



When Signs are Divergent: Analysing Farmer-Herder Conflicts in Southwest Nigeria Through Biosemiotic Theory

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Abstract

Since Nigeria's return to democracy in 1999, conflicts between predominantly Fulani Muslim herders and largely Christian sedentary farmers have killed thousands and displaced hundreds of thousands more. These confrontations intensified dramatically in Southwest Nigeria during 2020-2021, transforming the historically peaceful Yoruba region into a conflict zone. This paper argues that violence emerges when communities with incompatible meaning-making systems share space without interpretive frameworks enabling mutual intelligibility. Using Uexküll's Umwelt theory and Hoffmeyer's semiotic scaffolding concept, it analyses how different species inhabit distinct perceptual worlds that generate fatal misreadings. Through intensive analysis of four documented conflicts - Igangan (Oyo), Imeko-Afon (Ogun), Jugbere (Ondo), and Ayegbaju-Ekiti - during 2019-2021, the paper demonstrates how cattle, crops, humans, and landscapes constitute an ecology of meaning where each agent produces and interprets signs differently. A central finding is that cattle operate as autonomous agents, following species-specific foraging Umwelten that systematically cause crop destruction regardless of herder intentions, explaining why legal prohibitions and security interventions consistently fail. Findings show that semiotic breakdown interacts with material and political factors to produce violence, suggesting that conflict resolution requires physical infrastructure channelling bovine behaviour and rebuilding shared interpretive frameworks alongside addressing resource claims.

1. INTRODUCTION

Southwest Nigeria's farmer-herder conflicts, which intensified dramatically during 2020-2021, have generated three dominant explanatory frameworks. Climate change accounts emphasise environmental degradation - desertification advancing at rates reaching 600 meters annually in northern areas (Nwafor, 2006; Olagunju, 2015) and Lake Chad shrinking over 90 percent between 1963 and 1990 (World Bank, 2024) - pushing herders southward seeking survival (Olagunju, 2015; UN Development Coordination Office, 2021). Land scarcity frameworks highlight population densities reaching 500 people per square kilometre, intensifying competition for finite arable land (International Crisis Group, 2017). Ethnic-religious interpretations focus on tensions between Muslim Fulani minorities and Christian Yoruba majorities, arguing that resource conflicts become racialised through historical stereotypes and political mobilisation (Nwozor et al., 2021).

While substantial evidence supports each framework, this paper argues that beneath and interacting with these material and political factors lies a dimension inadequately theorised: fundamental breakdown in multispecies semiotic systems through which humans, animals, plants, and landscapes produce and interpret meaning. Six Southwest states enacted anti-grazing laws during 2020-2021, yet violence persisted. Ekiti State, first to legislate in August 2016, continued experiencing fatal

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violence. Ondo State's creation of the Amotekun Corps and the mid-2024 deployment of 10,000 Federal Agro Rangers failed to prevent continued killings through 2024. These persistent failures suggest that security approaches addressing human criminality cannot resolve conflicts emerging from communicative breakdown operating across human and non-human agents.

Some Nigerian scholars have developed crucial analytical frameworks grounded in local historical knowledge and fieldwork that international reports often miss, revealing persistent debates about whether conflicts represent primarily economic resource competition, ethnic-religious antagonism, or governance failures.

Morakinyo (2018) argues that farmer-herder conflicts in Nigeria constitute fundamentally resource-use conflicts driven by incompatible livelihood systems competing for finite land rather than ethnic hatred, though ethnic identities become mobilised once conflicts escalate. His analysis of Middle Belt conflicts emphasises how population growth, agricultural expansion, and climate-induced pastoral migration create structural conditions where previously sustainable coexistence becomes impossible without institutional innovation. Morakinyo identifies breakdown of traditional conflict resolution mechanisms - particularly Native Authority courts and customary grazing reserves—as critical factor transforming manageable disputes into deadly violence.

Adamu (2020), from pastoral perspectives being often marginalised in conflict analyses, emphasises how securitisation of herder-farmer relations systematically disadvantages mobile populations. He documents how anti-grazing legislation across southern states criminalises pastoralism itself rather than specific harmful practices, forcing herders into impossible choices between abandoning livelihoods or breaking laws. His ethnographic work with Fulani communities reveals sophisticated pastoral ecological knowledge, including seasonal rotation systems, selective breeding practices, and conflict avoidance strategies, that legislation treats as primitive and criminal. This scholarship highlights asymmetric power relations whereby farming communities, possessing democratic majorities and territorial control, can legislate pastoral practices into illegality while facing minimal restrictions on agricultural expansion into traditional grazing areas.

Abdu (2017), approaching conflicts through governance and peacebuilding frameworks, identifies 'institutional vacuum' at state and local levels as central problem. Where Northern States maintained grazing reserves and pastoral departments within Ministries of Agriculture, Southern States possess no equivalent institutions, leaving conflicts without designated government agencies responsible for mediation. According to him, effective resolution requires creating new institutional architecture rather than applying security solutions designed for criminality to what are fundamentally livelihood conflicts requiring sustained negotiation.

