International Journal of Contemporary Sciences (IJCS)
Vol. 4, No. 8, 2026: 2107-2128

Making Landscapes Extractable: Epistemic Politics and Relational Ecologies in Ayu Welirang's *Jejak Balak* and Ayu Utami's *Bilangan Fu*

Heru S.P. Saputra[1]*, Wiwin Indiarti[2], Titik Maslikatin[3], Edy Hariyadi[4], L. Dyah Purwita Wardani[5], Ulil Lauhul Mahfudah[6]
[1,3,4,5,6]Department of Indonesian Literature, Universitas Jember, Indonesia
[2]English Language Education Study Program, Universitas PGRI Banyuwangi, Indonesia
Corresponding Author: Heru S.P. Saputra herusp.saputra.fib@unej.ac.id

A R T I C L E I N F O

Keywords: Extractivism, Forest–Karst Landscapes, Indonesian Literature, Political Ontology, Resource-Making

Received : 15 July
Revised : 20 August
Accepted: 28 September

A B S T R A C T

Environmental degradation is not only material but also epistemic-political: landscapes must be classified, valued, and authorized before extraction becomes legitimate. This study compares Ayu Welirang's *Jejak Balak* and Ayu Utami's *Bilangan Fu* to examine how forest and karst landscapes become extractable, protectable, or relationally inhabitable. Using comparative qualitative literary analysis, page-by-page screening, close reading, and deductive–inductive coding, 68 analytically salient textual units were interpreted. Findings show that extractivism operates through infrastructures of knowledge and authority that render landscapes ownable and governable. Yet ecological knowledge is politically contingent: scientific expertise may support protection, while ritual or local knowledge may be co-opted. Indonesian fiction thus becomes a site for theorizing extractability, relational ecology, and conditional ontological conflict

INTRODUCTION

How does a living landscape become thinkable as an extractable resource? This question shifts attention from visible environmental damage to the epistemic and political processes that make extraction possible. Landscapes become extractable not only through material removal but through classification, delimitation, valuation, legal authorization, and their transformation into property, concession, mineral reserve, or investment space. Valdivia et al. (2022) conceptualize resource-making as the reorganization of heterogeneous entities and relations into forms that become "knowable and exploitable," while Chagnon et al. (2022) extend extractivism to interconnected practices, mentalities, and unequal power relations. Resource value is likewise produced through materiality, governance, markets, knowledge, and territorial control (Artiga-Purcell, 2024; Suarez, 2025).

Accordingly, extractability is socio-materially and epistemically produced rather than intrinsic to forests, limestone, land, or water. Forest becomes plantation land through reclassification, property regimes, concession mapping, and anticipated productivity; karst becomes mining territory when geological matter is detached from hydrological, cultural, historical, and more-than-human relations. These transformations involve law, bureaucracy, technology, expertise, infrastructure, discourse, and institutional authority (Chagnon et al., 2022; Nygren et al., 2022; Valdivia et al., 2022). In Indonesia, Kodir (2026) demonstrates how environmental assessment in North Kendeng may operate as a power/knowledge apparatus. Ecological conflict therefore also concerns who can classify landscapes, establish their value, and translate knowledge into materially consequential action.

This perspective extends environmental literary studies beyond representation. Ecocriticism has established literature's capacity to organize perceptions of environmental value, human–nonhuman relations, violence, responsibility, and loss (Buell, 1995, 2005; Heise, 2008; Nixon, 2011; Garrard, 2023), while Vasudevan and Mukherjee (2025) foreground literary structures of extraction, power, and resistance. This article asks a prior question: how does narrative make a landscape intelligible as something that can (or cannot) legitimately be extracted? The analysis therefore moves from environmental representation toward ways of knowing, epistemic authority, authorized practice, and ecological world-making.

Such epistemic politics cannot be reduced to a modern/scientific versus traditional/local binary. Environmental knowledge is heterogeneous and embedded in unequal power relations. Kenney-Lazar et al. (2023) caution that relationality may reproduce exclusion and coercion; Yanou et al. (2023) identify epistemic asymmetries between scientific and Indigenous/local knowledge; and Abdullah et al. (2024) show that formal recognition of customary or Indigenous forests does not guarantee uniform conservation outcomes. The critical issue is therefore how knowledge becomes authoritative, what practices it legitimates, and with what material consequences.

This article constitutes a focused strand of the 2026 parent project *Rekonstruksi Epistemologi Relasional Berbasis Etnosains Using: Kritik atas Ideologi Ekologis Modern dalam Novel Indonesia Kontemporer* [*Reconstructing Relational*

Epistemology Based on Using Ethnoscience: A Critique of Modern Ecological Ideology in Contemporary Indonesian Novels]. The larger project examines ten novels within five heuristic clusters: forest ecology (*Jejak Balak; Bilangan Fu*), coastal ecology (*Tiang Garam; Arus Balik*), city ecology (*Larung; Kalatidha*), mining ecology (*Tanah Tabu; Api Awan Asap*), and eco-cultural Using (*Niti Negari Bala Abangan; Agul-Agul Blambangan*). The present study narrows that architecture to the two novels initially grouped within forest ecology. Close reading, however, refines the classification: *Jejak Balak* is strongly forest-centered, whereas *Bilangan Fu* is more precisely organized through a karst–mountain–water ecology. Their difference enables comparison through common struggles over knowledge, territoriality, extraction, more-than-human relations, and ecological responsibility. Using ethnoscience remains the wider project's comparative horizon rather than direct evidence or a predetermined model in this article.

Ayu Welirang's *Jejak Balak* (2023) combines illegal logging, oil-palm expansion, HGU, customary forest, livelihood, forestry institutions, journalism, and Inyiak as ancestral guardian. Previous studies emphasize deforestation, forest conversion, environmental crisis, local knowledge, and environmental responsibility (Nisma, 2025; Salsabila et al., 2025; Nadhifah & Indarti, 2026). The novel, however, also reveals how forest becomes governable and ownable: customary territory is translated into *lahan lepasan* and HGU, while PT Zamrud Bumi prepares ownership markers before land release is completed (Welirang, 2023, pp. 195, 223). Legal-regulatory authority nevertheless coexists with livelihood, ancestral territoriality, and Inyiak-based explanations (pp. 223–224). The text also disrupts epistemic binaries: technical monitoring and state intervention may support stewardship (pp. 113–115, 224), whereas Mahzar's ecological "balance" develops into contested vigilantism (pp. 199, 264–265, 324), and Inyiak moves across ancestral, ecological, and public-media registers (pp. 367–373).

