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Accounting, Animals, and Planet: Rearranging Ethical Responsibilities in The Business World

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Abstract

This study examines how sustainability accounting and reporting systems can be restructured to incorporate non-human subjects, particularly animals, by integrating ethical responsibility, interspecies justice theory, and critical accounting perspectives. Using a qualitative approach through in-depth interviews, it explores the ethical concerns surrounding swallow nest cultivation in Buntok City, Central Kalimantan, where animals are directly involved in business practices. Thematic analysis reveals ethically troubling practices, such as the removal of eggs to increase nest value and habitat loss caused by extractive industries. While communities have adapted by building artificial swallow houses and utilizing bird waste as fertilizer, these efforts are primarily driven by profit. Current accounting frameworks overlook animals as moral or ecological stakeholders, reinforcing human-centered and profit-oriented logic. This research underscores the need for a more comprehensive sustainability model that considers both animal welfare and ecological contributions. It provides a local perspective on global sustainability discussions and advocates for multispecies-inclusive reporting systems. The study concludes with policy recommendations to embed animal welfare into sustainability standards and promote ethical aquaculture practices.

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Introduction

In recent decades, sustainability has become a central concern in the global business landscape. Companies are increasingly expected not only to pursue economic profits but also to consider the social and environmental impacts of their activities (Yovita et al., 2023). Various frameworks, including the triple bottom line, Environmental, Social, and Governance (ESG) metrics, and the Global Reporting Initiative (GRI) standards, have been introduced. However, most of these sustainability approaches continue to prioritize human welfare and the broader environment, often overlooking more nuanced ecological relationships, including the ethical treatment of non-human animals (Setiawan, 2022).

One critical ecological dimension that remains marginalized in sustainability discourse is the role of non-human animals. In many sectors, such as agriculture, livestock, cosmetics, and fashion, animals are frequently treated as mere resources for exploitation (Aisyah Noor et al., 2023). In Indonesia, this issue is particularly evident in the edible bird's nest industry, which reveals a complex interplay between humans, animals, and economic interests. While this industry holds high economic value, its cultivation practices often disregard the welfare of swiftlets, for example, through egg removal or habitat manipulation, which can increase profitability.

Accounting, as the language of business, plays a significant role in shaping how the impacts of economic activity are understood, measured, and reported. However, conventional accounting systems often lack the ethical and ecological sensitivity needed to account for interspecies relationships. This raises a central research question: How can sustainability accounting and reporting systems be reconstructed to become more inclusive of non-human subjects, particularly animals?

Recent studies in the field of sustainability accounting have predominantly focused on human-centered concerns and environmental impacts, often within anthropocentric and capitalist paradigms (e.g., Gray & Milne, 2004; Milne & Gray, 2013; Adams, 2004). These studies have made significant contributions to the understanding of sustainability reporting by highlighting corporate responsibility, stakeholder engagement, and ecological risks. However, they generally neglect the role of non-human entities—particularly animals—as legitimate subjects within sustainability discourses.

This omission reveals a critical gap in the literature: while ecological accounting has evolved to include broader environmental concerns, it still fails to recognize the ethical and ecological presence of non-human species. Existing frameworks often treat animals as background elements or mere resources, rather than as stakeholders who are affected by, and in turn affect, socio-environmental systems.

To address this gap, the present study adopts a multispecies accounting approach. This emerging and innovative framework reconceptualizes animals not as passive entities but as ethical co-inhabitants within shared ecosystems. This approach is informed by interspecies justice and posthumanist theory, challenging the anthropocentrism embedded in conventional accounting logics.

The novelty of this study lies in its attempt to extend the boundaries of accountability by making visible the lived experiences and entanglements of non-human animals within sustainability practices. In contrast to dominant accounting models that reinforce human exceptionalism, this research seeks to reimagine accountability as a multispecies, relational, and ethical practice.

Given the exploratory nature of this inquiry and the need to interpret complex, situated interactions between humans and non-humans, a qualitative approach is essential for this study. This methodological choice enables a deeper understanding of meaning-making processes, ethical considerations, and contextual practices that cannot be fully captured through quantitative metrics alone. Through in-depth interviews,

ethnographic observations, and document analysis, this study aims to generate rich, nuanced insights into how multispecies relations are negotiated and accounted for in practice.