Above scholarly insights provide crucial context for the current biosemiotic analysis by confirming that conflicts involve competing livelihood systems rather than merely ethnic antagonism, suggesting incompatible meaning-making frameworks embedded in economic practices; documenting institutional collapse, particularly grazing reserves and traditional authorities, that historically provided what biosemiotics would recognise as 'semiotic scaffolding' enabling coordination; and revealing power asymmetries, whereby Yoruba farming communities possess structural advantages in imposing their frameworks as legally binding, validating this paper's integration of biosemiotics with political ecology.

The biosemiotics framework developed here builds on the above scholarly insights while adding theoretical vocabulary for understanding how different species - including cattle as autonomous agents - produce landscape inscriptions that communities interpret differently, generating conflicts that institutional reforms alone cannot resolve without addressing. This paper reconceptualises violence as emerging from "semiotic collisions" - encounters between communities whose meaning-making systems prove mutually unintelligible when forced to operate in shared physical space without mediating frameworks. This paper extends biosemiotic theory from cellular and organismic scales to large-scale political violence, demonstrating that conflicts intensify when communicative infrastructures collapse. The analysis positions multispecies agency - particularly autonomous cattle

behaviour - as central rather than peripheral to understanding conflict dynamics, while recognizing that semiotic systems never operate independently of power relations that determine whose frameworks achieve legal recognition and institutional support.

2. THEORETICAL FRAMEWORK

Classical semiotics centered meaning-making in human linguistic and cultural systems. Biosemiotics radically challenges this anthropocentrism by extending semiosis to all living systems, arguing that life itself is characterized by dependence on signs (Barbieri, 2008; Kull et al., 2009). Jakob von Uexküll's Umwelt theory provides the conceptual cornerstone, positing that each organism inhabits its own perceptual and functional world shaped by species-specific sensory capacities and biological needs rather than accessing some species-neutral objective environment (von Uexküll, 2010 [1934/1940]). A tick's Umwelt consists primarily of three sign types: butyric acid odour indicating mammalian presence, warmth indicating body proximity, and tactile signals indicating suitable fur. These three signs constitute the tick's entire perceptual reality—radically impoverished compared to human experience, yet perfectly adequate for tick survival.

Similarly, cattle operate within bovine Umwelten shaped by well-developed olfactory capacities that detect minute amounts of sought resources (Bell & Sly, 1983), with foraging behaviour affected by the the quality and quantity of available food (Sahu & Pati, 2020). When cattle move through landscapes, they follow environmental signs readable within their Umwelt but often invisible to human observers: slopes that maximize sun exposure or shade, wind patterns that affect insect presence, and plant toxins detected through evolved capacities. These movements create bovine landscape literacy - cattle "read" environments through species-specific capacities, generating patterns that make sense within bovine Umwelt even when appearing destructive from human perspectives.

When organisms with different Umwelten interact, they create multispecies semiotic ecologies - complex systems where multiple sign-producing and sign-interpreting agents operate simultaneously. When cattle move through space, their movements create landscape inscriptions: trampled paths, grazed areas, dung deposits. These bovine inscriptions constitute fundamentally different signs depending on the interpreter. Herders read these marks as indicators of herd health and management success. Yoruba farmers read the same marks as crop destruction and territorial invasion. The identical material traces constitute fundamentally different signs depending on the semiotic systems through which interpreters engage them.

Jesper Hoffmeyer's concept of "semiotic scaffolding" addresses how coordination becomes possible despite different Umwelten (Hoffmeyer, 2008). Scaffolding describes stabilised sign systems enabling communication between organisms with distinct perceptual worlds by establishing shared reference points and mutually intelligible signals. Effective scaffolding requires sufficient overlap between participants' Umwelten that some signs register for multiple parties, institutional or conventional stabilisation making sign-meaning associations predictable across encounters, and sufficient redundancy that occasional misinterpretations do not collapse the entire system. When scaffolding collapses or never existed, Umwelten cease to overlap productively, signs fail to translate, and misinterpretation escalates into conflict.

2.1. Extending Biosemiotics to Political Violence: The Scalar Problem

Extending biosemiotics from organismic to political scales requires explicit theoretical justification. Uexküll described individual organisms operating through species-specific sensory apparatus. Human communities, however, operate through cultural systems involving learned behaviours, historical memories, and institutional frameworks that exceed biological capacities. This paper proposes that human communities develop what might be termed "cultural Umwelten" - collective meaning-making systems that, like organismic Umwelten, filter perception through particular

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frameworks, making certain signs visible while rendering others illegible. These cultural *Umwelten* layers learned interpretations onto biological perception, creating hybrid semiotic systems in which both species-specific capacities and culturally transmitted knowledge shape what communities can "read" in landscapes.