Ayu Utami's *Bilangan Fu* (2008) offers a materially different but comparable ecology of karst, caves, underground water, geological deep time, climbing, ritual, mining, and environmental activism. Earlier studies foreground human–environment interaction, ecological destruction, exploitation, and critique of modernity (Bramantio, 2015; Susilowati et al., 2022). Yet Parang Jati's geological explanation transforms Yuda's perception of rock from climbing surface to deep-time history (Utami, 2008, pp. 41–42), while karst becomes a fragile ancient "document" (p. 58). The *clean-climbing* debate contrasts *alat yang memaksa* and *alat yang dialogis*, translating knowledge into an ethic of restraint (pp. 71–83). Conversely, Sajenan demonstrates that ritual can be incorporated into mining, while hydrological knowledge exposes threats to springs (pp. 132–133); the ritual relocation of spirits from hills designated for mining further shows cosmological recognition coexisting with displacement (p. 142). Scientific research, activism, environmental assessment, art, and revived local practices later support conservation, whereas the company–Farisi alliance combines moral-religious classification and coercion to secure mining (pp. 376–378, 405–406, 452–453, 457–458).

The comparison addresses four linked gaps. Empirically, existing studies foreground degradation and critique of modernity but less often examine how landscapes become epistemically and politically actionable. Comparatively, the two novels have not been systematically read as a forest–karst pair through a common mechanism of epistemic authorization. Conceptually, resource-making, relational knowledge, political ontology, and literary extraction remain insufficiently integrated around the production of extractability**.** Critically, the novels undermine a modern-extractive/local-relational binary: scientific knowledge may constrain extraction, ritual knowledge may be co-opted, and relational commitments may become coercive.

Accordingly, the study asks how *Jejak Balak* and *Bilangan Fu* construct forest and karst as differently knowable, inhabitable, valuable, and governable; through what epistemic, material, legal, cultural, and embodied practices these landscapes become extractable, protectable, or relationally inhabitable; and when competing ecological knowledges become ontological conflicts and forms of world-making. It argues that extractivism operates not merely as material appropriation but as an epistemic-political regime that renders relational landscapes ownable, governable, and extractable. Ecological conflict becomes ontological only when actors contest what entities and relations constitute the landscape and who or what possesses legitimate authority within it. By bringing resource-making, epistemic authority, relational ecology, and political ontology into comparative literary analysis, the study positions Indonesian fiction as a site for reconsidering the relations among knowledge, extractability, and ecological world-making.

LITERATURE REVIEW

Environmental Humanities and Relational Ontology

This study is situated within environmental humanities and ecocriticism, which have expanded from representations of nature toward environmental justice, slow violence, materiality, multispecies relations, and more-than-human worlds (Glotfelty & Fromm, 1996; Buell, 1995, 2005; Heise, 2008; Nixon, 2011; Garrard, 2023). Material and multispecies approaches further challenge nature as passive background: Haraway (2016) foregrounds entanglement and responsibility, Tsing (2015) ecological life within capitalist disturbance, and recent literary studies geological temporality, natural agency, and extraction (Hawkes, 2024; O'Neill, 2024; Vasudevan & Mukherjee, 2025). Literature is therefore approached as organizing ways of knowing, valuing, and inhabiting ecological worlds.

The principal theoretical lens is relational ontology. Ingold (2000) locates knowledge in dwelling and practical engagement; Descola (2013) challenges the universality of the nature–culture divide and distinguishes modes of identification from relations among beings; Escobar (2018) extends relationality toward radical interdependence and pluriversal world-making. Together they support the proposition that ecological entities are constituted through historically, materially, culturally, and more-than-humanly situated relations rather than existing as autonomous objects.

The novels materialize this premise differently. In *Jejak Balak*, forest is simultaneously livelihood, customary territory, ancestral inheritance, and Inyiak's domain: a "kontrak sosial" establishes reciprocal restraint (Welirang, 2023, p. 38), while customary management and ancestral guardianship connect livelihood, territory, and responsibility (pp. 113, 117). In *Bilangan Fu*, fossil-bearing stone becomes both scientific object and story-bearing "subject" (Utami, 2008, pp. 9–10); geology transforms rock from climbing surface into deep-time formation (pp. 41–42), and karst becomes a "dokumen tua yang rapuh" (p. 58). Forest and karst thus constitute materially different relational worlds.

Relational Ecological Epistemology and the Politics of Knowledge

Relational ecological epistemology concerns how ecological worlds become knowable through situated relations. Drawing selectively on ecological knowledge, reciprocity, Indigenous relationality, and situated practice (Berkes et al., 2000; Berkes, 2012; Kimmerer, 2013; Whyte, 2017), it is defined here as ways of knowing ecological worlds through participation, embodiment, material interdependence, memory, reciprocity, and responsibility. Yet knowledge relations are politically unequal. Waldmüller et al. (2022) conceptualize relational Indigenous epistemologies as alternative epistemic infrastructures, while Yanou et al. (2023) show that scientific–local knowledge integration may reproduce epistemic hierarchy.

Relational knowledge therefore cannot be identified simply with "traditional" knowledge. In *Jejak Balak*, numbered teak rows support monitoring of pests, weather, and forest conditions, making technical measurement a form of stewardship (Welirang, 2023, p. 115). In *Bilangan Fu*, geology reveals deep-time relations (Utami, 2008, pp. 41–42, 58), hydrological knowledge links karst destruction to threatened springs (pp. 132–133), and *clean climbing* distinguishes "alat yang memaksa" from "alat yang dialogis", translating knowledge into embodied restraint (pp. 71–83). Kenney-Lazar et al. (2023) nevertheless caution that relational configurations may remain unequal or coercive. The central question is consequently which knowledge becomes authoritative, what practices it enables, and with what ecological consequences.

Extractivism as an Epistemic-Political Regime

The analytical counterpoint is not an essentialized "extractive epistemology" but extractivism as an epistemic-political regime. Chagnon et al. (2022) describe extractivism through practices, mentalities, depletion, subjugation, and unequal power, while Nygren et al. (2022) emphasize governance, access, control, recognition, and political authorization. Extractivism therefore links knowledge with property, law, capital, bureaucracy, technology, infrastructure, discourse, and coercion.

Critical resource geography provides the mechanism. Valdivia et al. (2022) argue that resources are made rather than merely discovered: heterogeneous entities become "knowable and exploitable" by being detached from some relations and enrolled into others. Artiga-Purcell (2024) emphasizes relational resources and entangled extractivisms, while Suarez (2025) shows landscapes reorganized as market-oriented assets. Accordingly, extractability is produced

through practices that classify, delimit, authorize, value, and reorganize relational landscapes as resources.

In *Jejak Balak*, trees become quotas and profit (Welirang, 2023, pp. 55–56), while customary territory becomes *lahan lepasan*, HGU, and corporate property (pp. 195, 223): customary forest, classification, land release/HGU, property, extraction. In *Bilangan Fu*, corporate permission, machinery, ritual sponsorship, and threatened springs converge around mining (Utami, 2008, pp. 131–133): karst, authorization, technical accessibility, quarry. Extraction therefore begins with epistemic and political conversion rather than material removal alone.

