

FORESTS, HEALTH, AND MORAL CARE: A BIOETHICAL AND PHILOSOPHICAL ANALYSIS OF ENVIRONMENTAL RESPONSIBILITY IN NURSING PRACTICE

ETAOGHENE PAUL POLO

*Department of Philosophy,
University of Delta, Agbor,
Delta State, Nigeria
etaogheneppaulpolo@gmail.com
<https://orcid.org/0009-0001-1606-0273>*

OYIBOCHA, ELIZABETH OGHOTERU

*Saint Francis Catholic College of Nursing
Sciences, Okpara Inland, Delta State, Nigeria
lisaokpan@yahoo.co.uk*

Abstract

Forests remain foundational to ecological balance, climate stability, and human health. Through ecosystem services such as air purification, watershed protection, biodiversity conservation, temperature regulation, nutrition support, and disease buffering, forest systems directly and indirectly shape mental, physical, and community well-being. Exposure to forested environments supports stress reduction, emotional resilience, and cognitive functioning, while also sustaining livelihoods, cultural identity, and communal cohesion. Despite increasing recognition of environmental determinants of health, the ethical responsibilities of healthcare professionals, particularly nurses, in advancing ecological stewardship remain underdeveloped, representing a critical gap in nursing ethics and public health discourse. To address this gap, this study employs a philosophical-conceptual approach grounded in interdisciplinary literature synthesis and normative bioethical reasoning, drawing on environmental ethics, nursing ethics, public health, indigenous ecological knowledge, Ubuntu philosophy, and eco-bioethics. The analysis develops a

culturally inclusive framework that positions nurses as moral agents of ecological justice, linking relational care with environmental responsibility. Evidence from community-based initiatives, including participatory forest regeneration efforts in Kenya and indigenous-led watershed restoration models in Peru, demonstrates that culturally aligned stewardship enhances ecological outcomes, promotes nutrition and disease prevention, and strengthens community well-being. The study finds that forests must be treated not merely as environmental assets but as infrastructures of health and moral concern, and that nurses have a professional and ethical obligation to integrate environmental literacy, forest-health advocacy, and culturally grounded stewardship into clinical practice, community engagement, education, and policy processes. By framing environmental responsibility as an integral dimension of nursing moral care, this paper contributes to climate-responsive, ethically robust, and culturally inclusive health practice, highlighting the interdependence of ecological and human flourishing.

Keywords: *Forests, Health, Nursing Ethics, Bioethics, Ubuntu, Ecological Justice, Nature-Based Solutions*

Introduction

Forests are among the most significant life-support systems on earth. They regulate atmospheric processes, sequester carbon, protect water sources, stabilise soils, preserve biodiversity, and sustain food and medicinal systems essential to human survival (IPCC, 2023). Beyond these ecological roles, forests profoundly influence mental health, physical resilience, livelihoods, and social cohesion. Their degradation therefore produces wide-ranging public health consequences, including respiratory illnesses, vector-borne disease emergence, nutritional decline, water insecurity, heat stress, ecological grief, and displacement.

The significance of forests to health extends beyond their visible material functions. Forests shape the atmospheric, hydrological, nutritional, and psychosocial conditions under which human communities survive and flourish. They influence air purity, temperature moderation, disease ecology, and food availability, while also serving as spaces of recreation, spiritual restoration, and cultural memory. In many societies, forests are embedded in symbolic systems of belonging and moral identity, making their preservation inseparable from the protection of communal dignity and long-term well-being. When these ecosystems

are degraded, the resulting harms are rarely confined to environmental loss alone; rather, they cascade into clinical, social, and ethical crises that health systems must eventually confront.

For nursing, these realities demand a broader ethical imagination. Nurses work at the frontline of health systems, where they routinely encounter the effects of polluted air, contaminated water, infectious outbreaks, climate-sensitive malnutrition, trauma, and psychosocial distress. As such, the environmental determinants of health are not peripheral to nursing practice; they are central to the lived realities of patients and communities. However, ecological ethics and forest-health responsibilities remain insufficiently integrated into mainstream nursing scholarship, education, and institutional policy.

This absence is increasingly difficult to justify in an era defined by climate disruption, biodiversity decline, and widening environmental injustice. As the burdens of ecological degradation become more visible in hospitals, primary care settings, maternal-child health programmes, and community health initiatives, nursing can no longer remain conceptually restricted to the clinical management of symptoms alone. Instead, the profession must expand its moral and practical scope to include the environmental conditions that generate vulnerability, shape exposure, and determine the distribution of health risks across populations.

