



Colonial Scientific Forestry and its Challenges: The Creation of Forest Reserves and Local Resistance in the Gambia

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Abstract— *Forest reserves were central to the sustainable management of forest resources within colonial territories, which is not any different in the Gambia. However, there is little or no evidence on colonial scientific forestry and its challenges with respect to the creation of forest reserves and local resistance in the Gambia. The study adopted a systematic review of the literature, which used the Preferred Items for Reporting Systematic Review and Meta-analyses (PRISMA) to select sixteen (16) studies. The study showed that the main aim of colonial scientific forestry was to rationalise forest management through mapping, classification, and conservation of timber resources for colonial economic interests. The study found that forest reserves restricted local access to vital land and forest resources, which were often culturally significant. The study revealed that the barrier to sustainably implementing scientific forestry was largely due to underfunding, weak institutional capacity, and external pressure from timber and agricultural sectors. The findings showed that colonial policies in the Gambia laid the groundwork for continued centralised governance, but recent shifts favour participatory and hybrid models. The study concludes that the implementation of forest reserves, while justified under the guise of ecological conservation, served more to reinforce colonial authority and economic interests at the expense of indigenous land rights and cultural practices.*



Keywords— *Colonial scientific forestry, forest reserves, local resistance, forestry, forest management*

I. INTRODUCTION

Over time, colonial scientific forestry emerged as a dominant strategy for forest management in many parts of the British Empire during the 19th and early 20th centuries. With an ideal rooted in European forestry traditions, scientific forestry was premised on the rational and sustainable exploitation of forest resources through demarcation, classification, mapping, and centralised control. Contextually, the introduction of scientific forestry in the Gambia during the late colonial period brought with it a fundamental shift in land use, access, and ecological governance. Forest reserves were established with the intention of preserving valuable timber resources, preventing deforestation, and generating economic benefits for the colonial administration. However, these policies

often clash with existing local practices, livelihoods, and cultural values tied to the land.

Kumar (2012) referred to colonial scientific forestry as the process by which the colonial state applied scientific forestry techniques to increase the potential for forest regeneration and productivity. It was stated further that this process can be either conservatively oriented or exploitative, which is used to exploit forest resources with the least amount of conflict with populations that depends on them, rather than solely for conservation and exploitation. Mizuno (2022a) noted that there are several types of colonial forestry method, and it was suggested that the forestry system was limited by the political and ecological circumstances of each region, which result in a hybrid form. Furthermore, it is important to acknowledge the influence of interactions between states and local

governments, as well as their evolving relationships. Mizuno (2022b) notes that some projects combined contemporary methods with indigenous knowledge and customs from colonial forestry.

Recently in a study by Asiyanbi (2025), it was established that decolonizing forestry, especially in countries that were under the British colonial rule, is a precondition for saving its last rainforest. The study indicates that factors such as reductionist understanding of trees, capitalist interests, and a racially global division of labour all interacted to a significant extent in colonial forestry. This is same as what is obtainable in the contemporary carbon forestry of this age. Vandergeest and Lee Peluso (2006) underscored that, after World War Two, post-colonial organisations like the FAO made it easier to build forestry as a sort of empire, even if colonial forestry established some management systems that were continued after colonialism ended. They further accentuated that only when colonialism ended did forestry emerge as the largest landowner in the area. This however came with its attendant challenges, which are varying and diverse.

There are several challenges of colonial scientific forestry. Sunseri (2005) assumes that forestry had to adjust to particular challenges since, like other areas of the colonial government, it was supposed to be self-sufficient. These include determining which forests in a sizeable area with underdeveloped infrastructure could be profitably managed. Movuh (2012) notes that since community forestry seeks to involve the local population in forest management, which helps redress their historical exclusion due to colonial policy, the colonial history presents a unique challenge. Hansen and Lund (2017) indicate that colonial scientific forestry faced challenges in its implementation due to economic constraints and industry pressure. This leads to the collapse of scientific management, which gives way to unsustainable timber extraction. Some of the undermining sustainability efforts and weakening enforcement of conservation policies include low stumpage fees and export levies, set far below international timber prices, and sever limited available funds for effective forest management (Messenger, 2024).

Furthermore, there has been no strategic management plans and adequate protection of forests, which has led to the forbidden of access to these forests with the exception of “right of passage” and “restricted advantages”. Nevertheless, the locals gained unauthorised access to the reserved forests for agricultural purposes and wood harvesting, even with the security architecture put in place (Kobbail, 2011). Basyuni et al. (2025) recommended regular monitoring of forest reserves, but cautioned that

this may be met with challenges of long-term monitoring, which include seasonal fluctuations and difficulty in identifying morphologically similar species. Other challenges identified by Basyuni et al. (2025) include limited funding, ecological and taxonomic expertise, and the need for interdisciplinary collaborations for proper implementation. This is because there is a need for concerted among stakeholders who are of different expertise. Their continuous engagement would help enhance the continuous monitoring to overcome these challenges. Meanwhile, colonial scientific forestry led to the creation of forest reserves, which disregards local land use and spark resistance from communities excluded from forest access (Grove, 2017).