Political Ontology, Ontological Conflict, and Anti-Romanticization

Political ontology diagnoses when environmental disputes concern more than interests or valuations. Blaser (2013) links ontological conflict to divergent assumptions about what exists; de la Cadena (2015) examines political worlds involving earth-beings; and Escobar (2018) conceptualizes pluriversal world-making. Flemmer et al. (2024) stress that defining what is at stake is itself political, while Campbell and Gurney (2024) distinguish different valuations of a shared entity from conflicts over what the entity actually.

To avoid conceptual inflation, the study distinguishes interest/value conflict, epistemic conflict, authority/legibility conflict, and ontological conflict. The latter applies only when contestation concerns what entities exist, which relations constitute them, or who or what possesses legitimate agency and authority. These categories are diagnostic, not sequential (Rauchecker et al., 2026). In *Jejak Balak*, this threshold appears where HGU/property authority confronts ancestral-Inyiak territoriality (Welirang, 2023, pp. 120, 223–224). Ott's (2025) Sámi forest analysis reinforces the methodological principle that constitutive relations must be demonstrated before conflict is identified as ontological.

Bilangan Fu provides comparable thresholds: Watugunung is simultaneously mineral territory, geological archive, hydrological system, sacred topography, and more-than-human dwelling. Ritual relocation of spirits from hills designated for mining acknowledges inhabitation while accommodating destruction (Utami, 2008, p. 142), while sacred pelus becomes subject to competing ecological, ritual, and ideological classifications (pp. 490–491). Ontological politics is therefore a conditional outcome of epistemic contestation, not an automatic consequence of difference.

The analysis simultaneously adopts anti-romanticization. Relationality and local knowledge are not presumed ethically protective (Kenney-Lazar et al., 2023; Abdullah et al., 2024). Mahzar's ecological "balance" culminates in lethal vigilantism (Welirang, 2023, p. 324), whereas the mining company in *Bilangan Fu* incorporates Sajenan into its operation (Utami, 2008, pp. 132–133). Scientific knowledge may protect while ritual knowledge may be co-opted. The decisive analytical sequence is therefore: Knowledge, authority, practice, material consequence**.**

The integrated framework begins with a more-than-human landscape, asking what entities and relations exist and how they become knowable. It then

traces classification/legibility, epistemic-political authority, valuation, authorized practice, material consequence, epistemic contestation. Ontological politics is diagnosed only when disagreement concerns incompatible constitutive relations, entities, agency, or authority. The final concern is the ecological world subsequently reproduced, damaged, displaced, negotiated, or remade.

METHODOLOGY

This study employed a comparative qualitative literary design combining close reading, relational ecological textual analysis, and deductive–inductive thematic coding. It constitutes a focused sub-study of the authors' broader 2026 project on relational ecological epistemology based on Using ethnoscience, which examines ten novels across five ecological clusters. The present article restricts its evidentiary corpus to *Jejak Balak* and *Bilangan Fu*, initially grouped within the parent project's forest-ecology cluster; findings from the other eight novels and contextual field data are not used as evidence here.

Qualitative interpretation examined how narrative language, characterization, landscape description, material practices, and competing knowledge claims construct ecological relations rather than measuring textual frequency (Creswell & Poth, 2018; Denzin & Lincoln, 2018). Close reading remained the primary interpretive method, while coding indexed recurrent relations among landscape, knowledge, authority, practice, and ecological consequence. The approach is therefore defined as relational ecological close reading informed by critical resource geography and political ontology, rather than as a separate Critical Discourse Analysis model. It examines how landscapes become epistemically legible and politically actionable, how ecological knowledges acquire different effects, and when epistemic contestation approaches ontological conflict.

The corpus comprised Ayu Welirang's *Jejak Balak* (Gramedia Pustaka Utama digital edition, 2023) and Ayu Utami's *Bilangan Fu* (first KPG edition, 2008). The novels were purposively selected not because they represent identical ecologies, but because their materially different forest and karst formations stage comparable conflicts involving extraction, territoriality, ecological knowledge, more-than-human relations, and responsibility. *Jejak Balak* foregrounds customary forest, logging, plantation expansion, HGU (*Hak Guna Usaha*), livelihood, forestry governance, and Inyiak; *Bilangan Fu* foregrounds karst, caves, underground water, geological history, climbing technologies, ritual, and limestone mining. The comparative object is therefore the mechanisms through which landscape use becomes authorized, resisted, negotiated, or transformed, rather than ecological sameness.

The unit of analysis was a narratively bounded passage or scene relevant to the research questions. Units ranged from individual statements to multi-page sequences and included landscape descriptions, human–nonhuman encounters, livelihood practices, legal/property language, technologies, scientific and geological knowledge, customary or cosmological discourse, institutional framing, and ecological consequences. Representative examples include the Inyiak–forest "kontrak sosial" (Welirang, 2023, p. 38), the transformation of customary forest into "lahan lepasan" and HGU (p. 195), and the convergence of

property, permits, and Inyiak-based territoriality (pp. 223–224). In *Bilangan Fu*, examples include karst as a "dokumen tua yang rapuh" (Utami, 2008, p. 58), the *clean-climbing* debate (pp. 71–83), and the Sajenan–mining sequence connecting permits, machinery, ritual, and threatened springs (pp. 131–142).

Data were constructed through page-by-page screening of both novels, contextual close reading, and selective analytical inclusion. Screening aids served only to locate potentially relevant passages; selection depended on interpretive significance rather than keyword frequency. For the image-based working copy of *Jejak Balak*, text recognition was used only for retrieval, with page references verified against visible printed pagination; *Bilangan Fu* citations follow the 2008 KPG pagination. The process yielded 39 evidence units from *Jejak Balak* and 29 from *Bilangan Fu*, producing 68 analytically salient textual units. These do not represent every environmental reference in the novels but the evidence most directly relevant to landscape ontology, ecological knowledge, legibility and authority, extractive or relational practices, more-than-human relations, conflict, and world-making.

Each unit was recorded in an analytical matrix containing textual evidence, page and narrative context, ecological formation, human and more-than-human actors, knowledge regime, practice, analytical orientation, coding, interpretation, theoretical relevance, evidence strength, and interpretive caution. Coding followed a deductive–inductive logic (Saldaña, 2021; Braun & Clarke, 2021). Initial sensitizing codes were REK (Relational Ecological Knowledge), EEK (Extractive Ecological Knowledge), RO (Relational Ontology), EO (Extractive Ontology), REC (Reciprocity), RES (Responsibility), EXT (Extraction), NHR (Nonhuman Relations), ECO (Ecological Conflict), and EWM (Ecological World-Making). Emergent codes included LBL (Legal-Bureaucratic Legibility/Property), MED (Media/Discourse Framing), GEO (Geological/Deep-Time Knowledge), HYD (Hydrological Relationality), RIT (Ritual/Cosmological Knowledge), EM (Ecological/Cultural Memory), SK (Situated/Embodied Knowledge), ENVJ (Environmental Justice), GOV (Conservation/Governance), and AMB (Ambivalence/Anti-Romanticization).