This paper addresses that gap by advancing a philosophical and bioethical account of environmental responsibility in nursing practice. It argues that the moral scope of nursing must extend beyond bedside care to include the ecosystems that sustain life. Drawing from *Ubuntu* ethics, Traditional Ecological Knowledge (TEK), multicultural bioethics, and eco-bioethics (Kimmerer, 2013; Ten Have, 2016), the discussion repositions forests as part of the moral landscape of care.

This argument is especially important because nursing has historically understood care in relational, preventive, and justice-oriented terms. Once this ethical foundation is taken seriously, it becomes clear that the systems sustaining breathable air, safe water, food security, and psycho-social stability cannot be external to nursing concern. Forests, in this sense, are not merely “environmental issues;” they are part of the broader life-world within which care is practised, and health is sustained. Reframing them as moral objects of nursing responsibility allows the profession to respond more adequately to contemporary ecological realities.

To improve coherence while maintaining substantive depth, the article is divided into three analytical sections. The first examines forests as determinants of health and the consequences of degradation. The second explores the philosophical and bioethical foundations of environmental responsibility in nursing. The third

develops practical nursing, policy, and governance strategies for culturally inclusive forest stewardship. This structure preserves the central arguments of the study while improving readability and manuscript flow. It also enables a more integrated treatment of environmental responsibility as both an ethical and professional concern in nursing, ensuring that the analysis moves from ecological determinants of health to normative foundations and finally to actionable practice. In this sense, the study contributes not only to environmental ethics and nursing theory, but also to contemporary debates on climate-responsive health systems, preventive care, and justice-oriented professional responsibility. More significantly, it proposes that the future relevance of nursing as a moral profession may increasingly depend on its ability to integrate ecological literacy, culturally grounded stewardship, and long-range inter-generational responsibility into the very meaning of care.

1. Forests, Human Health, and the Consequences of Degradation

Forests are deeply intertwined with human flourishing. Their health significance operates across mental, physical, and community dimensions, and these benefits become especially visible when contrasted with the harms produced by deforestation and forest degradation.

From a mental health perspective, forest environments function as restorative spaces. Exposure to green and forested landscapes has been linked to reduced cortisol, improved mood, lower anxiety, better concentration, and stronger emotional resilience. These restorative effects are not merely recreational; they can be clinically relevant in the management of stress-related disorders, burnout, anxiety, and depression. For nurses and other healthcare workers exposed to high-stress clinical environments, forest contact can also serve as a therapeutic resource for self-care and burnout prevention. In this respect, forest ecosystems contribute both to patient recovery and to the well-being of caregivers themselves, thereby supporting the resilience of health systems.

Equally important, many communities invest forests with spiritual, ancestral, and symbolic significance. In African and indigenous traditions, forests are often sites of ritual memory, healing, and identity (Kimmerer, 2013). Their destruction can therefore produce ecological grief, loss of belonging, cultural bereavement, and psychosocial instability, particularly among children and youth whose developmental experiences depend on access to nature. The psychological burden here extends beyond individual emotion to collective memory and cultural continuity, making forest loss a source of inter-generational trauma in some communities.

The physical health implications are equally profound. Forests filter particulate

pollutants, improve air quality, regulate humidity and temperature, protect watersheds, and maintain ecological balances that suppress disease vectors. These functions reduce respiratory and cardiovascular diseases, heat-related illness, and infectious outbreaks. By contrast, forest degradation increases air pollution, disrupts vector ecologies, heightens zoonotic spillover risks, and contributes to water contamination and malnutrition. The rise of environmentally mediated diseases demonstrates that forest loss is not simply an ecological problem but a direct determinant of epidemiological vulnerability.

Forest ecosystems also support food systems through wild fruits, nuts, vegetables, medicinal plants, and pollination services essential to agriculture. These resources are especially significant for rural households, low-income communities, and indigenous populations whose nutrition security depends partly on forest access. Nurses in rural and community settings can therefore integrate forest-health literacy into nutrition education, maternal-child health, disease prevention, and environmental sanitation. Such interventions can improve community awareness of how ecological decline shapes anaemia, childhood stunting, maternal nutrition, and long-term chronic disease risk.

At the communal level, forests support livelihoods, local economies, disaster resilience, and social cohesion. They reduce erosion and flooding, sustain agriculture, support ecotourism, and provide material resources on which marginalised communities often depend. Deforestation undermines these systems, increasing poverty, displacement, conflict over resources, and environmental injustice (Bullard, 2000; Shue, 1999). For community health nursing, this means that watershed restoration, food security, disaster preparedness, and forest protection must be treated as legitimate public health concerns.