Forest reserves were central to the sustainable management of forest resources within colonial territories, which is not any different in the Gambia. Hölzl (2010) notes that the British forestry tradition is rooted in the 19th Century European scientific and administrative thinking, wherein scientific forestry sought to apply methodological planning, classification, and exploitation of forests to meet economic or strategic needs of colonial administration. Thus, forest reserves emerged, not only as a tool of ecological regulation, but to serve as instrument for imperial control, revenue generation, and territorial reordering. Meanwhile, the creation of forest reserves under colonial scientific forestry was to guide against deforestation and forest degradation caused by shifting cultivation, uncontrolled logging, and local community use (Enuoh & Bisong, 2015). The British colonial leaders believed that local land use practices were destructive and primitive, which often overlook the in-depth ecological knowledge and sustainable traditions embedded in indigenous systems (Johnston, 2022). Thus, forest reserves were mapped, demarcated, and gazette by colonial authorities to restrict access to valuable timber species, control land use, and regulate extraction activities.

During the colonial period in the Gambia, forest reserves were viewed as repositories of economic wealth to enhance export-oriented timber industries and they are often placed under strict supervision to minimise what colonial officials labelled as “encroachment”. However, the transformation of forest landscapes into state-controlled reserves introduced several contradictions (Karsenty, 2016; Molander, 2014). While the essence of scientific forestry is to support sustainability and long-term productivity, its implementation in colonial context often deviated from these core principles (Hölzl, 2010). Economic pressures, administrative limitations, and industry lobbying undermined sustainability goals with respect to forest reserves in the colonial Gambia (Manneh, 2023). Based on this, forest reserves became more of

zones for intensive extraction with little or no regard for ecological regeneration instead of being a managed conservation (Götmark, 2013).

Meanwhile, the creation of forest reserves often led to local resistance in some instances. This is because some indigenous communities that had long depended on forest lands for different survival reasons like firewood fetching, food, medicine, and spiritual practices may find themselves being shortchanged (Peres, 2011). Moreover, with the introduction of forest reserves, the customary land rights would be overridden by colonial legal frameworks, which redefine forests as state property. Thus, many local people in the indigenous communities may engage in some forms of resistance. This resistance may be in the areas of illegal logging, burning forest boundaries, or mobilizing against forest guards and so on (Bulkan, 2017). This may become challenging for the sustainability of the area. Therefore, it becomes imperative to understand colonial scientific forestry and its challenges of power, identity, and survival in the colonial Gambia. The study’s research questions are as follows:

- i. What were the key objectives of colonial scientific forestry introduced in Gambia?
- ii. How did the creation of forest reserves during the colonial period in the Gambia impact local indigene’s access to forest resources?
- iii. What are the challenges that impede the implementation of colonial scientific forestry in the Gambia?
- iv. How did local indigene or communities resist the establishment of colonial forest reserves in the Gambia?
- v. How colonial forestry policies in the colonial Gambia shape post-colonial forest governance and conservation practices?

II. METHODOLOGY

Using the systematic review approach, this study seeks to understand colonial scientific forestry and its challenges from the perspectives of the creation of forest reserves and local resistance in the Gambia. The systematic review approach allows for structured synthesis of the literature in the focused area, which allows for methodological approach to answering identified of questions (Schut et al., 2024). This aids repeatability and credibility, which enhances the transparency of the study. This approach is often used because it offers precise and illustrative guide that improve the accuracy of the findings, which is not obtainable in a narrative review. Meanwhile, some set of databases were consulted for this study owing to their relatedness with the studied area and the high

probability of retrieving relevant literature from the databases. The databases consulted include Scopus, Web of Science, Taylor and Francis, Emerald, Sage, and EBSCOhost.

The study used the appropriate keywords and search terms to enhance the retrieval of relevant literature that would answer the identified research questions of the study (Atkinson & Cipriani, 2018). The databases consulted were with a focus on the sample, phenomenon of interest, design evaluation, and research type (SPIDER) search technique (see Table 1). The reason for this is that the study is quite epochal and may need to focus on either quantitative or qualitative studies, or mixed methods. The SPIDER strategy is considered appropriate for this study as it seeks to allow for wider reach and studies (Hammarberg et al., 2016). This is due to the need to allow for a comprehensive data or information on colonial scientific forestry and its challenges in the Gambia. Meanwhile, in order to find enough evidence on the studied area, the search techniques involved the use of Boolean operators “AND” and “OR” to broaden the search scope (Schut et al., 2024).