These codes functioned as analytical aids rather than predetermined conclusions. EEK did not imply an autonomous "extractive epistemology" but marked cases in which knowledge contributed to calculability, control, ownership, or extraction within broader configurations of law, property, capital, technology, bureaucracy, discourse, and coercion. Likewise, RO and EO were sensitizing categories rather than automatic diagnoses of ontological conflict. This preserved the possibility that scientific knowledge could support protection while ritual knowledge could be incorporated into extraction.

Interpretation proceeded through five stages: (1) within-text landscape mapping, reconstructing forest–customary territory–plantation–Inyiak relations in *Jejak Balak* and karst–rock–water–ritual–mining relations in *Bilangan Fu*; (2) epistemic-regime analysis, identifying who knows landscapes and through which practices, institutions, memories, technologies, or narratives; (3) practice-and-consequence analysis, tracing how knowledge authorizes or contests extraction, property, care, conservation, coercion, and ecological violence; (4)

comparative mechanism analysis, identifying shared processes such as classification, territorial legibility, and epistemic-political authorization; and (5) ontological adjudication, determining whether conflicts concern interests, evidence, authority, or the constitution of the landscape itself.

Ontological conflict was identified only where textual evidence supported disagreement over what or who exists, which relations are constitutive, who or what possesses legitimate agency or authority, and what obligations follow. Interest/value, epistemic, authority/legibility, and ontological conflicts were treated as diagnostic and potentially overlapping categories. This distinction is exemplified by the encounter between permit/property authority and Inyiak-based territoriality in *Jejak Balak* (Welirang, 2023, pp. 223–224), and by the ritual treatment of mining-targeted limestone hills as more-than-human habitation in *Bilangan Fu* (Utami, 2008, p. 142).

Interpretive rigor was maintained through an explicit audit trail: primary evidence preceded theoretical attribution; major claims were page-verified; character speech was distinguished from narrator or authorial position; narrative ambiguity was preserved; personification was not automatically equated with nonhuman agency; local or ritual knowledge was not presumed environmentally protective; and contradictory or ambivalent evidence was retained. These safeguards were crucial because *Jejak Balak* combines protective technical monitoring with Mahzar's ecological vigilantism, while *Bilangan Fu* juxtaposes conservation-oriented geological knowledge with mining-sponsored ritual. The resulting evidentiary chain remained transparent: textual passage, coding, contextual interpretation, cross-text comparison, theoretical claim.

RESEARCH RESULT

Close reading of the 68 analytically retained textual units revealed four comparative patterns. First, extraction begins before material removal through practices that make landscapes administratively, technologically, economically, and discursively appropriable. Second, ecological knowledge is heterogeneous rather than reducible to a modern/scientific versus local/traditional binary. Third, more-than-human entities mediate narrative knowledge through distinct modes, from material actancy to cosmologically recognized agency. Fourth, some epistemic conflicts cross into ontological politics while exposing the co-optability and ethical ambivalence of relational claims. Forest and karst are therefore compared not as identical ecosystems but as materially distinct landscapes subjected to comparable processes of epistemic authorization and world-making.

Table 1. Comparative Configuration of the Research Findings

Analytical dimension	***Jejak Balak***	***Bilangan Fu***	**Comparative finding**
Landscape extractability	Logging quotas, land release, HGU, boundaries, institutional/media power	Drilling, permits, quarrying, machinery, security, stigmatization	Extraction is preceded by extractive legibility
Ecological knowledge	Adat governance, Inyiak, technical monitoring, embodied memory	Geology, hydrology, ritual, Sebul, clean climbing, conservation	Knowledge effects depend on relations and practices authorized
More-than-human mediation	Trees/traces, heat, smoke, galodo, Inyiak	Stone, karst, Sebul, water, springs, pelus	Nonhumans mediate knowledge through distinct modes
Ontological politics/world-making	HGU versus ancestral territoriality; vigilantism; adat mobilization	Quarryable versus inhabited karst; ritual co-optation; conservation coalitions	Ontological conflict is conditional; alternatives are heterogeneous

Making Landscapes Extractable

The first finding is that extraction begins before physical removal. Classification, valuation, legal authorization, territorial inscription, technology, and legitimizing discourse convert relational landscapes into controllable resources.

In *Jejak Balak*, illegal logging already turns teak into calculable stock through quotas and anticipated profit**,** "Bisa kaya kita" ["We can get rich"] (Welirang, 2023, pp. 55–56), although plantation workers' wage dependence complicates any equation between labor participation and control of extraction (p. 196). More significantly, *hutan adat* becomes "lahan lepasan" and HGU (p. 195), producing the sequence customary forest, released land, HGU, plantation property. PT Zamrud Bumi's ownership markers appear before land release is complete (p. 223), showing that juridical and semiotic enclosure anticipates material appropriation. Loss of customary territory subsequently threatens livelihood (pp. 226–229), while corporate influence over media and institutions indicates that extractive control also involves control over public explanation (pp. 196–197).

Bilangan Fu constructs an analogous process through karst. Drilling and *clean climbing* contrast coercive and responsive relations to rock (Utami, 2008, pp. 35–36, 71–83), later connected analogically with destructive cave modification

and mining (p. 90). In the Sajenan sequence, mining permission, heavy machinery, ritual sponsorship, and threatened springs converge (pp. 132–133), yielding karst, permitted territory, mechanically accessible limestone, quarry. The company–Farisi alliance further stigmatizes opponents as "penyembah berhala" (pp. 457–458), demonstrating that extractive infrastructure includes moral classifications that delegitimize alternative relations to place.

Yet legibility is not inherently extractive. Forestry authorities suspend PT Zamrud Bumi's activities (Welirang, 2023, p. 224), while environmental institutions, activists, and assessment requirements constrain mining (Utami, 2008, p. 452). Extractive legibility therefore names a specific alignment of classification, property, technology, authority, and power. Both novels depict the production of extractability, not environmental destruction alone.

Knowing Landscapes Otherwise

The second finding is that ecological knowledge acquires significance through the relations and practices it authorizes rather than through a presumed modern or traditional identity.

In *Jejak Balak*, the "kontrak sosial" between community and Inyiak establishes reciprocal restraint (Welirang, 2023, p. 38), while Inyiak protects ancestral forest and farmland (p. 117). Yet relational knowledge also includes regulated adat livelihood (p. 113) and technical monitoring of pests, weather, and forest conditions (p. 115), demonstrating that technical knowledge can function as care. Embodied tracking, remembered routes, heat, smoke, and altered encounters likewise produce ecological knowledge through bodily exposure (pp. 232–233, 261, 268).

