestation can either reinforce the existing paradigm of instrumental control or contribute to dismantling it, depending on whether it is pursued as a narrow climate tactic or as an expression of deeper commitments to justice and more-than-human flourishing.[1][2][3][4][5][6][7][8][9][10][11]

Keywords

Proforestation; climate emergency; more-than-human; forests and biodiversity; old-growth forests; Indigenous land relations; environmental ethics; mycorrhizal networks; pollinators; forest governance; environmental justice; water cycles; soil carbon; biotic pump

Proforestation is often introduced as a technical solution: allowing existing forests to grow to their ecological potential so they can store more carbon and help meet climate targets. In policy language, forests become assets, sinks, nature-based solutions, deployed to solve a human-made climate emergency for human benefit. Even when the argument appears progressive, it usually remains human-centred. We are asked to save forests because they will save us. Much of the literature that promotes proforestation as an efficient climate mitigation tool makes this explicit, highlighting the carbon benefits of intact and maturing forests over planted or heavily managed ones.[3][1]

Philosophical Critique

A more philosophical reading begins by questioning this focus on human services. When we speak of using forests to stabilise the climate, we assume that the primary subject of history is the human, and that the central question is how forests can be managed, optimised, and governed to secure a livable future for our species. Even calls to let forests be are typically justified in terms of human survival: older forests store more carbon, large trees function as particularly efficient reservoirs, intact ecosystems protect watersheds, buffer cities from floods and heatwaves, and support the services we humans require. The forest is cast as the tool; we are the purpose.[6][9][1]

If we step outside this framing, the climate emergency looks different. It is not only a crisis of atmospheric chemistry but a crisis of relationship. For centuries, particularly under capitalist and colonial regimes, humans have organised life around extraction, ownership, and control. The Earth, and forests with it, have been rendered into standing reserves: timber volume, fibre, biomass, carbon units. The terms that dominate proforestation debates reflect this history. We speak of stocks and flows, yield and productivity, and now carbon value, as if a forest were primarily a combination of numbers awaiting optimisation.[8]

Proforestation can appear to correct this logic: instead of cutting trees, we let them grow old. Yet the underlying pattern often remains unchanged. We still ask what forests can do for our climate models, intended nationally determined contributions (INDC), carbon offset markets, or moral self-image as a suddenly vulnerable species. The human remains the measure; the forest remains the means. Even when forests are praised as natural climate solutions, they tend to be treated as levers in a planetary mitigation portfolio.[4] [37]

More-Than-Human Perspective

A different starting point would be to ask what it means to live in a world where forests are not our instruments but our kin, our more-than-human contemporaries. In this view, the primary justification for letting forests grow is not that they efficiently absorb our excess carbon but that they have their own histories, temporalities, and right to continue. Large, old trees are not just carbon reservoirs; they are beings with centuries of memory, forming the living centre of communities of fungi, insects, birds, mammals, and microbes. When a forest is logged, what disappears is not just a climate function but a whole world. Indigenous and relational thinkers have long described plants and forests in this way, as relatives and teachers rather than as mere resources.[5][9][12][6][8]

Seen from this angle, the human-centred framing of proforestation makes forests the tool, when they should be the purpose. To say we must protect old forests because they store more carbon is something like saying we must not kill elders because they remember useful things. It is not wrong, but it reduces another’s existence to our convenience. The deeper ethical and moral imperative is that there are lives and lineages that range far beyond the human.[9]

Ecological Foundations

The climate emergency exposes the failure of the old separation between nature and society. Greenhouse gases do not respect that boundary; burning coal in one century becomes storms and fires in the next. Forests also cross this line. They are biological, cultural, historical, and spiritual realities. Yet much of the proforestation discourse still attempts to repair a broken world using the same intellectual tools that helped to break it: economic valuation, strategic optimisation, managerial control. In this view, high-carbon forests are to be protected because this strategy is cost-effective, or because it maximises mitigation potential per unit area. We compute an optimal mix of protection and production, as if a forest were an economic portfolio rather than a living community.