Table 1: SPIDER Tool

SPIDER	Content
Sample	Forest managers, colonial authorities, local communities in the Gambia
Phenomenon of Interest	Colonial scientific forestry
Design	Published literature of both qualitative and mixed-methods research
Evaluation	The creation of forest reserves and local resistance to colonial scientific forestry
Research type	Qualitative and mixed methods research

Source: Author’s fieldwork (2025)

The SPIDER framework ensured a structured approach to understand the issue of the creation of forest reserves and local resistance in the Gambia to colonial scientific forestry. Using the SPIDER tool in the search query produced a large number of hits/results. Subsequently, inclusion and exclusion criteria were introduced, which appraise the search results to produce only the most relevant studies to the review (see Table 2). The criteria considered in the selection process of the final selected articles include studies published in any period.

This is because the current study is epochal in nature and studies of any period may be of significant relevance or usefulness. Meanwhile, duplicated publications were expunged and those published in other languages other than English were deleted. Also, the studies selected are both primary and secondary research studies. This is

because the current study is more of historical study and secondary research study may be of relevance to answer the research findings. Using all these inclusion and exclusion criteria, the final selected literature for this study is sixteen (16).

Table 2: Inclusion and Exclusion Criteria

Inclusion and exclusion criteria	No. of hits	Justifications for search criteria
Studies published (without year range)	895	This is to ensure that all relevant historical studies during the colonial rule in the Gambia can be retrieved
Duplicate publications removed	452	This is to avoid redundancy in the retrieved literature
Literature published in English language	450	This is to ensure that all the literature are in understandable language to allow analysis
Both primary and secondary research	350	This is to have both primary and secondary research findings
Studies focusing on colonial forestry in the Gambia	50	This is to contextualise the literature analysis to studies that focused on the Gambia
Full-text only	35	Full-text allows critical review and analysis of the literature
Qualitative or mixed-methods research only	16	This is to analyse research findings that provide deeper understanding of experience, phenomenon, and context.

Source: Author's fieldwork (2025)

Meanwhile, the data collection process was ensured in similar structured manner through Preferred Reporting Items for Systematic Review and Meta-analyses (PRISMA) (see Fig. 1). The framework is appropriate for systematic review studies, which is one this study adopted. Meanwhile, the framework has four (4) phases, which include identification, screening, eligibility, and included. In the initial search of the different databases, a total of 895 items were extracted from the different databases. After this, duplications were checked and only 443 items from the collected data were expunged as having duplicates in the returns. Next, the titles and abstracts of the articles were checked for relevance and whether they are relatable to the current study, and only two (2) articles were removed. After all these, the remaining items were examined with the inclusion and exclusion criteria that were set for the study. From this, only sixteen (16) articles were finally selected for this study. These sixteen (16) articles serve as the datasets for the study. Moreover, the collected data were extracted on a data extraction sheet (see Appendix I). Data analysis was conducted using the "a priori" thematic analysis.

III. RESULTS AND DISCUSSION

On the objectives of colonial scientific forestry introduced in the Gambia, the study showed that the main aim of colonial scientific forestry was to rationalise forest management through mapping, classification, and conservation of timber resources for colonial economic interests. This theme is evident in two of the final selected sixteen (16) literature, which include Saidykhan (2023) and Sillah (1999). These studies (Saidykhan, 2023; Sillah, 1999) demonstrated that colonial conservation was introduced alongside agricultural expansion but often contradicted extraction practices. Similarly, Fanneh (2020) shows that British trade in legumes and grains led to policies influencing forest governance indirectly through infrastructural and economic development. These studies primarily used archival and historical research approaches, which draw on colonial documents, trade records, and administrative reports to establish the theoretical and policy basis of scientific forestry.