Theoretically, this study contributes to the evolving field of sustainability accounting by integrating interdisciplinary perspectives from animal ethics Singer (1975); Regan (1983), environmental philosophy Plumwood (2002), and critical accounting (Gray, 2002; Tregidga et al., 2017). Central to this contribution is the concept of multispecies accounting—a novel framework that reimagines accounting practices to include non-human subjects as ethical and ecological stakeholders Broadbent and Laughlin (2013); Cuckston (2018), rather than treating animals as passive resources or externalities, multispecies accounting challenges anthropocentric and capitalist accounting norms by recognizing animals' roles in ecological systems and their intrinsic value. This approach aligns with posthumanist thought D. Haraway (2008), which calls for decentering the human subject in favor of more inclusive and relational modes of knowing and valuing.

In doing so, the study addresses a critical gap in the accounting literature, where the focus has remained mainly on human-centered sustainability goals, often neglecting the complex interdependencies between humans and other species. By positioning animals as legitimate stakeholders, this study advances a more-than-human ethics within accounting discourse and practice (see, e.g., Cuckston, 2018; Gallhofer & Haslam, 2020). These contributions build upon and extend earlier calls for rethinking accountability beyond the human Dey and Russell (2014); Maroun and Atkins (2018), aligning with contemporary movements in multispecies and posthumanist accounting.

Practically, the study guides policymakers, sustainability practitioners, and business actors—particularly in industries involving direct human–animal interactions such as swallow nest cultivation, aquaculture, and wildlife-based tourism. It underscores the importance of designing reporting frameworks that extend beyond financial and regulatory compliance to include considerations of animal welfare, ecological integrity, and interspecies justice. These contributions offer a locally grounded yet globally resonant model for rethinking accountability in the Anthropocene.

A review of prior literature suggests that dominant sustainability frameworks often reflect human-centered values, where sustainability is evaluated based on its benefits to humans (Broadbent & Laughlin, 2009; Maroun & Atkins, 2018). As a result, non-human entities such as animals remain invisible within accounting systems. This research addresses that gap by advocating for the inclusion of animals as moral subjects whose welfare and ecological roles should be reflected in sustainability metrics.

The study's findings have practical implications for regulatory and industry practices. It recommends integrating animal welfare standards into sustainability guidelines and promoting ecologically sensitive and ethically informed business practices. In addition, it calls for interdisciplinary collaboration in developing accounting frameworks that recognize animals not only as economic inputs but as co-inhabitants of shared ecosystems.

Literature Review

Sustainable Accounting: Its Concept and Limitations

Sustainability accounting has emerged to address the limitations of traditional financial accounting, which historically fails to account for the broader social and environmental impacts of business operations (Bebbington & Larrinaga, 2014; Gray, 2002; Schaltegger et al., 2003). This critical shift reflects a growing recognition of the need to integrate ethical, ecological, and social considerations into accounting frameworks, extending beyond mere financial performance.

Frameworks such as the triple bottom line Elkington (1997), ESG (Environmental, Social, Governance), and the Global Reporting Initiative (GRI) represent significant steps toward integrating economic, social, and

environmental considerations in corporate reporting. However, despite their progressive rhetoric, these frameworks remain deeply embedded within conventional economic paradigms and are often criticized for their symbolic and instrumental application (Adams, 2004; Gray, 2010).

Numerous studies in sustainability accounting highlight that current practices are overwhelmingly anthropocentric—designed to satisfy human stakeholders, such as investors, regulators, and consumers—while neglecting the moral and ecological significance of non-human life (Milne & Gray, 2013).

This anthropocentric orientation reinforces a utilitarian logic where nature and animals are valued only insofar as they contribute to human goals, such as profit maximization or reputational gain. As a result, sustainability becomes a human-centered exercise, with non-human entities often remaining either invisible or commodified in corporate disclosures. In contrast, multispecies accounting offers a critical departure from this logic by proposing an ethical and epistemological reorientation of accounting practice. Rather than viewing animals and ecosystems as externalities or resources to be managed, this emerging framework positions them as legitimate stakeholders with intrinsic value and ecological agency (Cuckston, 2021; Dey & Russell, 2014; Maroun & Atkins, 2018).

The shift from human-centered to multispecies accounting signifies a broader theoretical alignment with posthumanist and eco-centric philosophies Haraway (2008); Plumwood (2002), challenging the dominant capitalist logics that underpin conventional sustainability discourse. Multispecies accounting not only recognizes the interdependencies between human and non-human life but also seeks to construct reporting systems that reflect those relational ethics. By doing so, it opens up possibilities for more inclusive, just, and ecologically grounded forms of accountability—particularly in sectors where human–animal interactions are central, such as agriculture, aquaculture, and wildlife-based economies.