This reasoning is not neutral. It keeps the human firmly at the centre as planner and beneficiary. Even when Indigenous stewardship is invoked, it is often folded back into a utilitarian narrative: Indigenous territories are valued because they are effective at conserving carbon and biodiversity. In reality, many Indigenous and local communities have maintained forests precisely because their relationships with land are not primarily transactional. Forests are treated as living relatives, and the climate and biodiversity benefits are outcomes of that ethic rather than its foundation. When policy foregrounds carbon as the sole measure of success, there is a risk of coopting Indigenous philosophies while neglecting claims to land, autonomy, and justice.[10][11][13][8]

At the same time, ecological research offers a powerful way to describe how proforestation allows forests to remain hosts for biodiverse life. As forests age in the absence of heavy disturbance, they develop big, old trees, multi-layered canopies, standing dead trees and fallen logs, deep litter layers, and relatively undisturbed soils. These features create a mosaic of niches that support an extraordinary array of organisms.[6]

Trees and woody plants themselves diversify in structure and microhabitat. Old trunks develop cavities, broken crowns, and rough bark, hosting lichens, mosses, epiphytes, and invertebrates. Shade-tolerant species establish beneath layered canopies, while gaps from natural treefall allow pulses of light-demanding regeneration. Forest animals depend on this architecture. Cavity-nesting birds such as woodpeckers and owls require old trees and snags; many bats roost under peeling bark or in hollow trunks; forest interior mammals and amphibians seek deep, continuous cover and the cool, moist microclimates that older forests provide.[14][6]

Below ground, intact and maturing forests support extensive mycorrhizal networks in which fungal hyphae connect roots of many trees and understory plants. These networks mediate exchanges of carbon, water, and nutrients, and can link individuals across species boundaries, deepening over decades to enhance resilience and soil carbon stabilization at rates of 0.6 tons of carbon per hectare per year (tC/ha/yr) in mature stands. Thick organic layers on the forest floor and undisturbed mineral soils house complex bacterial and microbial communities that drive decomposition, nutrient cycling, and long-term carbon accumulation, with ongoing gains

derived from full old-growth forest maturity. Proforestation, by minimising disturbances such as clear-cutting, soil compaction, and repeated heavy machinery use, allows these belowground communities to deepen and diversify over decades.[7][15][16][17][18][19][20][21][22][5]

Fungi and insects that depend on deadwood are particularly vulnerable to management. Many beetles, saproxylic insects, and wood-decaying fungi require large fallen logs or standing dead trees in various stages of decay. In intensively managed forests, where deadwood is removed or minimised, these organisms decline sharply. In proforested stands, deadwood accumulates as a part of the natural dynamic, carrying with it diverse assemblages of decomposers and the predators that feed on them. Arthropod communities more broadly, including many diverse insects, respond strongly to structural complexity and reduced disturbance, and tend to fare poorly in simplified or heavily managed forest landscapes.[23][14][6]

Also, pollinators will benefit from mature and structurally complex forests embedded in diverse mosaics of land use. The understory shrubs, herbs, and canopy flowers of older forests provide nectar and pollen at different times of year, while cavities, bark crevices, and leaf litter offer nesting and overwintering sites for bees, butterflies, moths, and other insects. Proforestation does not isolate forests from surrounding lands; rather, it allows them to function as stable cores of habitat, supporting pollinator populations that also service adjacent agroecosystems.[24]

In this light, proforestation can be seen as a means for forests to maintain their role as hosts or habitats for entire communities: trees, animals, fungi, bacteria, pollinators, and countless other beings. Intact and older forests often support higher levels of specialised and disturbance-sensitive biodiversity than younger, intensively managed stands, especially for deadwood-dependent beetles, epiphytic lichens and bryophytes, and cavity-nesting vertebrates. The carbon advantage of these forests is inseparable from this densely layered web of life. Carbon is stored not only in trunks and soils, but in the living relationships that make the forest what it is.[1][5][7][14][6]