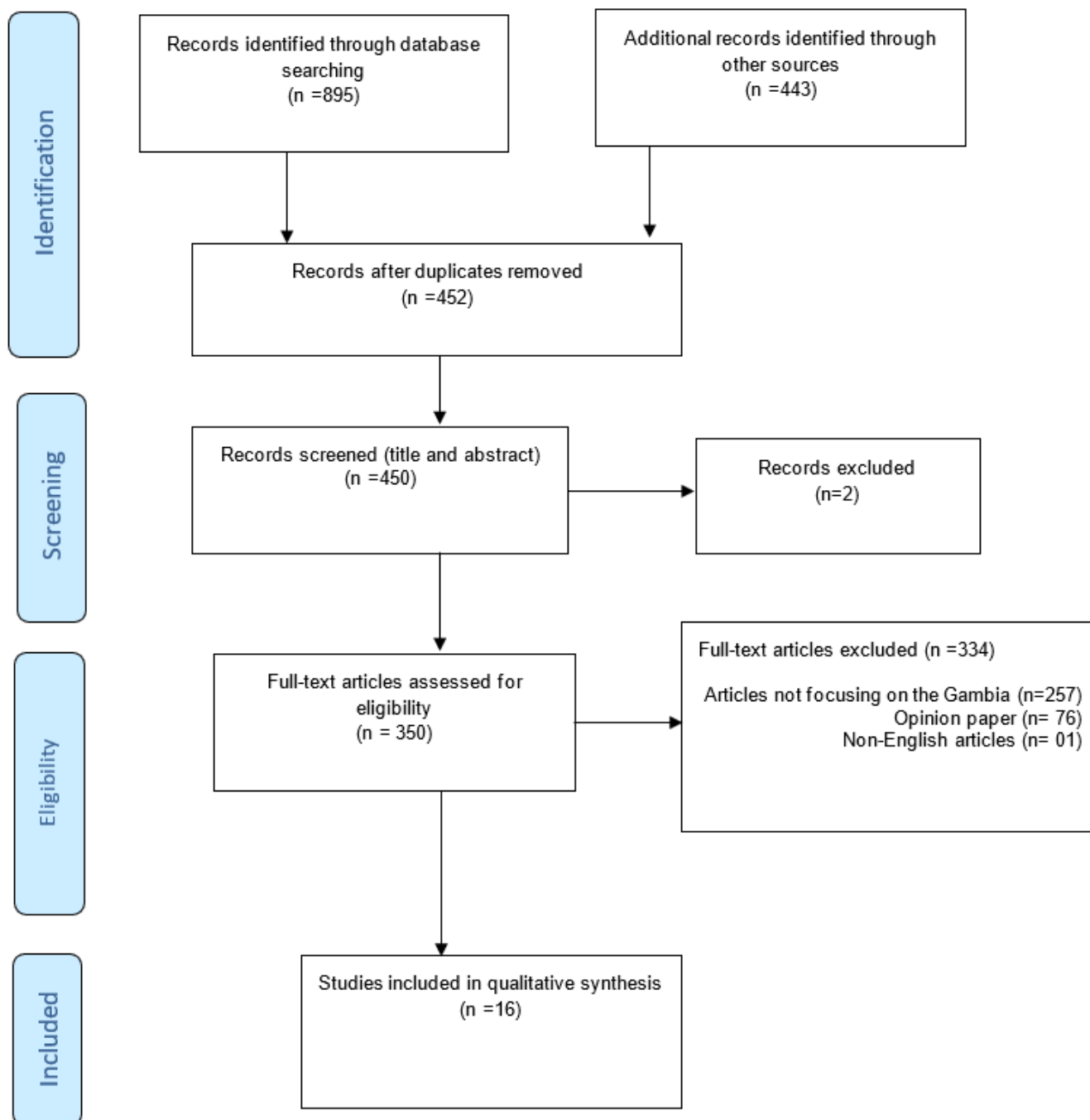


Fig.1: PRISMA Framework

On how the creation of forest reserves during the colonial period impact local communities' access to forest; forest reserves restricted local access to vital land and forest resources, which were often culturally significant. Two of the final selected studies (Darboe, 2023; Darboe et al., 2023) demonstrated communities viewed forests as essential to their livelihood, well-being, and cultural identity. This indicates that local communities in the Gambia viewed forest reserves as instrumental to personal and cultural development. Also, Sillah (1999) emphasises

how forest reserves pushed agricultural activities into marginal lands, exacerbating ecological pressure and inequality in land access. These three studies (Darboe, 2023; Darboe et al., 2023; Sillah, 1999) used qualitative and ethnographic methods, which include interviews and GIS analysis to document the experiences and perceptions of communities directly affected by forest reserves.

On the challenges that impede the implementation of colonial scientific forestry in the Gambia, it was

revealed that the barrier to sustainably implement scientific forestry was largely due to underfunding, weak institutional capacity, and external pressure from timber and agricultural sectors. Gunnarsson and Bergman (2010) identified the lack of effective knowledge dissemination and mistrust of government forestry programs as challenges. Two of the studies (Schroeder, 1997; Tomaselli et al., 2012) highlight that resource constraints and corruption in forest enterprises, which reveal inefficiencies in governance. These three studies (Gunnarsson & Bergman, 2010; Schroeder, 1997; Tomaselli et al., 2012) combined archival, qualitative, and case study approaches, which often incorporate oral histories, interviews, and participatory insights to expose structural weaknesses in implementation.