Bilangan Fu extends this plurality. Fossil-bearing stone becomes geological archive and story-bearing presence (Utami, 2008, pp. 9–10); underground rivers and springs establish karst as hydrological infrastructure (pp. 11–12); and Sebul destabilizes epistemic certainty through an intentionally ambiguous encounter (pp. 17–23). Geological explanation reveals deep time (pp. 41–42), while karst as a "dokumen tua yang rapuh" links geological evidence, vulnerability, water, and cultural memory (pp. 57–60). *Clean climbing* turns this epistemology into embodied restraint by requiring climbers to respond to material affordances rather than force routes through drilling (pp. 71–83). Conservation later assembles scientific research, arts, revived local practices, public writing, activism, and legal pressure (pp. 376–378, 405–406, 452).

The comparative finding is therefore that ecological knowledge must be evaluated by what it enables actors to do, to whom or what, and with what consequences.

More-Than-Human Mediation

The third finding distinguishes narrative personification, material actancy, and ontological agency, avoiding the undifferentiated claim that "nature has agency."

In *Jejak Balak*, bullet marks in teak trunks contradict an animal-attack explanation (Welirang, 2023, pp. 144–145), while missing tiger traces destabilize causal certainty (p. 133). Trees and traces operate as material evidence, not

intentional actors. Heat, smoke, and galodo similarly make landscape transformation materially consequential (pp. 268, 294), with galodo later described as "kerusakan sistem" (p. 364).

Inyiak occupies a different register. Reciprocal obligation, ancestral guardianship, and territorial authority give Inyiak ontological agency within the novel's cosmological world (Welirang, 2023, pp. 38, 117, 120). The villagers' final apology and promise to protect the nagari renew responsibility toward a more-than-human participant (p. 373).

In *Bilangan Fu*, stone archives geological time (Utami, 2008, pp. 9–10, 41–42, 57–60), cliff affordances constrain bodily action (pp. 71–83), and karst hydrology reveals relations obscured by quarry-centered classifications (pp. 11–12, 132–133). Sebul remains narratively ambiguous (pp. 17–23), whereas pelus condenses material, sacred, hydrological, and political registers: one regime treats it as idolatrous, while another situates it within relations among limestone, subterranean water, springs, and sacred place (pp. 490–491). The analysis need not validate literal cosmological causality to recognize these competing relational worlds.

From Epistemic Contestation to Ontological Politics

The fourth finding concerns when disagreement shifts from competing interests or evidence toward what constitutes the landscape and legitimate authority within it.

In *Jejak Balak*, this threshold appears most clearly when incomplete land release, HGU, and state regulation confront ancestral-Inyiak territoriality (Welirang, 2023, pp. 223–224). The conflict is no longer simply over legal control: HGU constitutes legitimate territory through transferable property, whereas Inyiak-based territoriality grounds legitimacy in inherited relations among forest, ancestry, livelihood, community, and guardian being.

Bilangan Fu presents a comparable instability. Mining constitutes limestone as exploitable territory, while geology and hydrology constitute karst as deep-time archive and water system. Ritual relocation of beings from hills designated for mining produces ontological displacement while accommodating destruction (Utami, 2008, p. 142). The pelus conflict similarly asks what kind of entity the fish is and which relations generate obligations (pp. 490–491), while "penyembah berhala" becomes a classification supporting coercion against mining opponents (pp. 457–458).

These cases also prevent romanticization. Corporate sponsorship of Sajenan incorporates ritual into extraction (Utami, 2008, pp. 132–133), showing that cosmological recognition can coexist with material dispossession. In *Jejak Balak*, Mahzar's ecological commitment culminates in killing supposed environmental offenders to restore "balance," a justification Timur rejects (Welirang, 2023, p. 324; see also pp. 199, 264–265). Ecological relationality therefore does not guarantee ethical legitimacy.

Nevertheless, both novels imagine plural reconstruction. In *Jejak Balak*, demands for the return of 1,000 hectares of tanah ulayat, journalism, public mobilization, and renewed obligation to Inyiak converge (Welirang, 2023, pp.

363–373). In *Bilangan Fu*, science, arts, revitalized practices, research, public writing, activism, and regulation combine in conservation efforts (Utami, 2008, pp. 376–378, 405–406, 452); by the epilogue mining has stopped and conservation status is under review (p. 526). These alternatives are not returns to pure tradition but heterogeneous assemblages of science, memory, law, ritual, embodied practice, institutional governance, political action, and more-than-human relations.

Across the four findings, extraction depends on prior classification, authorization, territorialization, technology, and discourse, while alternative knowledges recover relations suppressed by extractive legibility. Ontological politics appears only where actors contest what the landscape is, which relations constitute it, and who or what possesses legitimate authority within it**.**

DISCUSSION

The comparison shows that the novels' significance exceeds representing environmental damage. Their deeper intervention lies in exposing the processes through which landscapes become available for extraction. Four implications follow: extractability is produced; knowledge is politically contingent; relationality is ethically ambivalent; and Indonesian fiction participates in environmental theory-making.

Extractivism as an Epistemic-Political Regime

Critical resource scholarship increasingly treats resources as socially and materially produced rather than pre-given. Valdivia et al. (2022) conceptualize resource-making as rendering heterogeneous entities knowable and exploitable; Chagnon et al. (2022) extend extractivism to practices, mentalities, and unequal power; Nygren et al. (2022) emphasize governance, access, control, recognition, and authorization; and Artiga-Purcell (2024) stresses the relational co-constitution of resources, territories, and power.

The novels extend this scholarship through production of extractability. In *Jejak Balak*, *hutan ulayat* becomes "lahan lepasan", HGU, and corporate territory before material transformation is complete (Welirang, 2023, pp. 195, 223). In *Bilangan Fu*, karst moves from geological–hydrological landscape to licensed and mechanized mining territory (Utami, 2008, pp. 58, 131–133). These trajectories parallel Suarez's (2025) account of landscapes remade into resources through valuation, materiality, knowledge, and state–capital relations.

Extractivism is consequently an epistemic-political regime, because knowledge becomes consequential through property, law, bureaucracy, capital, technology, discourse, and coercion. The company–Farisi alliance demonstrates this directly: machines enable removal while the label "penyembah berhala" delegitimizes resistance (Utami, 2008, pp. 457–458). Kodir's (2026) North Kendeng study similarly shows how evidence and expertise may form environmental truth regimes, reinforcing the broader relevance of epistemic authorization without being treated as evidence for the fictional world.

The central proposition is therefore that before forest becomes plantation or karst becomes quarry, landscape must first become epistemically legible and

politically actionable as something that may legitimately be bounded, valued, controlled, and removed.