Hydrological Dimensions

Proforestation profoundly restores and amplifies the water cycle by enabling forests to mature into powerful biotic pumps that regulate precipitation, runoff, and atmospheric moisture on regional and global scales. Unlike managed or deforested landscapes, proforestation allows existing trees to develop deep roots, expansive canopies, and complex understories over decades, enhancing evapotranspiration—the process where forests lift vast quantities of water vapor into the atmosphere to seed clouds and rainfall. Walter Jehne emphasizes that forests, particularly old-growth stands, act as the primary drivers of the terrestrial water cycle. They contribute 40-50% of rainfall in continental interiors through this "flying rivers" mechanism. Forest vegetation transpires vast volumes of water, thus cooling earth’s surfaces and creating low-pressure zones due to rain condensed by hygroscopic nuclei like bacteria and pollen. Deforestation disrupts this biotic pump, leading to aridification, while proforestation reverses this dessication process by minimizing soil compaction and deadwood removal, fostering stable hydrological flows that will recharge aquifers, buffer floods, and sustain watersheds

beyond local boundaries, with forests recycling approximately 50% of global precipitation.[25][26][27][28][29][30][31][32][33]

Anastassia Makarieva's biophysical theory of the biotic pump complements this scenario, arguing that mature coastal forests generate condensation-induced low-pressure zones, drawing moist air masses inland from the ocean and precipitating them as rain, far more efficiently than thermodynamic models predict. In proforested ecosystems, this biotic pump effect strengthens over 50-200 years as trees age, with large individuals transpiring up to 400 liters daily. This process creates self-reinforcing moisture cascades that counteract climate-driven aridification. Intact forests buffer precipitation variability by 20-30% compared to cleared lands, stabilizing river flows and groundwater recharge through permeable litter layers and mycorrhizal networks that optimize water retention.[26][25]

Temporal and Political Dimensions

Proforestation, understood in this deeper sense, also reshapes how we think about time. Much of climate policy is governed by short horizons: election cycles, investment timelines, scenarios drawn to the middle or end of the century. Forests, by contrast, live in centuries and millennia. A tree that is a sapling in the present crisis may only reach its full ecological presence long after today's negotiations and conferences have been forgotten. When we commit to letting forests grow, we commit ourselves to a temporal scale that exceeds individual lifetimes and immediate political gain. This, too, is a form of humility.

Older forests embody slow time. They develop qualities that cannot be rushed: deep, spongy soils formed by generations of falling leaves; networks of roots and fungi that have adjusted to one another over decades; multi-layered canopies that emerged from the interplay of growth, death, lightning, storms, and quiet years. To choose proforestation is to choose to live with these slower processes rather than against them. It is to align our actions with the rhythms of forests rather than forcing forests to conform to the speed of markets and machines.[7]

This temporal shift also alters our sense of responsibility. If forests are allowed to grow into their ecological potential, they will host not only current species but also future forms of life that may emerge as climates change and ranges shift. The decisions made now about whether to cut or protect will shape the possibilities available to beings who have not yet appeared. Proforestation thus connects us to those unborn communities, human and more-than-human, that will inherit whatever remains. It is a promise to leave them not only a stable atmosphere but living, evolving habitats that they can enter into relationship with.

At the same time, proforestation exposes the limits of purely technical notions of resilience. It is common to describe intact and older forests as more resilient, more capable of withstanding heatwaves, droughts, and storms. There is truth in this: complex systems often absorb disturbance better than simplified ones, and forests with diverse structures, species, and soil communities can respond more flexibly to stress. Yet resilience in this sense is not guaranteed.

If fossil fuel combustion continues and climate destabilisation accelerates, even the most intact forests will face conditions without historical precedent.[20]

To take this seriously is to refuse a comforting story in which forests are simply a buffer that will protect us indefinitely from our own actions. Proforestation cannot be a substitute for rapid decarbonisation; it cannot carry the full weight of our refusal to change energy systems, economies, and ways of life. Rather, it must be seen as one strand in a larger fabric of transformation, one that includes leaving fossil fuels in the ground, redesigning infrastructures and settlements, and rethinking what we mean by prosperity. The forest can host us, but it cannot absolve us.