On how did local indigene or communities resist the establishment of colonial forest reserves in the Gambia, the findings showed that local resistance ranged from passive non-compliance to active contestation. Two of the studies (Schroeder, 1999; Symington, 2015) showed that communities used gendered land claims, traditional rites, and community-based conservation as resistance tools. This indicates that cultural factors are significant when it concerns local resistance of forest reserves. Madge (1995) emphasises indigenous forest regulation by rural women, which highlight local resistance through daily practice and informal management. These studies (Madge, 1995; Schroeder, 1999; Symington, 2015) relied on ethnographic and exploratory research designs, which prioritise in-depth, localised accounts of resistance through cultural and gendered lenses.

Table 3: Tabular Representation of the Final Selected Literature

Methodology	Key studies	Focus
Historical/Archival	Fanneh (2020), Sillah (1999), Manneh (2023)	Colonial policy formation, trade, and land transformation
Qualitative	Darboe (2023), Darboe et al. (2023), Tomaselli et al. (2012)	Community perspectives, socio-economic impacts, governance
Exploratory/ethnographic	Madge (1995), Schroeder (1999), Saidykhan (2023)	Local resistance, cultural knowledge, gendered responses
Mixed/participatory	Norikane (2007), Sanneh (2023)	Customary tenure, natural regeneration, hybrid governance

Source: Author's Fieldwork (2025)

On how colonial forestry policies in the Ghana shape post-colonial forest governance and conservation practices, the findings showed that colonial policies in the Gambia laid the groundwork for continued centralised governance, but recent shifts favour participatory and hybrid models. For instance, Norikane (2017) discusses the incorporation of customary tenure systems, and Sanneh (2023) evaluates assisted natural regeneration as a post-colonial intervention rooted in past forest management failures. Evans (2022) shows how colonial era patterns of exploitation and border insecurity continue to affect forest governance today. These studies (Evans, 2022; Norikane, 2017; Sanneh) used mixed methods and case studies, which emphasise institutional analysis, stakeholder engagement, and longitudinal environmental tracking.

Implications

The findings contribute to the theoretical understanding of colonial environmental governance, especially in relation to scientific forestry and its socio-political ramifications. Colonial scientific forestry has often been portrayed in the literature as a rational and

ecologically-driven model aimed at conserving forest resource. However, this study challenges that narrative providing contradictions in the implementation of scientific forestry in the Gambia. It emphasises that colonial forestry policies were shaped not only by environmental considerations but also by economic exploitation and imperial control. The theory of political ecology is relevant as it provides the intersection of power, resource control, and environmental narratives. This supports the argument that colonial forest reserves functioned as instruments of dispossession rather than conservation. The study also shows the limitations of top-down environmental governance where local ecological knowledge and land use practices are deeply embedded in cultural and spiritual life.

Practically, the study underscores the need for inclusive and participatory approaches in forest management and conservation planning. The study shows that the exclusion of local communities from forest governance under colonial scientific forestry led to local resistance and undermined the legitimacy and

effectiveness of conservation policies. For contemporary forest managers, the study offer important insights with respect to imposition of policies without consulting the local community. It emphasised that failure to recognise traditional land rights is possibly going to lead to resistance and non-compliance. Also, the integration of indigenous knowledge systems and respecting cultural values associated with forests can enhance the sustainability and acceptance of conservation initiatives. Forest reserves should no longer be treated as zones of resource control, but as living landscapes with social, spiritual, and economic significance for local population.

With respect to societal implications, this study highlights the long-term social consequences of colonial forest policies and the importance of addressing historical injustices in environmental governance. The creation of forest reserves in the Gambia during the colonial period disrupted local livelihoods, cultural practices, and land tenure systems, which lead to marginalisation and conflict. These legacies continue to influence how communities perceive conservation efforts and interact with state institution today. The study also contributes to broader discussions about environmental justice, which emphasise that sustainable development must be grounded in the principles of fairness, inclusion, and historical awareness. In postcolonial societies like the Gambia, where land and resource rights remain contentious, which revisit colonial environmental histories can inform more just and effective policy-making. In addition, the study encourages civil society, educators, and policymakers to engage in public education campaigns that promote awareness of the cultural and historical dimensions of environmental issues.

IV. CONCLUSION

The study explored the complexities of colonial scientific forestry in the Gambia, which focuses on the creation of forest reserves and the resulting local resistance. The study used a systematic review of literature, through the combination of archival, ethnographic, and qualitative analyses to show that what was portrayed as scientific and sustainable management was, in practice, an extractive and exclusionary approach to forest governance. The study established that the implementation of forest reserves, while justified under the guise of ecological conservation, served more to reinforce colonial authority and economic interests at the expense of indigenous land rights and cultural practices. Local communities, far from being passive recipients of these changes, actively resisted through various forms of social, cultural, and environmental defiance. The study emphasises the importance of recognising these historical

dynamics in contemporary forest management, where the legacies of colonial policies still shape access, governance, and resistance. It calls for a more inclusive, historically informed approach to conservation that integrates local knowledge, supports community-based management, and rectifies past injustices. Therefore, the study not only contributes to academic discourse in environmental history and political ecology but also offers insights for creating equitable and sustainable environmental policies in the Gambia and other postcolonial contexts.