Beyond the Modern/Local Binary: Knowledge as Political Configuration

Ecological knowledge possesses no predetermined environmental orientation. Kenney-Lazar et al. (2023) conceptualize relational governance as heterogeneous and unequal; Yanou et al. (2023) show how scientific–local knowledge integration can reproduce epistemic asymmetry; Waldmüller et al. (2022) foreground relational epistemic infrastructures; and Weir et al. (2024) emphasize jurisdiction, institutions, relations, and epistemological assumptions.

The primary evidence confirms this non-binary logic. Technical monitoring and forestry intervention can protect forest in *Jejak Balak* (Welirang, 2023, pp. 115, 224). Geological and regulatory knowledge can disclose karst vulnerability and support conservation in *Bilangan Fu* (Utami, 2008, pp. 41–42, 452, 483). Conversely, Sajenan can be reorganized around corporate mining, and ritual relocation of spirits can accommodate extraction (pp. 132–142).

This finding converges with Weaver's (2024) warning that traditional ecological knowledge itself may be detached from constitutive relations; Abdullah et al. (2024) show that customary or Indigenous forest recognition produces uneven outcomes; Libassi (2024) complicates corporation–community binaries in Indonesian mining; and Sahide et al. (2023) demonstrate that environmental knowledge is mediated through bureaucracy, interests, and public politics.

The appropriate analytical sequence is thus: knowledge configuration, authority, authorized practice, material consequence.

Scientific, adat, legal, or ritual labels identify the provenance of knowledge but do not predetermine its ecological effects. Epistemic politics refers to the processes through which certain knowledges gain authority to classify territory, establish evidence, authorize conduct, and materially reorganize ecological worlds.

Relationality Without Romanticization

Relational ontology remains central because both novels constitute landscape through interconnected human and more-than-human relations. Yet relationality cannot function as an automatic ethical endorsement. Kenney-Lazar et al. (2023) specifically warn that relations may reproduce inequality and coercion.

Mahzar provides the clearest counterexample. Although his ecological understanding emerges from interdependence and forest destruction, he ultimately justifies killing environmental offenders to restore "balance," while Timur rejects that logic (Welirang, 2023, p. 324; see also pp. 264–265). *Jejak Balak* therefore separates ecological relationality from ethical legitimacy.

In *Bilangan Fu*, *clean climbing* enacts restraint toward rock but also contains exclusionary possibilities when Parang Jati denies equal climbing rights to those unable to climb without damage (Utami, 2008, pp. 71–83, especially p. 80). Sajenan likewise demonstrates that ritual relation can coexist with corporate extraction.

The stronger proposition is therefore: Relation must be evaluated not only by whether relationality is acknowledged, but by how relations distribute authority, vulnerability, responsibility, and the capacity for violence.

This avoids romanticizing local wisdom while preserving relational epistemology. Ecological alternatives consequently appear as heterogeneous formations: ulayat claims, journalism, law, cosmological memory, and Inyiak in *Jejak Balak* (Welirang, 2023, pp. 363, 367–373); science, arts, ritual reconstruction, environmental law, rights advocacy, public writing, and climbing ethics in *Bilangan Fu* (Utami, 2008, pp. 376–378, 405–406, 452–453).

Indonesian Fiction as a Site of Environmental-Theoretical Intervention

The final implication is that Indonesian fiction should not be reduced to local material illustrating theories produced elsewhere. These novels test and revise theoretical categories.

Recent literary scholarship demonstrates fiction's capacity to mediate heterogeneous environmental relations: O'Neill (2024) brings scientific, vegetal, kinship, and more-than-human knowledge together; Hawkes (2024) foregrounds geological temporality and agency; McGiffin (2024) connects dispossession with alternative ethical possibilities; and Vasudevan and Mukherjee (2025) theorize extraction as a literary structure. The present study moves analytically upstream by asking what makes landscapes legible as extractable before extraction occurs.

The forest–karst comparison shows that ecological specificity need not prevent conceptual comparison. Their common mechanism is epistemic authorization, not biome similarity. Political ontology similarly requires diagnostic restraint. Flemmer et al. (2024) locate environmental struggle partly in defining what is at stake; Campbell and Gurney (2024) distinguish disputes over valuation from disputes over what an entity is; Ott (2025) requires constitutive relations to be demonstrated; and Rauchecker et al. (2026) show how divergent environmental classifications may produce different realities.

Accordingly, most disagreements in the novels remain political, epistemic, ethical, or regulatory. Ontological conflict appears only at stronger thresholds: HGU/property versus ancestral-Inyiak territoriality in *Jejak Balak* (Welirang, 2023, pp. 223–224), and quarryable limestone versus geological, hydrological, sacred, and inhabited karst in *Bilangan Fu* (Utami, 2008, p. 142; pp. 490–491). Ontological conflict is therefore conditional, not universal.

The novels also discipline claims about more-than-human agency. Bullet-marked trees act as material evidence without intentionality (Welirang, 2023, pp. 144–145), whereas Inyiak possesses authority within a cosmological register. In *Bilangan Fu*, geological strata and hydrology exert material constraints, Sebul remains deliberately ambiguous, and pelus occupies a sacred-hydrological relation. Personification, material actancy, epistemic mediation, and ontological agency must remain distinguishable.

This is where fiction contributes uniquely: it can place law, geology, ritual, forensic evidence, embodiment, media, myth, and more-than-human beings in sustained interaction and test their consequences. Mahzar's "balance" is tested through violence; Parang Jati's relational ethics through exclusion; ritual through

corporate co-optation; and geological science through conservation. Literature thus stages epistemic collisions, exposes their limits, and tests the worlds they make possible.

The comparison finally supports five propositions: extractivism requires epistemic authorization; ecological knowledge is politically contingent; relationality is ethically ambivalent; nonhumans mediate ecological worlds through differentiated registers; and ontological conflict is a diagnostic threshold rather than a default label. Indonesia therefore emerges not merely as a location where environmental theory is applied but as a site from which environmental theory can be complicated and revised. *Jejak Balak* and *Bilangan Fu* show that alternatives to extraction arise through contested combinations of science, law, memory, ritual, embodied practice, political organization, and more-than-human relations.

The struggle over extraction is ultimately a struggle not only over resources, but over which relations are permitted to constitute a landscape and which forms of knowledge acquire the authority to make those relations materially consequential.

CONCLUSIONS AND RECOMMENDATIONS

This study shows that *Jejak Balak* and *Bilangan Fu* construct materially different ecological formations (forest and karst–mountain–water) yet reveal a comparable mechanism of extractability. Their comparability lies not in ecological sameness but in classification, valuation, territorialization, technological reorganization, and authorization. Customary forest becomes released land, HGU, and plantation property, while karst becomes licensed quarry territory. Extractability is therefore produced rather than naturally given.

Extractivism operates through material appropriation and epistemic-political infrastructures involving property, permits, expertise, technology, discourse, and coercive authority. Ecological destruction is thus inseparable from epistemic authorization.