This study contributes to this growing body of critical scholarship by empirically exploring how animals, particularly swallows in the edible bird's nest industry, are entangled within business practices yet excluded from sustainability narratives. It calls for the reformulation of sustainability standards to acknowledge animals not as commodities but as co-inhabitants whose welfare and ecological roles deserve ethical consideration within accounting systems.

Animal Ethics and Posthuman Theory

Animal ethics has developed rapidly since the publication of Peter Singer's seminal work, Animal Liberation (1975), which introduced the utilitarian principle that animal suffering must be morally accounted for as part of ethical decision-making. Building on this foundation, Martha Nussbaum (2006) expanded the ethical horizon through her Capabilities Approach, arguing that animals have inherent rights to flourish and to develop their natural abilities within supportive environments. In parallel, posthumanist perspectives and multispecies theories, notably advanced by Donna Haraway (2008), challenge the rigid boundaries between humans and non-humans, emphasizing mutual dependency and the ethical necessity of coexistence within shared ecological systems.

Within the context of business and sustainability, these frameworks demand a critical reevaluation of how animals are perceived—not merely as passive objects of production or economic inputs, but as sentient beings and moral subjects whose interests warrant consideration and representation. Integrating animal ethics into business accounting systems would shift the focus from purely financial and compliance-driven metrics to a broader framework of ethical accountability—one that includes the well-being of animals affected by business operations. This reorientation would enable businesses to recognize their roles within multispecies communities, adopt more humane and ecologically responsible practices, and develop reporting models that reflect interspecies justice. Such integration is especially relevant in industries that depend directly on animal life—such as agriculture, aquaculture, and wildlife-based enterprises—where ethical blind spots in conventional sustainability accounting can lead to systemic harm.

Critical Accounting Multispecies Perspective

Critical accounting offers a framework for questioning the role of dominant ideologies in shaping accounting practices and policies. In the context of sustainability, this approach criticizes how capitalism and its restrictive values limit the understanding of social and ecological responsibility (Cooper, 2015; Tinker, 1991). Several recent studies have sought to introduce the concept of multispecies accounting, an approach that aims to incorporate animals and other ecological entities into an accounting system. (Broadbent & Laughlin, 2009; Vinnari & Vinnari, 2022). The concept of Multispecies stakeholders proposes that non-human entities, especially animals directly affected by the Company's activities, should be recognized as legitimate stakeholders. For this reason, it is necessary to develop new indicators that can capture the welfare and impact on animals, such as living conditions, stress levels, or disturbances to habitats.

Method

This study employed a qualitative case study approach to explore the situated meanings and practices of swiftlet nest cultivators in their interactions with non-human animals. As a method, in-depth interviews were used as the primary means of data collection, complemented by field observations and document analysis. The case study design was chosen for its ability to capture the complexity and contextual richness of real-life practices within a bounded setting.

Anchored in an interpretive paradigm, this research seeks to understand how actors perceive, negotiate, and attribute meaning to sustainability and ethical responsibility, particularly in relation to the treatment and positioning of swiftlets within business operations. The qualitative approach enabled an in-depth exploration of values, moral reasoning, and relational dynamics that would have been difficult to access through standardized or quantitative instruments.

The study was conducted in Buntok City, South Barito Regency, Central Kalimantan, Indonesia—a location selected purposively due to the high intensity of economic activities involving direct human–animal engagement, particularly in the swiftlet nest industry. Research participants were small- to medium-scale cultivators with considerable experience in the industry. They were chosen using purposive sampling based on their familiarity with, and sustained involvement in, swiftlet cultivation practices.

Primary data were collected through semi-structured interviews guided by open-ended questions that addressed three thematic areas: (1) participants' values and views regarding swiftlets as sentient beings and integral actors in the business system; (2) cultivation practices related to animal welfare and ecological sustainability; and (3) their understanding of sustainability reporting, social responsibility, and environmental ethics.

A total of four small-scale swiftlet nest cultivators were purposively selected for in-depth interviews. Although the number of participants may appear limited, it proved sufficient for achieving data saturation—a point at which no new themes or significant variations emerged from subsequent interviews. In qualitative research, especially within critical and interpretive paradigms, depth of insight, contextual richness, and interpretive meaning are prioritized over statistical generalization. Thus, the sample size was deemed adequate for capturing the complex ethical, ecological, and socio-economic dimensions of the swiftlet farming practice.

All interviews were conducted on-site and recorded with the participants' informed consent for further thematic analysis.