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APPENDIX

DATA EXTRACTION TOOL

Colonial Scientific Forestry and its Challenges: The Creation of Forest Reserves and Local Resistance in the Gambia

S/N	Research titles and authors	Aims	Study location (Country)	Methodology	Findings
1	“Re-claiming” land in the Gambia: Gendered property rights and environmental intervention Schroeder (1999)	The study examined gendered property rights and environmental intervention in the Gambia	The Gambia	Historical research approach.	<ul style="list-style-type: none"> - The study demonstrate how women market gardeners pressed “secondary” usufruct rights to great advantage to ease the economic impact of persistent drought conditions for the better part of a decade, only to have male lineage heads and community leaders “re-claim” the resources in question through donor-generated agroforestry and soil and water management projects.
2	Island Citizens: Environment, Infrastructure, and Belonging in Colonial Gambia, 1816-1965 Manneh (2023)	The study examined environment, infrastructure, and belonging in colonial the Gambia	The Gambia	Archival research approach.	<ul style="list-style-type: none"> - The study argues that, for the community of formerly enslaved Liberated Africans in The Gambia, participation in colonial political life became contingent upon the ownership of property in the form of dry, reclaimed land carved from mangrove estuaries surrounding the island city of Bathurst. - As this dissertation shows, owning dry land at different points in Bathurst’s history marked who could vote in municipal elections, who could be guaranteed British military protection, and who could access financial credit to participate in the colonial economy. - Land reclamation and drainage were therefore not only foundational to Liberated African politics and their claims to autochthony, but also to the origins of Gambian municipal politics and African involvement therein.
3	“The Only Good Crocodile Is A Dead One”: Contradictions in Conservation Policies and Agricultural Activities in the Gambia, 1938 -1965 Saidykhan, S. (2023)	This thesis offers new sources that demonstrate how agricultural activities and resource exploitation undermined conservation, and the colonial conservation policies neglected the local ways of forest and wildlife conservation in the Gambia.	The Gambia	Exploratory research approach	<ul style="list-style-type: none"> - The study shows that the stratified social structure of the Gambian communities balanced the competing interests in the exploitation of forest resources. - It established that the Gambia’s major geographic features such as the islands, creeks, and swamps represented a cultural and religious symbol to the communities which protected them from human encroachment and exploitation. - The ritualization of shrines and sacred forests during rites of passage such as childbirth, initiation and death conserved the surrounding flora and fauna.

4	Community-based conservation and development: The case of the Mori Kunda Community Forest in Tujereng, The Gambia Symington (2015)	The study investigates community-based conservation and development in Mori Kunda Community Forest in Tujereng, the Gambia	The Gambia	Archival research approach.	<ul style="list-style-type: none"> - Community-based conservation (CBC) was developed to synergize social, environmental and economic aspects of conservation by actively involving local communities. To combat deforestation and promote development, The Gambia implemented a Community Forestry Programme (CFP), giving land and resource ownership rights to local communities provided they adopt management responsibilities. - Exploring Tujereng's Mori Kunda Community Forest it was determined that CBC has the potential to result in both development and conservation outcomes. However, outcome extent was dependent upon: incentives; access to land; external training, funding and resources; poverty; competing industries; environmental stewardship; community consultation and values; as well as the communally oriented structure and disposition of Gambian society.
5	Intertwining people and forest in the Lower River Region (LRR) of the Gambia Darboe (2023)	The study examines the interrelationships between the people and forest in the Lower River Region of the Gambia by documenting individuals' life experiences and perceptions about various forest ecosystem services.	The Gambia	Qualitative approach.	<ul style="list-style-type: none"> - The findings reveal that people's perception about the forest is linked to their well-being and life experience that attributes to their activities of being-in the forest. Those activities contribute to forest development and maintenance through integrated management systems, involving both state and communities in managing what belongs to them. However, from the results, the relationship indicates that humans are the main drivers to deforestation of their community forest. Through their socio-economic and cultural activities like land use change for agriculture, commercial timber production, illegal timber logging, domestic firewood collection and charcoal production, bush fire, human settlement and development.
6	The nature and impact of British involvement in legume and grains trade in the Gambia, 1830-1965 Fanneh (2020)	The study interrogate British involvement in grains trade in the Gambia from 1830 when the first consignment of grains was exported to West Indies to 1965, when the country attained independence	The Gambia	Historical approach and interpretive design. Oral and European documentary sources.	<ul style="list-style-type: none"> - The paper argues that British involvement in grains trade in the Gambia during the period under examination culminated into series of infrastructural developments that had far-reaching consequences on the country's demography and environment. - British policies on agriculture, taxation and pest control ignited responses such as tax boycotts and refusal to cultivate certain crops from Gambian farmers. Equally, the involvement of European trading companies and merchants with support from the colonial government transformed the nature and volume of the trade. - The development of ports, wharfs, launches and ferry services in addition to road constructions became the dividends of British involvement in the trade in the Gambia. Above all, migrant farmers came from neighbouring countries to grow crops.
7	Restructuring Community Forestry: A Look at	The study examined the tenure, institutions, and	The Gambia	Historical research approach.	<ul style="list-style-type: none"> - The case study of The Gambia helps to highlight the value of incorporating customary regimes and institutions into forest