There is also a political dimension that must be faced directly. Decisions about which forests are protected, who has access to them, who benefits from their existence, and who bears the costs of changed land use are never neutral. Proforestation strategies that ignore histories of dispossession and inequality risk repeating old injustices under a green veneer. If forest protection is imposed from above without the consent and leadership of those who live with the forest, it may produce new forms of exclusion even as it claims to serve the climate.[11][13][10]

A more just vision would link proforestation to movements for land restitution, to recognition of Indigenous and community land rights, and to forms of governance in which forest-dependent peoples exercise real authority over their territories. In this framing, the protection and maturation of forests is not a technocratic project but a political and ethical one. Climate mitigation becomes part of a broader struggle for self-determination, cultural survival, and repair. The forest is not only a carbon sink but a living ground of identity, memory, and law.[13][10]

Integrated Vision

In this broader picture, the scientific and the philosophical dimensions of proforestation are not opposed. The detailed work of ecology, understanding how large trees store carbon, how fungal networks distribute nutrients, how deadwood nourishes beetles and birds, how pollinators move through layered vegetation, provides a rich, empirical description of forest life. It shows in concrete terms how protecting and allowing forests to grow creates densely inhabited habitats for trees, animals, bacteria, fungal networks, pollinators, and beneficial insects. The philosophical work, in turn, asks what it means that so many forms of life depend on these habitats, and what it implies for our sense of self, our economies, and our politics.[5][8][9][14][24][6]

Proforestation thus invites a double awareness. On one side, we see forests as powerful allies in addressing the climate emergency: systems that, if left to their own dynamics, can remove and store vast quantities of carbon while sheltering an extraordinary wealth of species. On the other side, we are asked to see forests not as allies in a human-centred project but as co-

residents of the Earth, whose flourishing has its own value, independent of our interests.[3][8][1]

Conclusion

To address the climate emergency only by improving the efficiency of our management of forests is to remain within the same horizon that helped generate the crisis: a world in which the human stands at the centre, and every other being is measured by its usefulness to us. Proforestation, if understood narrowly as a technique to maximise carbon storage at low cost, risks reinforcing this pattern. It protects forests because they perform well on our balance sheets, and it may abandon them when some other approach appears more profitable or more convenient.

Yet proforestation contains the seeds of another possibility. When we commit to letting existing forests grow into their full ecological complexity, we do more than fine-tune a climate strategy. We allow forests to become or remain hosts for intricate communities of trees, animals, fungi, bacteria, pollinators, and insects that cannot thrive in simplified, heavily managed landscapes. We accept that their ways of life extend beyond our planning and that their timelines stretch beyond our own. We recognise that our well-being depends on relationships we do not control.

A proforestation strategy worthy of the name would therefore be more than a technical prescription. It would be part of a moral and political reorientation in which humans step back from the dream of mastery and learn to inhabit the Earth as one among many kinds of beings. It would be linked to rapid fossil fuel phase-out, to the reduction of material throughput, to the recognition of Indigenous and local rights, and to forms of governance that treat forests as more than resources. It would acknowledge that the climate emergency is not only a question of parts per million of carbon dioxide but a question of how we see ourselves in relation to the living worlds that surround us.

In the end, proforestation offers us a choice about who we wish to become. We can continue to treat forests as instruments to repair a damaged atmosphere, pulling them into our orbit as another tool in a human-centred project. Or we can accept their invitation to live differently: to slow down, to restrain ourselves, to share space and time with other beings whose existence does not revolve around us. Choosing the second path does not diminish the climate benefits of intact and maturing forests; it situates those benefits within a deeper commitment to life. In that commitment lies perhaps our best hope of finding a way through the crisis that does not simply rearrange the machinery of domination, but begins to dismantle it.

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