Table 1. List of Interview Participants

No.	Informant (Pseudonym)	Age (Years)	Occupation/Role
1	Mr. L	54	Swiftlet Nest Cultivator (Owner)
2	Mr. A	50	Swiftlet Nest Cultivator
3	Mr. S	47	Swiftlet Nest Collector
4	Ms. D	48	Head of Agriculture Office, Barito Selatan

Source: Primary data, field interview results, 2025.

Thematic analysis was employed following Braun and Clarke's (2006) framework. The analytical process involved transcribing interview data verbatim, identifying key issues, generating initial codes, grouping these into broader themes, and interpreting the findings using theoretical perspectives from animal ethics, critical accounting, and sustainability studies. To enhance analytical rigor and ensure systematic coding, data were analyzed using NVivo 12 software, which facilitated the organization, retrieval, and comparison of coded segments across interviews. The interpretation phase also included a critical reading of the empirical data against existing literature—particularly studies on animal invisibility in sustainability reporting e.g., Maroun and Atkins (2018) and the development of multispecies accounting frameworks (e.g., Cuckston, 2021). This analytical strategy was intended to uncover underlying assumptions, ethical tensions, and the gap between real-world practices and the ethical or theoretical alternatives proposed in academic discourse.

Result and Discussion

This study draws on qualitative data gathered through in-depth interviews with swallow nest cultivators in Buntok City, South Barito Regency, Central Kalimantan. The informants consisted of small-and medium-scale business actors who have direct interaction with animals in their daily economic activities. The interviews were designed to explore three main aspects: business practices involving animals, environmental changes affecting habitat, and the ethical dimensions of sustainability. Thematic analysis was used to categorize and interpret the findings, guided by critical accounting theory, interspecies justice, and environmental ethics.

Business Practices in Swallow Nest Cultivation and Their Impact on Animals

This study reveals that one of the most common and institutionally embedded practices in the swallow nest cultivation industry in Buntok, Central Kalimantan, is the systematic removal of swallow eggs from their nests before hatching. Driven primarily by economic imperatives, cultivators adopt this practice to increase nest harvest frequency and maintain the visual purity of the nests—an essential quality standard in the highly competitive international export market. Clean, intact nests, free from biological contaminants such as feathers, droppings, or egg residues, are more highly valued by buyers, particularly in countries like China, where aesthetic and hygienic criteria play a central role in consumer preference.

This market logic is reflected in the field testimonies. As one cultivator (Mr. A, male, 50) candidly stated, "We usually remove the eggs once the nest is complete. If we let the chicks hatch, the nest becomes dirty and harder to sell. Buyers prefer clean nests, and the price can drop if there are stains." Another collector (Mr. S, male, 47) echoed a similar rationale: "We do it because otherwise the production takes too long. If you wait for the young birds, the next nest will take much longer to hatch. This way, we get more nests per season." These remarks reflect a normalized logic of optimization and productivity, where ethical or ecological consequences are either downplayed or perceived as secondary to economic survival and market conformity.

The widespread acceptance of this practice is not merely an outcome of individual decision-making but is embedded within broader institutional structures that reward yield maximization over ethical consideration. This is reinforced by a notable absence of local or national regulatory frameworks that impose animal welfare standards in the industry. As such, reproductive interference in swallow life cycles has become a routine,

institutionalized feature of the business, rarely questioned by actors involved—except when moral concerns are privately acknowledged. As one informant (Ms. D, female, 48, Head of the Agriculture Office) reflected with some hesitation: "Sometimes I wonder whether we are being too greedy, taking the nests so early. However, this is how things have been done for years."

Such moments of ambivalence point to an underlying tension between economic necessity and latent ethical concerns—what Donna Haraway (2008) would call "staying with the trouble" of multispecies entanglements. The ethical implications of this practice are significant and warrant further examination. Drawing from recent developments in multispecies ethics and critical animal studies, this practice can be seen as both materially exploitative and morally negligent. Peter Singer's (2009) updated utilitarian perspective on animal welfare argues that any act that knowingly causes suffering or deprives a sentient creature of natural behavior demands ethical evaluation. In this case, the systematic removal of eggs prevents swallows from incubating and rearing their young—behaviors integral to their biological and social life-worlds. While cultivators may not perceive the act as harmful, from the birds' reproductive autonomy standpoint, the practice is profoundly disruptive.

Tom Regan's (2004) rights-based ethics further elevates this critique by emphasizing that animals are "subjects-of-a-life"—beings with inherent value and moral standing. Regan's framework challenges the instrumentalization of animals purely for human profit. Within this view, the commodification of swine reproduction is inherently unethical, irrespective of the economic benefits derived from it. Swallows are not simply resources to be harvested but living beings whose life processes are being violated and systematically redirected to serve capital interests.