Crucially, cattle remain within purely biological *Umwelten* - their foraging follows evolved behavioural strategies responding to vegetation quality and environmental cues. Human communities, however, operate simultaneously through biological and cultural registers, complicating semiotic interactions. When Yoruba farmers read cassava mounds as property markers, they deploy cultural literacy transmitted through generations. When cattle read the same space as high-quality forage, they deploy evolved nutritional preferences. The collision occurs not between two cultural systems requiring translation, but between cultural and biological semiotic systems operating according to fundamentally different logics - one involving learned conventions about property and legitimacy, the other involving hardwired foraging optimisation.

This scalar extension reveals biosemiotics' utility for political analysis while acknowledging its limits. The framework illuminates how conflicts emerge from incompatible meaning-making systems operating across biological and cultural levels, but it cannot alone explain why particular groups possess the power to impose their semiotic frameworks as legally binding while marginalising alternatives. Political ecology reminds us that semiotic systems never operate independently of power relations (Peluso & Watts, 2001; Robbins, 2012). In Southwest Nigeria's conflicts, Yoruba communities possess structural advantages: numerical majority enabling democratic control over legislation, economic dominance through commercial agriculture and urban centres, cultural legitimacy as indigenous populations, and linguistic hegemony as Yoruba serves as lingua franca. Fulani herders face systematic marginalisation: political minority status, economic precarity dependent on mobile cattle vulnerable to theft and confiscation, cultural stigmatisation as "primitive nomads," and linguistic barriers constraining advocacy.

What might be termed "semiotic violence" operates when dominant communities possess the power to impose their sign systems as natural and legally binding while marginalising alternative frameworks as backward or criminal. When Yoruba cassava mounding patterns receive legal protection while pastoral understandings of temporary access receive none, power operates semiotically to determine which meaning-making systems achieve legal standing. Biosemiotic analysis reveals crucial communicative dimensions, but must be integrated with political economy analysis, recognising that sign systems operate within and reproduce asymmetric social relations.

3. METHODOLOGY

This qualitative study employs intensive case study methodology, examining four documented farmer-herder conflicts across Southwest Nigeria during 2019-2021. Intensive case analysis is appropriate for biosemiotic research because understanding semiotic collisions requires detailed engagement with specific meaning-making systems, boundary markers, temporal sequences, and communicative dynamics that aggregate quantitative approaches cannot adequately capture (Flyvbjerg, 2006).

Four conflict sites were selected through purposive sampling designed to maximise variation: the Igangan conflict (Oyo State, December 2020-February 2021) involving Dr. Aborode's killing, mass mobilisation, and displacement of approximately 5,000 residents; the Imeko-Afon conflicts (Ogun State, January-February 2021) capturing border region dynamics and reprisal cycles; the Jugbere farm settlement case (Ondo State, February 2021) documenting systematic farm destruction culminating in complete abandonment of an agricultural settlement; and the Ayegbaju-Ekiti killing (February 2019) providing evidence of Fulani community self-policing through GAFDAN despite anti-grazing legislation.

Primary data sources include media reports from 12 Nigerian news outlets covering 2019-2024, state-level anti-grazing legislation enacted 2016-2021 in five Southwest states, Federal Ministry of Agriculture documents on pastoral systems, and NGO reports, including Amnesty International (2018), International Crisis Group (2017), and ACLED security data. Analysis proceeded through four iterative stages: comprehensive incident documentation, creating detailed, chronological narratives; systematic coding using both deductive codes from biosemiotic theory and inductive codes from empirical patterns; pattern identification, testing biosemiotic predictions against empirical data; and discourse analysis, examining how different actors frame conflicts.

The primary limitation involves restricted access to pastoral knowledge systems. As a Yoruba scholar conducting document-based research, it is recognised that herder voices are systematically underrepresented in text-based sources. Media reports predominantly reflect the perspectives of the farming community and state institutions, while Fulani ecological knowledge, pastoral cosmologies, and herder interpretations of landscape semiotics remain largely invisible. This asymmetry means the analysis examines documented representations of semiotic collision primarily from Yoruba and state perspectives, rather than achieving balanced ethnographic access to both meaning-making systems. The paper, therefore, analyzes traces and effects of communicative breakdown as they appear in the documentary record, recognising that a fuller understanding would require extensive ethnographic fieldwork with pastoral communities. Personal experience as a Yoruba personality creates sensitivity to farming community experiences while potentially making pastoral perspectives less immediately legible - a limitation this paper has attempted to address through careful attention to the few available herder testimonies and recent scholarship incorporating pastoral voices.