Taken together, these realities show that forests are not merely ecological spaces but infrastructures of health. Their preservation is inseparable from holistic nursing commitments to prevention, well-being, and justice. For nursing systems, this also means that environmental degradation should be recognised as a multiplier of health-system burden, increasing patient vulnerability, intensifying chronic disease prevalence, and widening inequalities in already underserved communities. By integrating forest-health awareness into community assessment, health promotion, and primary prevention, nurses can help shift practice from reactive treatment to anticipatory ecological care. Such a shift strengthens the preventive ethos of nursing by linking ecological sustainability directly to long-term human well-being.

2. Philosophical and Bioethical Foundations of Environmental Responsibility in Nursing

The expansion of nursing responsibility into environmental stewardship requires strong philosophical and ethical grounding. Three interrelated traditions provide this foundation: *Ubuntu* ethics, Traditional Ecological Knowledge, and eco-bioethics.

Ubuntu philosophy emphasises relationality, solidarity, and mutual flourishing. Its moral intuition, that one's humanity is realised through others, extends naturally to the ecological systems that sustain communal life (Metz, 2011). Within nursing, *Ubuntu* broadens the principles of beneficence and justice beyond individual patients to include communities, forests, and future generations. Forest protection therefore becomes an expression of communal care and moral reciprocity rather than a secondary professional concern. This philosophical move is important because it situates environmental care within an already familiar ethical grammar of nursing: responsibility, dignity, relationality, and shared vulnerability.

Traditional Ecological Knowledge (TEK) deepens this ethical vision by embedding ecological wisdom within lived cultural practice. TEK includes detailed understandings of biodiversity, seasonal cycles, watershed dynamics, medicinal plants, and sustainable harvesting systems (Berkes, 2018). More importantly, it frames these practices through reciprocal moral relationships with nature. For nurses working in multicultural or indigenous contexts, integrating TEK strengthens cultural competence, trust-building, and epistemic justice. It also prevents the marginalisation of local knowledge by exclusively technocratic or biomedical frameworks (Whyte, 2017). Nurses can serve as mediators who connect scientific evidence with local ecological traditions, thereby improving both legitimacy and outcomes. In practice, this mediation role can strengthen community trust, improve uptake of environmental health interventions, and reduce resistance to conservation-linked public health initiatives.

Eco-bioethics provides the broader normative architecture for this integration. Emerging from Potter's ecological vision of bioethics and later developed in global health ethics, eco-bioethics insists that ecosystem degradation is itself a health issue (Potter, 1971; Ten Have, 2016). Forest destruction, biodiversity collapse, and pollution are therefore moral concerns because they directly threaten life, dignity, and justice. Building on Polo (2025; 2026), three principles are especially important: cultural respect, participatory inclusion, and ecological justice. These principles align closely with nursing ethics, especially respect for persons, advocacy, and equity.

This philosophical synthesis transforms the meaning of moral care in nursing. Care no longer ends with symptom management or bedside intervention; it extends

upstream to the environmental structures that shape disease burdens and downstream to future generations who inherit the consequences of ecological choices. It also creates a stronger bridge between relational ethics and public health ethics, showing that the protection of ecosystems is inseparable from the protection of vulnerable persons. In this sense, environmental stewardship becomes a coherent extension of professional nursing ethics, one that situates intergenerational responsibility, cultural dignity, and planetary well-being within the nurse's moral horizon. The result is a richer conception of nursing morality, one that links compassion with sustainability and immediate care with long-term ecological foresight.

3. Nursing Practice, Policy, and Culturally Inclusive Forest Stewardship

The practical value of this framework lies in how nurses translate ethical insight into interventions, governance, and policy.

At the level of practice, nurses can incorporate nature-based solutions (NbS) into preventive and therapeutic care. Forest bathing, guided therapeutic walks, medicinal plant stewardship, agroforestry-linked nutrition programmes, and community reforestation initiatives all connect ecosystem restoration with measurable health outcomes (Cohen-Shacham *et al.*, 2016). Such interventions are especially valuable for stress reduction, hypertension management, psycho-social healing, nutritional resilience, and chronic disease prevention. They also align with holistic nursing models that prioritise mind-body-environment relationships.

Community engagement is equally central. Nurses often possess trusted relationships with local populations, positioning them to facilitate participatory mapping, environmental health workshops, youth education, and culturally sensitive conservation dialogues (Boelens *et al.*, 2018). Through these roles, they can ensure that women, elders, youth, and indigenous knowledge holders shape forest governance decisions. This reinforces both *Ubuntu* ethics and the nursing obligation to advocate for vulnerable groups. In many settings, nurses may be among the most credible actors capable of translating ecological risk into understandable health consequences for communities.