	Tenure, Institutions and Gender in The Gambia Norikane (2007)	gender issues in the Gambia regarding restructuring community forestry.			management practices. Through examination of different cultural practices, the case study serves to reinforce some of the notions concerning adaptive tenure and management policies in addition to setting the stage for further discussion into those arenas. - In addition, the recognition of customary and traditional law by the government of The Gambia, as well as pivotal PVO involvement, strengthens forest management institutions in a successful example of hybridization. - Analysis of the Gambian case study provides a platform for community forestry extension in other African countries. Customary institutions should be seen as dynamic and adaptive instruments for management created over time through trial and error by knowledgeable rural experts rather than as the backwards and inflexible creations of the ignorant rural poor.
8	“Forest is integral to life”: People-forest relations in the lower river region, the Gambia” Darboe et al. (2023)	The study investigated people-forest relations in the lower river region in the Gambia	The Gambia	The study adopted the qualitative research approach, which allowed for 35 semi-structured interviews. Also, geographic information system (GIS) was used for remote sensing satellite imagery to show baseline for the complex connections and changes.	- The study showed the importance of the forest’s contributions to Mandika communities and specifically to their psychological well-being. Also, the interviewees demonstrated how ongoing socio-economic changes are affecting the human-forest relationship and possibly eroding the local ethno-forestry knowledge in lower river region of the Gambia. - The study demonstrated that the most common forest contributions are those that provide material goods, serving as the driving force in connecting people with the forest, while non-material contributions are eroding due to complex socio-economic changes. - The major socio-economic changes are also believed to drive the shift from dense forest to mixed forest and grassland.
9	“Re-claiming” land in the Gambia: Gendered property rights and environmental intervention Schroeder (1997)	The study investigated the impact of ecological policies on commodity production in Gambia where communal market gardens run by women’s groups are being converted into privatized orchards managed by male landholders in a state-directed, donor-funded initiative designed to meet stabilization goals.	.The Gambia	Archival research approach	- The economic barriers thrown up by the slow processes of rejuvenation and repair often preclude the prospect of environmental programs paying for themselves outright. Most individual, and many private corporate actors are therefore reluctant to undertake the tasks of reclamation unilaterally. Instead, they default to state functionaries (or their surrogates environmentalists), who confront the production obstacles on their behalf. The state can often alleviate some of the financial burdens of reclamation efforts through regressive taxation or unequal exchange mechanisms, but these tactics have their political and economic limits. Alternatively, state managers can opt for approaches involving coercion or regulatory controls, but these, too, can be quite expensive and are often ineffective due to the political resistance they engender. Consequently, environmentalists develop

					approaches driven by the “positive” incentive of profit-taking associated with commodity production.
10	Forest resources and plantations of the Gambia Sillah (1999)	The study examined forest resources and plantations of the Gambia	The Gambia	Archival research approach.	<ul style="list-style-type: none"> - The study showed that the major reserves of arable land are be found in the Western and Northern part of the country mainly in former fallow lands. The rest of the arable lands can only be found under forest cover. For this reason, remaining woodlands covering better sites are always attractive as agricultural land with the highest tendency in the west and central part of the country. - Findings showed that in regions that have marginal soils (most parts of the eastern part of the country) seems to have forested lands being already pushed to non-arable sites and fallow lands on marginal sites were recovered back to tree and shrub savannah. - The findings increased demand on wood products in urban and semi-urban areas confirmed the highest decreases of woodlands in these areas compared to the others. This has a direct connection with the population growth of those areas and the socio-economic developments. - Findings showed that the steady diminution of trees on farmlands particularly in the east, leads to increased wind and water erosion and negatively affects the soil water and nutrition cycles; ~the decrease of fallow lands and, thus, shorter fallow periods is wide spread, but more prominent the northern part of the country. - Results showed that the change in tree species composition to more fire resistant species is steadily pushing the natural vegetation woodland species to almost local extinction.
11	Land and historical change in a river valley: property, power and dependency in the lower Gambia basin, nineteenth and early twentieth centuries Sarr (2010)	The study used oral and written sources to explore changing concepts of land tenure along the banks of the lower Gambia River basin.	The Gambia	Archival research sources. Oral and written sources.	<ul style="list-style-type: none"> - The study shows that landholding customs and land use practices in this region were constantly changing under the impact of new conditions, often related to major historical developments in the area and forces associated with the region's relationship with the wider world, particularly Europe and the Islamic world. - The most important matters affecting land tenure systems were the outbreak of Muslim Revolutions and the development of cash-crop production. - These occurred following the ending of the Atlantic slave trade and, over several decades following 1830, resulted in the overthrow of a Mandinka aristocracy and rejection of royal control over the land.
12	The role of government in the development of small	The study explored the role of government in the	The Gambia.	Qualitative research approach, using multiple	<ul style="list-style-type: none"> - Data indicate that The Gambian government has had a positive impact on various SMFEs with respect to the transfer of land