Martha Nussbaum's (2006) capabilities approach, increasingly adopted in animal ethics discourse, provides yet another critical perspective. Her theory posits that justice involves ensuring all sentient beings have the opportunity to exercise species-specific capabilities that are central to flourishing. For swallows, this includes nesting, incubating eggs, and nurturing offspring. The deliberate interruption of these capabilities for economic gain constitutes a denial of fundamental animal entitlements. Nussbaum's recent elaboration of this view, in the context of environmental degradation, underscores that ecological justice must incorporate interspecies concerns, rather than merely focusing on anthropocentric sustainability targets.

Empirical studies from other parts of Southeast Asia—such as those by Yeap et al. (2020) and Hussein et al. (2021)—confirm that similar exploitative practices are prevalent across the region, but they also highlight a growing awareness of their ethical and ecological consequences. In Indonesia, however, discourse on animal ethics in the swiftlet industry remains marginal, overshadowed by narratives of economic development, export potential, and community livelihood. This gap reflects a broader structural issue: the prioritization of short-term economic benefits over long-term ecological balance and interspecies justice.

Crucially, the reproductive manipulation of swallows not only violates ethical principles but also destabilizes ecological relationships. Swallow populations in several parts of Kalimantan have exhibited signs of reproductive stress, as noted in recent ecological assessments Putra et al. (2022); however, the underlying causes of this stress remain underexplored. By continuously preventing birds from breeding and displacing their habitats through urban architectural appropriation, cultivators may be contributing to gradual population-level impacts. In turn, this could affect the ecological roles that swallows play, such as controlling insect populations, thereby introducing unintended consequences into local ecosystems.

The findings from this study thus reveal a complex interplay of economic rationality, institutional absence, and ethical ambiguity in swallow nest cultivation. While actors operate under a regime of market discipline, the normalization of extractive practices—especially those that violate fundamental animal behaviors—raises serious questions about the sustainability and justice of the industry. Cultivators do not necessarily lack compassion, but their choices are structured by a system that rarely acknowledges nonhuman suffering.

To move toward more ethical forms of cultivation, a paradigmatic shift is needed. This includes integrating animal welfare guidelines into national agricultural and trade policies, developing participatory ethics training for cultivators, and promoting alternative models of sustainable harvesting—such as partial nesting or rotational cycles that allow some birds to reproduce undisturbed. These reforms must be guided by an ethics of care and cohabitation, not just compliance.

In conclusion, the practice of removing swallow eggs for profit reflects a broader crisis in how human-animal relationships are configured in capitalist economies. Ethical sustainability demands that we confront these uncomfortable truths and reimagine economic systems that are not premised on the systematic silencing of other species. As new frameworks of multispecies justice and critical environmental ethics continue to emerge, the swallow nest industry stands as both a challenge and an opportunity to enact more just and compassionate futures.

Ecological Change and the Repositioning of Swallow Habitats

The transformation of swallow habitats in Buntok, South Barito Regency, reveals a more profound ecological crisis driven by the intersection of environmental change and market-oriented adaptation. Over the past decade, this area has experienced significant ecological disruptions, particularly from the expansion of sand mining operations. These activities have resulted in the clearing of forested areas that traditionally served as nesting sites for wild swallows (swiftlets), thus altering the delicate balance of the region's natural ecosystem. As forest canopies disappear and cave ecosystems are disrupted, swallows have increasingly lost their natural shelters. One informant, coded as Mr. L. (54), explained: "Before the mining became widespread, the birds used to nest in the trees near the river. Now, they no longer come here. It is all dust and machines."

Such firsthand testimonies emphasize the intimate awareness local actors have of ecological degradation. The loss of natural swallow habitats has catalyzed a widespread behavioral adaptation among humans: the rapid proliferation of artificial swallow houses across urban and peri-urban landscapes. These structures are not merely passive shelters but are engineered systems that replicate the ecological and acoustic features of natural environments. Builders use recorded swallow calls, humidity and temperature control, and specific spatial arrangements to simulate forest or cave-like conditions. As Mr. A. (50) described: "We have to maintain the right temperature, sound, and darkness. If one part is off, the birds will not stay. It is like tricking them into thinking this is still nature."

While this adaptation may appear, on the surface, as a form of human ingenuity and ecological responsiveness, a critical examination reveals that these structures are primarily motivated by market logic rather than ecological ethics. The intention behind the artificial habitats is not to conserve or rehabilitate displaced species but to preserve a supply chain of high-value commodities—namely, edible bird nests. These nests, derived from the salivary secretion of swallows, fetch high prices in domestic and international markets, especially in China and Southeast Asia. As such, the shift in swallow habitats is emblematic of what Celermajer et al. (2021) term the "anthropocene entrapment"—where human solutions to environmental degradation often reproduce the very extractive and exploitative systems that caused the crisis in the first place.

