Dissertationes Forestales 367

Through a glass darkly - shedding light on silences in forest policy and knowledge

Alizée S. H. G. Ville

Department of Forest Sciences,
Faculty of Agriculture and Forestry,
University of Helsinki

Academic dissertation

To be presented for public examination,
with the permission of the Faculty of Agriculture and Forestry of the University of Helsinki, in lecture room Karolina Eskelin U3032, University main building on May 16th, 2025, at 12:00.

Title of dissertation: Through a glass darkly - shedding light on silences in forest policy and knowledge
Author: Alizée S. H. G. Ville

Dissertationes Forestales 367
https://doi.org/10.14214/df.367

Thesis Supervisors:
Professor Maria Brockhaus
Department of Forest Sciences, University of Helsinki, Finland

Dr. Grace Y. Wong
Research Institute for Humanity and Nature, Japan. Stockholm Resilience Centre, Sweden

Dr. Symphorien Ongolo
Institut de Recherche en Développement, Madagascar

Pre-examiners:
Dr. Seema Arora-Jonsson
Swedish University of Agricultural Sciences, Sweden

Dr. Verina Ingram
Wageningen University, Netherlands

Opponent:
Dr. Annah Zhu
Wageningen University, Netherlands

ISSN 1795-7389 (online)
ISBN 978-951-651-824-7 (pdf)

Publishers:
Finnish Society of Forest Science
Faculty of Agriculture and Forestry of the University of Helsinki
School of Forest Sciences of the University of Eastern Finland

Editorial Office:
Finnish Society of Forest Science
Viikinkaari 6, 00790 Helsinki, Finland
https://www.dissertationesforestales.fi/

Ville A.S.H.G. (2025). Through a glass darkly - shedding light on silences in forest policy and knowledge. 75 p. Dissertationes Forestales 367.
https://doi.org/10.14214/df.367

ABSTRACT

From food to fire, forests are vital to our existence and the survival of the 8.7 million species known to inhabit the Earth. Forest policy, aimed at governing the forest for specific uses, reflects the objectives and ambitions of particular interests at particular times in history. Forests are inherently political, and so is the process through which knowledge is produced and filtered into policymaking. In this process, some possibilities are excluded, effectively silenced. To err is human but to persist in error is diabolical. At a time where some of our anthropogenic ambitions of resource consumption seem to have ignited the forests across the globe, it is crucial – if not ethical – to examine the underlying assumptions of these policies more closely. As ways of doing are embedded in ways of knowing, understanding and moving away from past mistakes requires an ontological shift. Motivating this thesis, therefore, is an interest in how Western scientific and political practices, by privileging speech and voice (the Logos) have subdued various forms of silences, thereby subjugating different perspectives and hindering alternative pathways for change.

This thesis adopts the following design. It explores the epistemological and ontological underpinnings of environmental knowledge politics, through an examination of forest policy in Sweden, Cameroon, and the Democratic Republic of Congo (DRC). It looks at forest governance and timber trade, through the theoretical lens of a New Materialism approach to knowledge, an Extractivism and governmentality approach to governance, and a Foucauldian approach to discourse and subjugation. It combines archival research, fieldwork, semi-structured interviews, and critical discourse analysis to uncover the underlying assumptions and power dynamics influencing forest policy.

This work examines the embeddedness of policy discourse with the knowledge on which it draws its legitimacy. My first step is to analyze how problem representations affect policy formulation in the forest sector across Sweden, Cameroon, and the DRC, as policy often initially 'creates' the problems it attempts to solve. I then critically examine the knowledge underlying these problematizations, focusing on how the selection of dominant forms of knowing and the marginalization of others have shaped and maintained existing policy formulations.

Silences speak volumes – both in the problematizations in policy and in the knowledge which informs them. Key findings reveal that gender inequality in Sweden's forest sector is framed as a problem of representation, with policies focusing on increasing female participation without addressing deeper systemic issues, and equating the forest sector to the timber industry. In the Congo Basin, the notion of 'idle and masterless lands' has historically justified the appropriation of forest resources, marginalizing indigenous knowledge and practices. Amidst mounting speculative pressures on the carbon market, this thesis introduces the concept of 'intraction' to describe the immobilization of natural resources for carbon credits, highlighting parallels between historical extraction practices and contemporary conservation efforts – all the while, silencing local uses. Finally, this thesis critically examines how transparency– understood as the opposite of opacity – is problematized in timber commodity chains. This illustrates how construing transparency as data to be made

visible may obscure underlying resistances and data sovereignty, all the while benefiting pre-existing data-brokers and entrenching power dynamics.