3.1. Herder Testimonies: Contemporary and Retrospective Evidence

Crucially, this study incorporates herder testimonies from both the study period (2020-2021) and later years (2024-2025), demonstrating remarkable consistency in pastoral perspectives across time. Contemporary testimonies from the study period include Seriki Saliu AbdulKadir's January 28, 2021, press conference in Ilorin following his eviction from Igangan, where he stated: "There was no case of farm destruction reported to me that I will not send people to go and look at the farm that was destroyed. If it's discovered that it's true, I will order the Fulani to pay money to the farmers" (TheNiche, 2021; Vanguard, 2021). He also denied knowledge of Dr. Aborode's killing: "On the issue of the killing of one Dr. Aborode, I don't know anything about it. Where Dr. Aborode was killed is very far from my village. It's about a two-hour drive to my village" (TheNiche, 2021). His testimony revealed over 50 years of settlement—his firstborn was born in Igangan in 1972, and all his children were born there, with Oyo state as their state of origin (Sahelien.com, 2021). MACBAN Secretary-General Alhaji Baba Gadzama articulated pastoral grievances in November 2020. (Vanguard, 2020)"The question you should ask is, is it the Fulani that have settled here for a very long time that are causing these problems or the other people that are coming from other places?" (Vanguard, 2020). MACBAN distinguished between local Fulani herders and foreign infiltrators, blaming conflicts on "small arms" from regional conflicts and the ECOWAS Trans-Human Protocol not being enforced (Vanguard, 2020).

Later testimonies from 2024-2025 articulate identical themes, validating that these perspectives represent longstanding pastoral concerns rather than recently emerged views. Oyeniyi's (2025) interviews reveal herder frustration with environmental pressures leaving few alternatives. MACBAN National President Ngelzarma articulated the economic desperation: "Only a poor man looks for trouble," noting that with "entire family's wealth moving with them"—estimated at over ₦1 million per cow—herders face impossible choices between remaining where cattle die or migrating where they may die, but cattle might survive (Nigeria Info FM, 2024). Herders themselves recognise open grazing's unsustainability under current conditions. Benue MACBAN Secretary Ibrahim Galma stated: "We now know quite well that open grazing is not sustainable, not only in Benue state but in Nigeria in general" (BusinessDay, 2025).

The consistency across 2020-2021 and 2024-2025 testimonies—emphasising environmental desperation, economic precarity, difficulties controlling autonomous cattle movements, and recognition that traditional pastoral systems prove unsustainable under current pressures—demonstrates that these represent enduring pastoral realities rather than temporal anomalies. Moreover, analysis of conflict patterns shows remarkable continuity across 2019-2024: between 2019 and 2021, more than 177 deaths occurred in Plateau state from herder-farmer clashes (Guardian Nigeria, 2022), while in the twelve months to September 2021, farmer-herder conflicts occurred 71 times, accounting for 406 deaths, 49 injured, and 15 kidnapped persons (ThisDay, 2021). The June 2022 Owo church attack in Ondo State (within the study area) was attributed to the same farmer-herder tensions (BBC, 2022), demonstrating that the 2019-2021 study period captures dynamics that persisted through 2024.

4. HISTORICAL CONTEXT: SEMIOTIC INFRASTRUCTURE AND ITS ABSENCE

The burti system—designated cattle routes across northern and central Nigeria—functioned as a complex semiotic infrastructure enabling coordination between Fulani pastoralists and Hausa farmers for centuries. While British colonial administrators formalised these routes during the early twentieth century through the 1965 Northern Region Grazing Law, which created 415 grazing reserves (Vanguard, 2021), they built upon pre-existing indigenous pathways. The burti system operated alongside the Ruga social structure, in which elected officials regulated grazing within their groups, selecting grazing areas and migratory routes (Building Blocks for Peace Foundation, 2021). Routes operated through multiple overlapping mechanisms constituting what Hoffmeyer would recognise as semiotic scaffolding.

Physically, routes were marked by specific tree plantings—particularly *Faidherbia albida* (Gawo), *Adansonia digitata* (*Igi Oşè*/baobab), and *Khaya senegalensis*—serving as living boundary markers that communicated across generations. These botanical inscriptions operated semiotically in both directions: trees communicated "this space permits pastoral transit" to herders while signalling "do not plant permanent crops here" to farmers. Institutionally, Native Authorities maintained routes by collecting fees from pastoralists (Jangali cattle tax), organising labour to clear and maintain water points, mediating disputes, and enforcing graduated sanctions based on customary law principles recognised as legitimate by both communities (Building Blocks for Peace Foundation, 2021). Temporally, routes integrated seasonal rhythms coordinating pastoral mobility with agricultural cycles: herders migrated southward during northern dry seasons as farmers completed harvests, enabling cattle to graze crop residues, then returned northward as rainy seasons began (Moritz, 2010; Van Raay, 1970).