The construction of swallow houses further reconfigures human-animal relationships into a framework of instrumental utility. Swallows are no longer perceived as part of a shared ecological community but rather as economic actors whose biological functions are harnessed to support livelihoods. Ibu I. (48), who also works with the local agricultural office, remarked: "We help communities build the houses not just to keep the birds but to keep their income stable. It is about sustainability, yes, but economic sustainability." This reflects a common conflation between economic resilience and environmental stewardship in policy

discourse. However, as recognized by Gaard (2022), this narrow framing of sustainability often overlooks the autonomy and well-being of nonhuman animals, reducing them to mere economic extensions.

Moreover, recent studies have raised questions about whether these artificial habitats truly contribute to species conservation. Lin & Chee (2023), in their ethnographic study of swiftlet farming in East Malaysia, caution that the commodification of animal behavior under the guise of conservation often leads to "ecological dissonance," where human-altered environments fail to meet the complex biological and social needs of species. Artificial swallow houses, while effective in luring swifts, also introduce disorienting acoustic environments, disrupt migration patterns, and may encourage genetic homogeneity by concentrating bird populations in confined spaces.

The ethical dilemmas surrounding these interventions become even more apparent when viewed through the lens of interspecies justice. From a posthumanist perspective, as argued by Belcourt (2020), any human development that alters animal behavior or habitat solely for profit must be examined not only in terms of environmental impact but also in terms of moral responsibility. The very act of "repositioning" swallow habitats—transforming a free-ranging species into a semi-domesticated commodity—raises fundamental questions about consent, autonomy, and the role of nonhuman animals in human economies.

Despite this, many local actors remain ambivalent. As Mr. S. (47), a swallow nest collector and cultivator, explained: "We know this is not how nature is supposed to be. However, the birds still come, and we try to take care of them. Without this, there is no work." His words echo a larger paradox: economic necessity often coexists with ecological discomfort, creating a grey zone where exploitation is rationalized as adaptation.

This paradox is not unique to Buntok. Comparative cases from Thailand and Vietnam also demonstrate that rapid urbanization and ecological displacement have led to similar phenomena, where artificial birdhouses are celebrated as models of "green entrepreneurship" (Pham & Nguyen, 2024). However, such narratives obscure the deeper asymmetries of power that underpin human-animal relations in the global economy. The birds may be thriving in numbers, but they are doing so under human-defined conditions that prioritize production over protection.

In conclusion, the ecological shift from forested habitats to artificial swallow houses in Buntok reflects more than just environmental adaptation—it is a window into the tensions between sustainability and exploitation. While such interventions may ensure the survival of swallows in degraded landscapes, they also commodify animal life and reinforce anthropocentric dominance. The repositioning of swallow habitats is not neutral; economic incentives, technological mediation, and ethical blind spots shape it. A truly just and sustainable response would require not only habitat preservation but also a reimagining of our relationship with nonhuman species—one that values their existence beyond their utility and economic benefits.

Waste Management Initiatives with Ecological Potential

One of the most compelling insights that emerged during fieldwork in Buntok City is the development of a waste management innovation that holds both ecological and economic promise: the utilization of swallow droppings as an organic fertilizer, particularly for oil palm cultivation. This practice, still largely informal and unrecorded in formal reporting structures, reflects a local initiative to integrate principles of the circular economy into swiftlet nest farming—an industry typically associated with resource extraction and high commodification of wildlife habitats.

Several swiftlet cultivators reported collecting and processing the accumulated bird droppings from their nesting houses and redirecting them as a nutrient-rich supplement to agricultural soils. "Rather than throwing it away or letting it pile up, I use it on my oil palm plots. It works better than store-bought fertilizers," explained Mr. L, a 54-year-old cultivator and landowner. His comment highlights the dual benefit

perceived by many: improved soil fertility and reduced dependency on synthetic chemical inputs, which are both costly and environmentally degrading.

This practice represents more than a technical solution to waste; it is a significant epistemic shift in how local entrepreneurs conceptualize the relationship between economic production and ecological cycles. Recent studies in ecological economics and posthumanist sustainability e.g., Barritt and Boyd (2022); D. J. Haraway (2023) argue that such practices signal an emerging multispecies ethic, where human and nonhuman life forms are seen as co-contributors to ecosystem functioning rather than as isolated units of production and consumption. The reuse of animal waste thus becomes not just a form of pollution control but a form of ecological interdependence that regenerates soil health while repositioning waste as a bioresource.