The comparative lessons from Kenya and Peru remain particularly instructive. In Kenya, community forest associations improved regeneration and local ownership, yet incomplete cultural integration limited ethical legitimacy and long-term trust (Polo, 2026). In Peru, by contrast, stronger incorporation of indigenous governance, ritual relationships with watersheds, and TEK strengthened both ecosystem recovery and health resilience (Boelens *et al.*, 2016). These examples confirm that ecological effectiveness is often inseparable from cultural legitimacy. They further demonstrate that sustainable forest-health governance depends not only on technical efficiency but also on ethical recognition and participatory

respect.

At the policy level, nurses should be formally recognised as stakeholders in climate adaptation and forest conservation initiatives. Their expertise in surveillance, health education, ethics, and community mobilisation makes them indispensable to interdisciplinary environmental governance. Policy frameworks should therefore support Free, Prior, and Informed Consent, equitable resource allocation, environmental health indicators, and eco-bioethics training within nursing education.

Finally, implementation requires capacity building. Nursing curricula should include environmental ethics, forest-health determinants, climate adaptation, TEK literacy, and culturally responsive advocacy. This educational shift would prepare future nurses not only to treat environmentally linked illness but also to shape the structural conditions that prevent it. Beyond formal curricula, continuing professional development, interdisciplinary workshops, and community-based field engagement should reinforce these competencies across the nursing workforce. Such institutional integration would strengthen nurses' ability to participate meaningfully in climate-health governance, environmental policy dialogues, and community resilience planning. In the long term, this reorientation can help redefine nursing leadership as extending into ecological prevention, sustainability governance, and justice-based climate response.

Conclusion

This study has shown that forests, health, and nursing ethics are profoundly interconnected. Forests sustain mental resilience, physical well-being, livelihoods, water systems, and communal identity, while their degradation intensifies disease, inequality, displacement, and cultural loss. These realities demand an expanded conception of nursing moral care. The broader significance of this claim lies in the way it reshapes the boundaries of professional responsibility. If forests contribute directly to the social, environmental, and physiological determinants of health, then their protection cannot remain conceptually detached from nursing ethics. The profession's long-standing commitments to prevention, advocacy, justice, and holistic well-being logically require attention to the ecological infrastructures that make human health possible. In this sense, forest stewardship is not an external environmental duty added onto nursing, but a deeper articulation of what responsible care already entails.

By drawing on *Ubuntu*, Traditional Ecological Knowledge, and eco-bioethics, the paper has demonstrated that environmental stewardship is not external to nursing ethics but a logical extension of beneficence, justice, advocacy, and holistic care. Nurses are uniquely positioned to translate this ethical vision into practice through patient education, environmental health surveillance, participatory governance,

policy advocacy, and community-based restoration.

The comparative experiences of Kenya and Peru further show that culturally inclusive forest-health interventions achieve stronger legitimacy, trust, and sustainability when local knowledge and governance structures are fully recognised (Polo, 2025; Polo, 2026). The implication is clear: the future of nursing in the climate era must include ecological literacy, culturally grounded stewardship, and a justice-oriented commitment to both present and future communities.

Beyond its practical implications, the study also reinforces a deeper philosophical claim: health professions must increasingly recognise that the conditions of care extend beyond hospitals and clinics into forests, watersheds, biodiversity systems, and culturally meaningful landscapes. When these systems are degraded, the burdens ultimately return to health institutions in the form of disease, trauma, grief, and preventable vulnerability. This makes ecological responsibility a preventive, ethical, and professional necessity rather than an optional extension of care.

A further implication is that nursing ethics must become more explicitly inter-generational. Decisions about environmental stewardship made today shape the disease burdens, nutritional systems, climate risks, and psychosocial realities inherited by future populations. A morally serious nursing framework must therefore recognise obligations not only to present patients, but also to those whose health prospects depend on present ecological choices. This intergenerational orientation deepens the meaning of care by linking present professional action to future human flourishing.

Ultimately, the health of forests and the health of people must be pursued together. A nursing ethic adequate to contemporary environmental crises must therefore extend moral care beyond the clinic to ecosystems, communities, and the planetary conditions that make life possible. The broader implication is that environmentally responsible nursing should become a defining component of twenty-first-century professional identity, shaping how care, advocacy, education, and justice are understood in an era of escalating climate and ecological disruption.

In this expanded sense, nursing becomes not only a healing profession, but also a moral practice of sustaining the environmental foundations of present and future life. Such a vision strengthens the philosophical depth of nursing ethics by uniting human dignity, ecological integrity, and cultural legitimacy within a single framework of care. It also offers a more durable model for climate-responsive practice, one in which the nurse is understood not simply as a responder to illness, but as an active guardian of the ecological conditions that prevent suffering and sustain collective well-being.

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