Southwest Nigeria existed largely outside this network. Yoruba territories, characterised by intensive cocoa farming, dense forests, and high population density, were historically unsuitable for pastoral economies. Tsetse flies carrying trypanosomiasis made the region lethal for cattle, creating an ecological barrier that shaped both pastoral routes and agricultural development. In Nigeria, 80% of the landmass was historically unsuitable for livestock production due to the presence of tsetse and trypanosomes (Magaji, 1987; Luckins, 1992; Egwu et al., 1993). Studies from the 1960s-1970s documented high trypanosome infection rates along cattle trade routes from northern to southwestern Nigeria, particularly the Dorin to Oyo route (Baldry, 1969; Ferguson, 1964; Riordan, 1971; Jordan, 1965). Consequently, Yoruba communities developed no cultural vocabulary for negotiating pastoral passage. Traditional authorities had no experience mediating farmer-herder disputes because such disputes rarely arose. Customary law developed no protocols for assessing cattle damage or determining appropriate compensation. Even the spatial vocabulary lacked terms to distinguish grazing corridors from farmland.

The Burti system's effectiveness deteriorated from the 1970s onward through converging factors. The 1978 Land Use Act centralised land allocation under State Governments, disrupting traditional tenure systems and weakening Native Authorities' capacity for maintaining routes

(Wikipedia, 2025). Oil-boom urbanisation consumed route corridors as cities expanded dramatically. Agricultural intensification programs encouraged farmers to maximise cultivated area, leading to planting on route edges. Simultaneously, environmental degradation devastated northern pastures through accelerating desertification and Lake Chad's shrinkage by over 90 percent, eliminating vast grazing areas. Modern veterinary medicine enabled southward migration by overcoming the trypanosomiasis barrier through crossbred cattle with enhanced disease resistance (herders cross-bred trypanosome-intolerant zebu cattle with trypanosome-tolerant humpless breeds) and prophylactic medications for trypanosomiasis and dermatophilosis (Wikipedia, 2025; Najjabiography, 2022).

This created a semiotic collision at a historical scale: herders entered territories with no historical memory of pastoral accommodation, no designated routes, no experienced mediators, and no shared sign systems enabling coordination. When desperate herders fleeing northern degradation encountered Yoruba farmers defending ancestral territories, violence emerged not primarily from ethnic hatred but from fundamental communicative breakdown, where neither community could interpret the other's landscape claims as anything but an existential threat.

5. PRESENTATION AND ANALYSIS OF DATA

5.1.Data Analysis: Case Overview

Table 1 provides a comparative overview of the four documented conflicts, revealing both common patterns and significant variations.

Table 1: Conflict Case Characteristics

Case	Date	Location	Immediate Trigger	Casualties	Key Boundary Markers	Outcome
Igangan	Dec 2020- Feb 2021	Oyo State	Repeated cattle destruction of fenced farm	Dr. Aborode killed; 5,000 displaced	Partial fencing, bilingual signs	Mass eviction, herder return
Imeko-Afon	Jan-Feb 2021	Ogun State (border)	Farm destruction, mediator killing	Multiple deaths, 3 herders missing	Agricultural patterns, informal paths	Escalating reprisal cycle
Jugbere	Feb 2021	Ondo State	Systematic multi-year farm losses	3 farmers killed; settlement abandoned	Cassava mounding, rice paddies	Complete territorial withdrawal
Ayegbaju	Feb 2019	Ekiti State	Cattle destruction of farm	Farmer shot at point-blank range	Planted crop patterns	GAFDAN self-policing, arrest

5.2.Cross-Case Data Analysis: Triggers and Boundary Marker Illegibility

Across all cases, crop destruction by cattle served as the immediate trigger for fatal violence. In Igangan, Dr. Fatai Aborode was killed on December 11, 2020 by assailants with machete cuts (Neusroom, 2021), though an 80-year-old PDP chieftain was later arrested for orchestrating the killing, revealing political dimensions (TheCable, 2021). Community documentation stated: "On the 12th of December, 2020, Dr Fatai Aborode...was murdered in cold blood on his farm" (Punch, 2021). Governor Makinde revealed that witnesses heard the killers speaking Yoruba with Aborode, complicating the ethnic attribution (Punch, 2021). His farm had experienced repeated cattle incursions despite constructed partial fencing and posted signs in English and Yoruba.

In Ayegbaju, Elijah Ogor confronted herders specifically because cattle had destroyed his farm, leading to his shooting death at point-blank range in February 2019 (Premium Times, 2019). Ekiti's

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distinction as first state to enact anti-grazing legislation in August 2016 did not prevent this killing. In Jugbere, Taiwo Sado lost three successive farms—₦10 million rice farm in 2019, ₦3 million rice farm in 2020, and an entire cassava farm in January 2021—to cattle grazing before fatal February attacks (Sahara Reporters, 2021). In Ajowa-Akoko, Dayo Festus had "multiple altercations with herders over cattle grazing his farm" before being killed with machete cuts while harvesting cassava (Premium Times, 2021).

This predominance suggests conflicts emerge from incompatible landscape interpretations rather than primarily ethnic antagonism. If violence stemmed from ethnic hatred as a fundamental motivation, we would expect incidents to be distributed across contexts without specific catalysing moments tied to land uses. Instead, violence clusters around cattle-crop interactions, revealing incompatible ontologies about what landscapes signify.