	and medium forest enterprises: Case studies from the Gambia Tomaselli et al. (2012)	development of small and medium forest enterprises using case studies from the Gambia.		case study research design.	tenure to local communities, coupled with the implementation of capacity building and support activities. However, there is room for improvement as wood-related enterprises revealed being affected by significant challenges such as corrupt practices, illegal activities and deficient enforcement.
13	Adoption of knowledge related to sustainable forestry from a Gambian perspective Gunnarsson and Bergman (2010)	The paper examines the adoption and diffusion of sustainable forestry related technologies in the Gambia.	The Gambia.	Archival research approach.	<ul style="list-style-type: none"> - The study found that the ease of the spread of information about locally adopted technologies is crucial. The important role of government departments is confirmed, if a participatory approach and sufficient follow-up are to be observed in the process. However, a certain level of mistrust towards the government is evident in the study. - Village groups are found to be inefficient. Interviews with informed members and NGO staff indicated a cultural norm of keeping knowledge to oneself without spreading it. An alternative approach of targeting dedicated individuals is recommended instead. The result of the study indicates that the adoption of sustainable forestry might not necessarily come with the adoption of improved stoves.
14	Assessing natural regeneration of <i>Pterocarpus erinaceus</i> in Kiang West national park, the Gambia Sanneh (2023)	This study aims to determine the impact of ANR on stands of <i>Pterocarpus erinaceus</i> in KWNP	The Gambia	Qualitative research approach, using focus group discussion (FGD).	<ul style="list-style-type: none"> - The findings of the study revealed that on average <i>Pterocarpus erinaceus</i> tree density in the ANR plots increased by 100% from 36 trees/ha in 2019 to 72/ha in 2023. In contrast, wildlings density in ANR plots decreased by 44% from 64 trees/ha to 36 tree/ha. The findings also identified fire, overgrazing, illegal logging, termite infestation and drought as the main drivers of degradation in the park. The noticeable increment in the population of <i>Pterocarpus erinaceus</i> trees in the study plots implies the effectiveness of ANR as a low-cost landscape restoration strategy being implemented by the EbA project.
15	Insecurity, informal trade and timber trafficking in the Gambia/Casamance borderlands Evans (2022)	The study examines the post-independence period, during which flows of agricultural and forest products mainly from Casamance into the Gambia have continued, while processed foods and manufactured goods have been traded in the other direction.	The Gambia.	Narrative research approach.	<ul style="list-style-type: none"> - The study showed that certain flows have become pathological since the Casamance rebellion began in 1982, with natural resources being traded by both Senegalese government and separatist forces, and arms trafficked to the latter partly through Gambian channels. With the conflict now of low intensity though not resolved, continued illegal timber exploitation in Casamance driven mainly by international actors is becoming more environmentally destructive and locally divisive. - The study found that informal cross-border trade has long been bound up with insecurity at local, national, transnational and international levels, and that contemporary dynamics show some

					historical continuities.
16	Ethnography and agroforestry research: A case study from the Gambia Madge (1995)	The study examines the contribution that an ethnographic methodology can make to gender-sensitive agroforestry research.	The Gambia.	Ethnography research approach.	<ul style="list-style-type: none"> - An ethnographic approach is combined with political economy perspectives to illustrate how the significance of such products, particularly for women, has markedly increased during the past two decades, especially for commercial purposes, in response to changing environmental, economic and social circumstances. - Environmental management practices are used by rural individuals to regulate forest resources. Although there is potential for formal management policy to build upon these indigenous practices, a detailed understanding of local human-environmental relationships is essential for any planning mechanism to succeed.