The findings reject a modern-extractive/local-relational binary. Scientific knowledge may enable extraction or conservation, while customary, embodied, ritual, and cosmological knowledge may sustain responsibility yet also be co-opted. Knowledge must therefore be assessed through the authority, practices, relations, and material consequences it produces; relationality itself may generate care, exclusion, or violence.

Ontological conflict is likewise conditional, arising only when disputes concern what exists, which relations constitute the landscape, and who or what possesses legitimate agency and authority, as shown by HGU versus ancestral–Inyiak territoriality and quarryable versus geological, hydrological, sacred, and more-than-human karst. Political ontology should therefore remain a diagnostic outcome, not a predetermined label.

Overall, the analysis moves from environmental representation, ecological epistemology, epistemic authorization, ontological politics, contested ecological world-making, positioning Indonesian fiction as a site of environmental theory-making. Literary and environmental studies should therefore examine how landscapes become actionable as resources while protecting the relations that

sustain them and remaining attentive to power, co-optation, territorial rights, and material consequences.

What is ultimately at stake in these novels is not simply who controls a forest or a karst mountain, but how a living landscape is made knowable enough to be extracted—or known otherwise enough to be lived with.

ADVANCED RESEARCH

This study is limited by its two-novel forest–karst corpus and the interpretive nature of literary analysis. Production of extractability should therefore not be generalized across genres or ecologies, while ontological conflict remains a textual interpretation rather than an empirical claim. Distinguishing interest/value, epistemic, authority/legibility, and ontological conflicts helps prevent conceptual overextension despite literary ambiguity.

Future research should test this framework across Southeast Asian ecological settings and cultural forms, examining how classification, epistemic authority, territorialization, and knowledge systems shape extractability under different power relations. Most importantly, production of extractability should remain a proposition to be tested, revised, or delimited through ecological and cultural comparison.

ACKNOWLEDGMENT

The authors gratefully acknowledge the Rector of Universitas Jember and the Head of the Institute for Research and Community Service (LPPM), Universitas Jember, for the institutional and financial support provided through Universitas Jember's 2026 research funding program, which supported the research from which this article was developed. The authors also acknowledge the scholarly collaboration between the Oral Tradition and Local Wisdom Research Group (KeRis TERKELOK), Universitas Jember, and researchers from Universitas PGRI Banyuwangi in developing this study and preparing the manuscript. The authors take full responsibility for the content of the article.

REFERENCES

Abdullah, A., Fisher, M. R., & Sahide, M. A. K. (2024). Environmental governance challenges of Indigenous forest recognition: Climate solution ideal and its uneven outcomes in Indonesia. *Forest and Society, 8*(2), 402–421. https://doi.org/10.24259/fs.v8i2.34423

Artiga-Purcell, J. A. (2024). Relational resources: Moving from plural to entangled extractivisms. *Political Geography, 110*, 103076. https://doi.org/10.1016/j.polgeo.2024.103076

Berkes, F. (2012). *Sacred ecology* (3rd ed.). Routledge.

Berkes, F., Colding, J., & Folke, C. (2000). Rediscovery of traditional ecological knowledge as adaptive management. *Ecological Applications, 10*(5), 1251–1262. https://doi.org/10.1890/1051-0761(2000)010[1251:ROTEKA]2.0.CO;2

Blaser, M. (2013). Ontological conflicts and the stories of peoples in spite of Europe: Toward a conversation on political ontology. *Current Anthropology, 54*(5), 547–568. https://doi.org/10.1086/672270

Bramantio. (2015). Kritik atas modernitas dalam novel *Bilangan Fu* karya Ayu Utami. *ATAVISME, 18*(1), 1–14. https://doi.org/10.24257/atavisme.v18i1.28.1-14

Braun, V., & Clarke, V. (2021). *Thematic analysis: A practical guide*. SAGE Publications.

Buell, L. (1995). *The environmental imagination: Thoreau, nature writing, and the formation of American culture*. Belknap Press of Harvard University Press.

Buell, L. (2005). *The future of environmental criticism: Environmental crisis and literary imagination*. Blackwell Publishing.

Campbell, S., & Gurney, L. (2024). What are we protecting? Rethinking relational values and nature(s). *Ecosystems and People, 20*(1), 2315973. https://doi.org/10.1080/26395916.2024.2315973

Chagnon, C. W., Durante, F., Gills, B. K., Hagolani-Albov, S. E., Hokkanen, S., Kangasluoma, S. M. J., Konttinen, H., Kröger, M., LaFleur, W., Ollinaho, O., & Vuola, M. P. S. (2022). From extractivism to global extractivism: The evolution of an organizing concept. *The Journal of Peasant Studies, 49*(4), 760–792. https://doi.org/10.1080/03066150.2022.2069015

Creswell, J. W., & Poth, C. N. (2018). *Qualitative inquiry and research design: Choosing among five approaches* (4th ed.). SAGE Publications.

de la Cadena, M. (2015). *Earth beings: Ecologies of practice across Andean worlds*. Duke University Press.

Denzin, N. K., & Lincoln, Y. S. (Eds.). (2018). *The SAGE handbook of qualitative research* (5th ed.). SAGE Publications.

Descola, P. (2013). *Beyond nature and culture* (J. Lloyd, Trans.). University of Chicago Press. (Original work published 2005)

Escobar, A. (2018). *Designs for the pluriverse: Radical interdependence, autonomy, and the making of worlds*. Duke University Press. https://doi.org/10.1215/9780822371816

Flemmer, R., Gresz, V., & Hein, J. (2024). What is at stake? The ontological dimension of environmental conflicts. *Society & Natural Resources, 37*(5), 608–622. https://doi.org/10.1080/08941920.2024.2329888

Garrard, G. (2023). *Ecocriticism* (3rd ed.). Routledge.

Glotfelty, C., & Fromm, H. (Eds.). (1996). *The ecocriticism reader: Landmarks in literary ecology*. University of Georgia Press.

Haraway, D. J. (2016). *Staying with the trouble: Making kin in the Chthulucene*. Duke University Press. https://doi.org/10.1215/9780822373780

Hawkes, J. (2024). Geological agency: Rethinking the Anthropocene through the *Broken Earth* trilogy. *ISLE: Interdisciplinary Studies in Literature and Environment, 31*(3), 545–565. https://doi.org/10.1093/isle/isac072

Heise, U. K. (2008). *Sense of place and sense of planet: The environmental imagination of the global*. Oxford University Press. https://doi.org/10.1093/acprof:oso/9780195335637.001.0001

Ingold, T. (2000). *The perception of the environment: Essays on livelihood, dwelling and skill*. Routledge.