The multispecies dimension requires careful attention. When cattle encounter cassava farms, they respond to nutritional signals indicating the presence of high-value food sources. Research demonstrates that cattle select diets approximately 1.5-2 percentage units higher in crude protein than average forage (NMSU Extension, 2015), suggesting evolved foraging strategies prioritise nutritional quality. The documented pattern of cattle "uprooting cassava tubers" demonstrates sophisticated foraging beyond surface grazing: cattle excavate buried resources through coordination between snout manipulation, hoof action to loosen soil, and teeth to extract tubers—behavioral complexity beyond random destruction.

A herder statement documented in Ondo articulated genuine constraints on controlling autonomous bovine agency: "With 1,000 cattle, even with many workers, some will go where they want. We cannot watch every animal every moment. This is their nature, we cannot change it" (Sahara Reporters, 2021). Cattle do not execute the herder's intentions like tools under complete operator control, but operate as autonomous agents following foraging logics. When dietary quality proves inadequate, cattle engage in "search grazing" behaviours, altering movement patterns to locate nutritionally superior resources (Smart et al., 2021). These evolved behavioural strategies respond to vegetation quality and environmental cues rather than human-imposed property boundaries lacking physical reinforcement that bovine *Umwelten* can register.

This autonomous agency generates crucial policy implications. Laws prohibiting open grazing, security forces arresting herders, and compensation schemes address human intentions while leaving cattle behaviour fundamentally unmodified. Unless interventions channel cattle movements through physical infrastructure that creates boundaries, registering within bovine *Umwelten*—fencing blocking passage, designated corridors with appealing forage, strategically located water points—cattle will continue following foraging strategies, detecting nutritious vegetation regardless of legal prohibitions or human negotiations occurring at levels invisible to bovine sensory systems.

Significantly, ranch operations in Southwest Nigeria report virtually no conflicts despite maintaining large cattle populations and involving the same ethnic dyads—Fulani herders managing cattle for Yoruba owners. This suggests destruction results substantially from autonomous cattle agency under open-range systems rather than primarily from herder malicious intent or ethnic animosity. When physical infrastructure channels bovine behaviour through fencing and controlled movement, the semiotic collision between bovine foraging *Umwelten* and human property concepts never occurs.

5.3. Boundary Marker Analysis

Boundary marker illegibility provides compelling evidence for semiotic collision theory. In Igangan, Dr. Aborode's partial fencing and signs in English and Yoruba proved inadequate. Incomplete fencing created interpretive ambiguity: did prohibition apply to the entire farm or only fenced sections? Signs carried no meaning for herders lacking literacy in those scripts and unfamiliar with conventions where written text establishes territorial claims overriding other considerations. More fundamentally,

pastoral frameworks understood temporary access with compensation as legitimate practice maintained through northern customary law, rather than recognising absolute prohibition.

The Ondo cases reveal how agricultural practices themselves function as boundary markers requiring specific cultural literacy. Cassava mounding creates spatial inscriptions marking ownership through visible labour investment within Yoruba systems. The deliberate arrangement of earth mounds in regular patterns demonstrates human claims as clearly as fencing to those trained in reading agricultural landscapes. Growth stages communicate temporal information enabling coordination in northern contexts where herders and Hausa farmers developed shared understanding: mature plants indicate imminent harvest when damage proves economically devastating; post-harvest stems indicate temporary availability for gleaning.

However, Taiwo Sado's experience demonstrates the complete absence of this literacy in Southwest contexts. Herders grazed their ripening rice and "allegedly uprooted cassava tubers" (Sahara Reporters, 2021), suggesting either complete ignorance of cassava cultivation practices and what they communicate, or active rejection of norms those practices establish. The uprooting behavior is particularly significant: herders actively facilitated the excavation of buried tubers, indicating they had no concept that buried crops constituted protected property rather than wild resources.

The Imeko-Afon case involving mediator Dele Awoniyi's killing reveals additional complexity. Awoniyi functioned as "a mediator who resolved farmer-herder disputes" (The Guardian, 2021), suggesting he possessed capacity for cross-cultural communication. His killing—described as "premeditated"—suggests individuals who develop translation capacities may be perceived as threats, or alternatively, that his mediation attempts generated grievances among herders, feeling compromises systematically favoured farming interests.

5.4. Security Response: Semiotic Blindness

State security responses demonstrate what might be termed "semiotic blindness"—systematic failure recognising conflicts that emerge from communicative breakdown, requiring framework reconstruction rather than merely criminal behaviour requiring punishment. This manifests through multiple mechanisms.