Nevertheless, the sustainability benefits of these practices remain largely invisible in prevailing corporate accounting systems. Current sustainability reporting mechanisms—such as those outlined by the Global Reporting Initiative (GRI) or the Task Force on Climate-Related Financial Disclosures (TCFD)—tend to focus narrowly on emissions, financial materiality, and linear environmental metrics. They fail to capture localized, low-tech ecological innovations that do not fit neatly into carbon footprints or compliance-oriented KPIs. As Mr. S, a 47-year-old collector who also practices waste reuse, remarked: "There is no one to report this to, no one asks. However, we know it is better for the land."

From a critical accounting standpoint, this omission is not trivial. Scholars such as Atkins and Maroun (2022) emphasize that standard accounting frameworks systematically exclude nonhuman stakeholders and fail to account for positive ecological externalities. This results in a distorted picture of sustainability, where harm is measured but care, repair, and regeneration are overlooked. In Buntok, for example, the absence of metrics to value nutrient recycling means that cultivators like Mr. A, who are experimenting with ecologically responsible waste reuse, receive neither institutional support nor public recognition. "We are doing this ourselves, not because of government programs or anything. It just makes sense," he stated.

Complicating the matter further is the lack of attention to animal welfare in both policy and practice. While the repurposing of droppings benefits the environment, it does not necessarily reflect a comprehensive concern for the birds' living conditions or long-term habitat sustainability. Critical animal studies scholars e.g., Coulter (2023); Gillespie and Kheel (2024) caution against substituting eco-efficiency for multispecies ethics, reminding us that treating animals well involves more than just reducing waste—it requires attention to autonomy, habitat integrity, and natural behaviors. However, no mechanism exists within the current sustainability frameworks to evaluate these aspects, let alone embed them into decision-making processes.

This oversight illustrates a deeper ontological gap: the dominant models of sustainability continue to operate within an anthropocentric logic that sees nature and animals as background variables rather than as agents with needs, roles, and relational ties. Without a theoretical and institutional reorientation toward more inclusive, justice-based models—such as multispecies justice Celermajer et al. (2021)—valuable ecological practices remain marginal, unsupported, and under-theorized.

Addressing this requires the development of alternative accounting models that can accommodate not only the financial flows and emissions footprints but also the regenerative loops, interspecies entanglements, and habitat stewardship practices that small-scale actors are already enacting on the ground. Such models would need to be co-designed with local practitioners, environmental scientists, and ethics scholars to ensure they reflect the ecological realities and cultural logics of rural economies.

In conclusion, the grassroots initiative to repurpose swallow droppings as fertilizer in Buntok demonstrates how ecological potential can emerge from within extractive industries when local actors reinterpret waste not as a liability but as a source of renewal. These practices challenge dominant sustainability paradigms and open up new spaces for theorizing sustainability beyond metrics—toward care, reciprocity, and ecological

integration. Recognizing and formalizing such practices within new frameworks of sustainability accounting could catalyze a shift from linear to regenerative economic systems, more attuned to the ethical and ecological demands of the Anthropocene.Top of FormBottom of Form

Discussion And Implications

This study reveals that current sustainability accounting frameworks are fundamentally inadequate in recognizing nonhuman species—particularly swallows—as active ecological stakeholders. Empirical data from Buntok, South Barito Regency, illustrate how business practices in swallow nest cultivation not only shape the habitats and behaviors of these animals but also deeply entangle them in systems of human economic production. Despite this interdependence, existing accountability systems systematically exclude swallows from ethical consideration and sustainability metrics.

The analysis confirms that swallows are not passive participants in the value chain; they are central to the ecological and economic viability of the industry. Their nesting patterns, reproductive cycles, and migration behaviors are directly affected by human-controlled environments such as swallow houses, feeding routines, and artificial soundscapes. However, the welfare of these birds, along with the ecological implications of manipulating their habitats, remains invisible in sustainability reporting. This supports critical accounting arguments Cuckston (2021); Gallhofer and Haslam (2019); Maroun and Atkins (2018) that sustainability discourses continue to privilege human-centered economic concerns over relational ethics and multispecies justice.

Theoretically, this study extends the literature on critical and multispecies accounting by showing that sustainability practices, rather than offering inclusive frameworks, often reproduce anthropocentric logic. These practices reinforce instrumental views of animals as mere assets or inputs in production, ignoring their sentience, suffering, or ecological agency. By doing so, the prevailing accounting mechanisms fail to capture the moral complexities inherent in human–animal–environment relationships. This aligns with the growing field of interspecies justice Djama and Daviron (2022), which advocates for the inclusion of nonhuman entities within ethical and political communities.