Kenney-Lazar, M., Johnson, A., Sultana, F., Himley, M., Bebbington, A. J., Havice, E., Rice, J., & Osborne, T. (2023). Relational environmental governance: A critical framework for praxis with the material world. *Journal of Political Ecology, 30*(1), 677–698. https://doi.org/10.2458/jpe.5542

Kimmerer, R. W. (2013). *Braiding sweetgrass: Indigenous wisdom, scientific knowledge, and the teachings of plants*. Milkweed Editions.

Kodir, A. (2026). Regimes of environmental truth: EIA as a power/knowledge apparatus in the North Kendeng mining dispute, Indonesia. *Sodality: Jurnal Sosiologi Pedesaan, 14*(1), 31–46. https://doi.org/10.22500/14202671984

Libassi, M. (2024). Gold conflict and contested conduct: Large- and small-scale mining subjectivities in Indonesia. *Geoforum, 148*, 103648. https://doi.org/10.1016/j.geoforum.2022.10.005

McGiffin, E. (2024). Raced and erased: Settler colonialism and environmental violence in the poetry of Jordan Abel. *ISLE: Interdisciplinary Studies in Literature and Environment, 31*(1), 4–25. https://doi.org/10.1093/isle/isac023

Nadhifah, F., & Indarti, T. (2026). Krisis lingkungan dalam novel *Jejak Balak* karya Ayu Welirang: Kajian ekokritik. *BAPALA: Jurnal Pendidikan Bahasa dan Sastra Indonesia, 10*(1), 173–181. https://ejournal.unesa.ac.id/index.php/bapala/article/view/78212

Nisma. (2025). Representasi nilai pendidikan lingkungan novel *Jejak Balak* karya Ayu Werilang (2023): Kajian ekokritik. *Jurnal Sosial Humaniora, 18*(1), 15–30. https://doi.org/10.12962/j24433527.v18i1.22684

Nixon, R. (2011). *Slow violence and the environmentalism of the poor*. Harvard University Press. https://doi.org/10.4159/harvard.9780674061194

Nygren, A., Kröger, M., & Gills, B. (2022). Global extractivisms and transformative alternatives. *The Journal of Peasant Studies, 49*(4), 734–759. https://doi.org/10.1080/03066150.2022.2069495

O'Neill, S. (2024). Arborealities, or making trees matter in Elif Shafak's *The Island of Missing Trees*. *ISLE: Interdisciplinary Studies in Literature and Environment, 31*(4), 796–816. https://doi.org/10.1093/isle/isad040

Ott, A. (2025). Ontological conflict over forests in Inari/Aanaar: Sámi's fight for preservation and renewal. *Environmental Science & Policy, 163*, 103957. https://doi.org/10.1016/j.envsci.2024.103957

Rauchecker, M., Schubert, H., Brokamp, G., & Caballero-Calvo, A. (2026). Stakeholders' conflicting orders and classifications of the environment and land use as drivers of environmental conflicts. *Geoforum, 172*, 104591. https://doi.org/10.1016/j.geoforum.2026.104591

Sahide, M. A. K., Fisher, M. R., Sirimorok, N., Faturachmat, F., Dhiaulhaq, A., Maryudi, A., Batiran, K. B., & Supratman, S. (2023). Blind spots and spotlights in bureaucratic politics: An analysis of policy co-production in environmental governance dynamics in Indonesia. *Development Policy Review, 41*(5), e12693. https://doi.org/10.1111/dpr.12693

Saldaña, J. (2021). *The coding manual for qualitative researchers* (4th ed.). SAGE Publications.

Salsabila, A., Meliasanti, F., & Muhtarom, I. (2025). Deforestasi dalam novel *Jejak Balak* karya Ayu Welirang (kajian ekokritik sastra): Deforestation in the novel *Jejak Balak* by Ayu Welirang (a study of literary ecocriticism). *Transformatika: Jurnal Bahasa, Sastra, dan Pengajarannya, 9*(3), 888–906. https://doi.org/10.31002/transformatika.v9i3.2829

Saputra, H. S. P., Prasetya, H., Hermawan, S., Maslikatin, T., & Hariyadi, E. (2026). Narrating forest loss: Ecological violence and environmental silence in a comparative study of *Jejak Balak* and *Supernova: Partikel*. *NOTION: Journal of Linguistics, Literature, and Culture, 8*(1), 142–157. https://doi.org/10.12928/notion.v8i1.15606

Suarez, A. (2025). (Re)making landscapes into resources: The role of Hass avocado plantations in Salamina, Colombia. *World Development Perspectives, 39*, 100695. https://doi.org/10.1016/j.wdp.2025.100695

Susilowati, D., Ngatma'in, N., & Affandy, A. N. (2022). Interaksi manusia dan lingkungan dalam novel *Bilangan Fu* karya Ayu Utami (kajian ekokritik Greg Garrard). *Stilistika: Jurnal Pendidikan Bahasa dan Sastra, 15*(1), 77–90. https://doi.org/10.30651/st.v15i1.9389

Tsing, A. L. (2015). *The mushroom at the end of the world: On the possibility of life in capitalist ruins*. Princeton University Press.

Utami, A. (2008). *Bilangan Fu*. Kepustakaan Populer Gramedia.

Valdivia, G., Himley, M., & Havice, E. (2022). Resources are vexing! *Progress in Environmental Geography, 1*(1–4), 9–22. https://doi.org/10.1177/27539687221117554

Vasudevan, H., & Mukherjee, A. (2025). Ecocritical extraction analysis: A method for studying resource exploitation and environmental justice in literature. *MethodsX, 14*, 103384. https://doi.org/10.1016/j.mex.2025.103384

Waldmüller, J. M., Yap, M., & Watene, K. (2022). Remaking the Sustainable Development Goals: Relational Indigenous epistemologies. *Policy and Society, 41*(4), 471–485. https://doi.org/10.1093/polsoc/puac026

Weaver, C. B. (2024). How not to undiscipline religion and science: Indigenous ecological knowledge, epistemic resistance, and the settler imagination. *Religions, 15*(11), 1290. https://doi.org/10.3390/rel15111290

Weir, J. K., Morgain, R., Moon, K., & Moggridge, B. J. (2024). Centring Indigenous peoples in knowledge exchange research-practice by resetting assumptions, relationships and institutions. *Sustainability Science, 19*, 629–645. https://doi.org/10.1007/s11625-023-01457-3

Welirang, A. (2023). *Jejak Balak*. Gramedia Pustaka Utama.

Whyte, K. (2017). Indigenous climate change studies: Indigenizing futures, decolonizing the Anthropocene. *English Language Notes, 55*(1–2), 153–162. https://doi.org/10.1215/00138282-55.1-2.153

Yanou, M. P., Ros-Tonen, M. A. F., Reed, J., Moombe, K., & Sunderland, T. (2023). Integrating local and scientific knowledge: The need for decolonising knowledge for conservation and natural resource management. *Heliyon, 9*(11), e21785. https://doi.org/10.1016/j.heliyon.2023.e21785