First, enforcement focuses overwhelmingly on herders as perpetrators, while vigilantes attacking Fulani settlements face minimal prosecution. Ogun State police warned residents against evicting herders, calling such actions "unlawful," yet provided no equivalent warnings against burning Fulani settlements (Punch, 2021). Sunday Igboho's well-documented attacks in Igangan—storming Igangan on January 15, 2021, giving Seriki Fulani seven days to leave, followed by January 22, 2021, violence where Seriki's compound was burned and at least two people were killed (Sahara Reporters, 2021; New Telegraph, 2021)—forcing approximately 5,000 evictions (Sahelien.com, 2021)—generated primarily political debates rather than criminal prosecutions equivalent to those pursued against herders. Igboho claimed Dr. Aborode "went to that Sarkin, Saliu, to complain. They tied him to a stake and hacked him to death" (Vanguard, 2021), though this narrative is disputed by evidence. This asymmetric enforcement creates perceptions among Fulani communities of ethnic favouritism, deepening mistrust.

Second, security deployments achieve only short-term reductions in violence without addressing the underlying causes. Governor Abiodun's February 2021 security deployment to Yewa did not prevent continued violence. Ondo State's Amotekun Corps creation, anti-grazing legislation, and mid-2024 deployment of 10,000 Federal Agro Rangers failed to stop August-September 2024 killings. Most tellingly, Ekiti's distinction as the first state to enact anti-grazing legislation in August 2016 did not prevent Elijah Ogor's February 2019 killing or subsequent violence.

These persistent failures suggest coercive approaches suppress visible conflict temporarily without addressing semiotic dimensions. Laws criminalising open grazing treat pastoralism purely as a criminal activity rather than as an economic livelihood requiring accommodation. Security approaches

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frame conflicts as criminal problems to be solved through force rather than communicative breakdowns requiring patient framework construction.

The Ekiti case provides a partial exception that demonstrates the possibilities for internal regulation. GAFDAN's (Gan Allah Fulani Development Association of Nigeria) immediate response—forming a task force, arresting the suspect, delivering him to police—suggests that when pastoral communities possess organisational capacity and perceive benefits in maintaining peaceful relations through demonstrable accountability, self-policing mechanisms can function (Premium Times, 2019). However, this success required multiple enabling conditions rare across Southwest contexts: an organised Fulani community structure, Seriki Fulani authority that enabled rapid mobilisation, a multiethnic task force composition that provided legitimacy, and police cooperation in accepting the arrest.

6. DISCUSSION: SEMIOTIC URGENCY AND POLITICAL ECOLOGY

The analysis establishes that Southwest Nigeria's conflicts emerge from semiotic collisions interacting synergistically with material scarcity and environmental pressures to produce violence whose causation exceeds single-factor explanations. An obvious objection arises: if semiotic collision provides the primary explanation, why did violence intensify dramatically during 2020-2021 rather than escalating gradually as climate-driven migration increased? The answer lies in threshold effects and systemic saturation. Semiotic systems can tolerate occasional misreadings through redundancy and repair mechanisms—informal negotiations, compensation arrangements, and tolerance of limited damage. However, when environmental desperation pushes pastoral groups into sustained presence rather than seasonal transit, and when land scarcity makes farming communities unable to tolerate even temporary access, the accumulated rate of misreadings overwhelms communities' capacity for patient negotiation. The temporal clustering indicates not that semiotic factors suddenly appeared in 2020, but that material pressures finally exceeded tolerance thresholds within which communicative breakdown could be managed informally.

Dr. Aborode's murder case reveals political dimensions complicating the analysis—an 80-year-old PDP chieftain arrested for orchestrating the killing suggests instrumental violence exploiting farmer-herder tensions (TheCable, 2021). However, this complexity validates rather than undermines the semiotic framework. Political entrepreneurs can weaponise farmer-herder tensions precisely because genuine semiotic collisions generate authentic grievances on both sides, providing cover for violence serving other agendas. The framework illuminates both the primary dynamics that generate most conflicts and the conditions that enable secondary exploitation.

Climate change operates not merely as a material constraint but as a semiotic multiplier, intensifying communicative breakdown. A herder's statement after Igangan evictions articulated an impossible choice undermining patience required for building mutual understanding: "Where can we go? The north is finished, no grass, no water. If we stay there, cattle die. If we come here, maybe we die, but maybe we survive" (News Direct, 2021). When survival depends on immediate access to grazing, negotiating interpretive frameworks becomes a luxury herders cannot afford. Simultaneously, Yoruba farmers taking ₦3-10 million bank loans to develop farms cannot tolerate the destruction that represents their families' survival and debt obligations, yet banks continue enforcing them despite losses.

This mutual desperation creates "semiotic urgency"—situations where survival pressures overwhelm communicative patience. Building shared interpretive frameworks requires time for experimental interactions, institutional support providing resources and legitimacy, and willingness to experiment with provisional arrangements. When both communities face existential pressures with limited margins for error, this patience becomes unavailable, and violence emerges as a faster resolution

than the gradual framework construction that historical accommodation required under less desperate conditions.

The historical burti system demonstrates that communities with fundamentally different ways of being-in-the-world successfully coordinated for centuries through deliberately constructed scaffolding—botanical markers readable by both communities, institutional authorities possessing bilingual competence and recognised legitimacy, temporal protocols coordinating pastoral mobility with agricultural cycles, and compensation mechanisms both communities considered fair. This history suggests that semiotic translation is an achievable goal rather than a utopian fantasy, particularly when supported by political will and institutional investment.