In terms of ecological justice, the findings demonstrate that ecological changes—driven by urban expansion, deforestation, and the intensification of swallow house construction—have restructured swallow habitats and behaviors. Swallows are increasingly forced to adapt to artificial environments, which, while economically beneficial to cultivators, may compromise the birds' natural life cycles and well-being. These shifts challenge the legitimacy of sustainability claims that are not grounded in holistic, ecological realities.

Notably, the business-driven manipulation of swallow life—such as inducing rapid nest production, early harvesting, or egg disposal—reflects a deeper ethical tension. It indicates a prioritization of yield over quality of life and raises concerns about the ecological sustainability of the practice. Although such practices are often framed as 'innovations' or 'efficiencies', they mirror extractive logics found in other sectors of industrialized natural resource exploitation.

From a practical standpoint, these insights underscore the urgent need for sustainability frameworks to incorporate indicators that account for animal welfare and multispecies relationships. This includes metrics on habitat integrity, breeding disturbance, behavioral disruptions, and mortality rates linked to commercial practices. Sustainability professionals, regulators, and industry associations must move beyond carbon footprints and environmental degradation indices to embrace ecological indicators that are attentive to the agency and rights of nonhuman actors.

For business practitioners, especially those involved in resource-based industries, this study calls for a shift toward ethical cultivation. Ethical audits, animal welfare training, and participatory governance involving local ecological knowledge can serve as pathways toward more responsible practices. Furthermore,

interdisciplinary collaborations with conservation biologists, ethologists, and environmental ethicists can help co-develop cultivation systems that balance economic viability with ecological responsibility.

In the academic realm, this research contributes to the emerging paradigm of multispecies accounting, which urges the inclusion of nonhuman life in the development of accounting theory and practice (Dey et al., 2023). Such an approach challenges the dominantly quantitative, utilitarian foundation of traditional accounting, proposing instead a relational and justice-oriented model that integrates ecological interdependencies and moral responsibilities.

In conclusion, the findings underscore the necessity of reframing sustainability accounting to recognize animals not merely as resources, but as co-constituents of ecological systems whose lives are deeply interwoven with human economic activity. Only by reimagining animals as ethical subjects and stakeholders can sustainability practices become genuinely inclusive, just, and ecologically grounded. This study contributes to a critical reconsideration of how ethical responsibility and ecological accountability are constructed—and who is allowed to matter—within the apparatus of sustainability discourse.

Conclusions and Recommendations

This study concludes that the cultivation of swallow nests in Buntok City, Central Kalimantan, reflects a complex and often ambivalent relationship between humans and animals, one that remains unacknowledged mainly within conventional sustainability accounting frameworks. Referring to the research aim—to explore how ethical responsibility can be expanded to include non-human animals in business practices—the findings reveal that swallows are primarily positioned as economic assets rather than as moral subjects or ecological stakeholders. Practices such as removing eggs to increase nest value, habitat displacement due to land exploitation, and selective adaptation through the construction of artificial nesting sites demonstrate how economic logic consistently overrides ecological ethics. Although there are signs of environmental consideration—such as the use of swine manure as organic fertilizer—these practices are not systematically reported or ethically framed within current sustainability mechanisms.

Through the integration of critical accounting, interspecies justice, and environmental ethics, this study underscores the pressing need for a new sustainability paradigm that transcends anthropocentrism. It calls for the recognition of animals not merely as background resources or externalities, but as co-inhabitants of shared ecosystems whose well-being must be considered in ethical business practices. To achieve this, future sustainability accounting frameworks must include animal welfare indicators and ethical considerations, thereby expanding the scope of accountability to reflect multispecies relationships. This shift entails reimagining reporting systems that go beyond financial metrics and human-centered outcomes, toward frameworks that embody the principles of ecological integrity, interdependence, and justice for all sentient beings. By embedding these values into sustainability standards, businesses and policymakers can contribute to more inclusive, ethical, and resilient socio-ecological systems.

However, this study has several limitations. The research is context-specific and focuses on a single case study, which may limit generalizability. Furthermore, it relies primarily on the perspectives of cultivators, without including policy or consumer viewpoints. Future research should expand to multiple regions and actors. At the same time, efforts from policymakers, practitioners, and scholars should aim to develop inclusive accounting frameworks that integrate ecological and animal welfare indicators into sustainability reporting.

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