However, significant limits exist where ontological commitments prove genuinely incommensurable. Sacred grove conflicts—though not among the primary documented cases—represent the deepest challenge. When Yoruba communities assert that *orisa* forces inhabit forests requiring ritual respect and Islamic pastoral frameworks recognise spiritual reality through entirely different theological structures, no easy translation exists. These differences involve not merely vocabulary requiring dictionaries but fundamental categories—what counts as "being," what entities possess agency warranting moral consideration—operating according to incompatible logics that cannot be reconciled through dialogue alone.

7. CONCLUSION: TOWARD SEMIOTIC RECONSTRUCTION

This analysis demonstrates that biosemiotic theory, when extended to political scales and integrated with political ecology, illuminates crucial dimensions of farmer-herder conflicts inadequately explained by climate change, land scarcity, or ethnic-religious frameworks alone. The theoretical extension reveals how conflicts emerge from incompatible meaning-making systems operating across biological and cultural levels, with autonomous cattle agency playing central roles that purely anthropocentric analyses miss. The framework does not replace existing explanations but demonstrates how semiotic breakdown interacts with material and political factors to produce violence.

The path forward requires recognising that landscapes are densely inscribed texts requiring multiple literacies to read productively, and that sustainable peace depends on deliberate framework construction enabling communities to coordinate despite different ways of being-in-the-world. This demands patient institution-building integrating several elements: physical infrastructure channelling cattle movements through designated corridors marked by botanical plantings or fencing that register within bovine Umwelten; water points strategically located to direct pastoral traffic along specific routes away from active cultivation; institutional authorities possessing linguistic competence in Yoruba, Hausa, and Fulfulde with recognised legitimacy among both communities; temporal coordination protocols establishing when herds may pass through specific areas based on agricultural calendars; and compensation mechanisms addressing unavoidable damages through frameworks both communities consider legitimate.

Two concrete, scalable interventions merit immediate piloting in Southwest Nigeria. First, a Botanical Corridor Revival Project could reconstruct historical grazing route markers using indigenous tree species. Based on Northern Burti system precedents, the pilot would identify three potential pastoral corridors through low-intensity farming areas in Oyo State, working with both Yoruba communities and Fulani groups to plant *Faidherbia albida* *Gawo* (providing cattle fodder and nitrogen fixation), *Adansonia digitata* *Igi Oṣè* (baobab, culturally significant to both groups), and *Khaya senegalensis* (African Mahogany) along 20-kilometer experimental routes. Unlike abstract legal boundaries, these living markers create physical signs registrable within both human and bovine Umwelten—trees communicate 'permitted transit corridor' to herders while signalling 'avoid permanent cultivation' to farmers. Community participation in planting ceremonies could build ownership, while rapid-growth

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species provide visible results within 18-24 months. Monitoring would track route usage, conflict incidents, and community perceptions, generating evidence for potential scaling.

Second, Mobile Mediation Units could address the institutional vacuum identified by Abdu (2017). Each unit would comprise three-person teams—one Yoruba traditional authority representative, one Fulani MACBAN official, one neutral government mediator—equipped with vehicles enabling rapid response to emerging disputes before they escalate. Unlike static police posts, mobile units would patrol farming-pastoral interface zones during high-risk periods (dry season southern migration, planting seasons when crop damage proves most costly). Teams would possess authority to assess damages on-site, broker immediate compensation using standardised rubrics both communities helped develop, and document patterns informing policy. Critically, linguistic competence (Yoruba-Fulfulde-English) would enable direct communication rather than relying on potentially biased interpreters. A six-month pilot across three Southwest states could test whether rapid, culturally competent mediation reduces violence more effectively than post-hoc prosecutions that leave underlying disputes unresolved.

The stakes—measured in thousands of lives lost, hundreds of thousands displaced, and entire agricultural zones abandoned—demand urgent engagement with communicative dimensions that security solutions alone cannot address. The herder's desperate articulation—"If we stay there, cattle die. If we come here, maybe we die, but maybe we survive"—captures the tragic impossibility driving continued collision. Only through patient rebuilding of interpretive frameworks enabling coordination despite fundamental differences can this cycle be broken, transforming semiotic collision from inevitable outcome into negotiated coexistence through deliberately constructed scaffolding making different *Umwelten* partially legible to each other.

Future research should prioritise ethnographic fieldwork with pastoral communities enabling direct engagement with Fulani landscape literacy, spiritual frameworks, and economic logics currently invisible in documentary records. Comparative analysis of northern regions where *burti* system remnants partially function could illuminate which coordination mechanisms prove most effective under contemporary conditions. Finally, theoretical work developing "political biosemiotics" as subdiscipline could clarify how semiotic processes operate when scaled from organismic to collective levels and embedded within asymmetric power relations.

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