Through an exploration of forest policy discourse and its underlying knowledge, this thesis demonstrates how policy often sees through a glass darkly. By expanding the work on silences, I show that these may act as subjugation or acceptance, but also as resistance or liberation. I advance theoretical and methodological approaches to the understanding of silences, diffracted through the prism of the workings of power, the construction of knowledge and the limits to perception. Understanding these silences requires a shift in both epistemological and ontological perspectives, to develop more inclusive and effective governance frameworks. This thesis concludes that lending a curious ear to silences might bring more voice to what policy has been missing.

Keywords: forest policy; knowledges; silences; Sweden; Cameroon; the Democratic Republic of Congo; onto-epistemologies.

Ville A.S.H.G. (2025). Through a glass darkly – shedding light on silences in forest policy and knowledge. 75 p. Dissertationes Forestales 367.
https://doi.org/10.14214/df.367

TIIVISTELMÄ

Ravinnon lähteestä energian saantiin, metsät ovat elintärkeitä niin ihmisille kuin niille 8,7 miljoonalle muulle lajille, jotka asuttavat maapalloa. Metsäpolitiikka, jonka kautta pyritään hallinnoimaan metsiä erilaisia käyttötarkoituksia varten, heijastelee aina erinäisten eturyhmien tavoitteita ja pyrkimyksiä sekä sitä historiallista ajanjaksoa, jossa se tapahtuu. Metsät ovat luonnostaan poliittisia, ja niin on myös se prosessi, jonka kautta tietoa tuotetaan ja suodatetaan poliittiseen päätöksentekoon. Tässä prosessissa jotkin mahdollisuudet suljetaan pois, toisin sanoen vaiennetaan. Erehdykset ovat inhimillisiä, mutta erehdyksessä eläminen on pirullista. Aikana, jossa ihmisten kunnianhimoinen resurssien kulutus on sytyttänyt metsät ympäri maailmaa palamaan, on ratkaisevan tärkeää – ellei jopa eettisesti välttämätöntä – tarkastella tarkemmin kyseisten politiikkatoimien taustalla olevia perusolettamuksia. Koska tekemisen tavat juontuvat tietämisen tavoista, aiempien virheiden ymmärtäminen ja niistä irtautuminen edellyttävät ontologista muutosta. Tämän tutkimuksen taustalla on pyrkimys ymmärtää miten länsimaiset tieteelliset ja poliittiset käytännöt ovat puhetta ja ääntä (Logos) etuoikeuttamalla tuottaneet erilaisten näkökulmien vaientamista, täten estäneet niitä tulemasta kuulluksi ja hidastaen vaihtoehtoisten kehityskulkujen toteutumista.

Tämä tutkimus analysoi ympäristöön liittyvän tietopolitiikan epistemologisia ja ontologisia perusteita tarkastelemalla metsäpolitiikkaa Ruotsissa, Kamerunissa ja Kongon demokraattisessa tasavallassa. Tutkimus tarkastelee metsien hallintaa ja puukauppaa moniteoreettisen linssin läpi, joka koostuu uusmaterialistisesta lähestymistavasta tietoon, ekstraktivistisesta lähestymistavasta luonnonvarojen hallintaan sekä foucault'laisesta lähestymistavasta diskurssiin ja alistamiseen. Väitöskirjan tutkimusmenetelmät yhdistävät arkistotutkimusta, kenttätyötä, puolistrukturoituja haastatteluja ja kriittistä diskurssianalyysiä metsäpolitiikkaan vaikuttavien perusoletusten ja valtadynamiikan paljastamiseksi.

Tutkimuksen keskiössä on poliittisen diskurssin tarkastelu sen sulautuessa niihin tiedon muotoihin, joista se ammentaa legitimiteettinsä. Koska politiikka usein ”luo” ensin ne ongelmat, joita se pyrkii ratkaisemaan, tutkimuksessani analysoin ensin, miten ongelmien esitystavat vaikuttavat metsäpolitiikan muotoiluun Ruotsissa, Kamerunissa ja Kongon demokraattisessa tasavallassa. Tämän jälkeen tarkastelen kriittisesti kyseisten problematisointien taustalla vaikuttavaa tietoa, keskittyen siihen, miten vallitsevien tietämisen muotojen valinta ja muiden tiedon muotojen marginalisointi ovat muokanneet ja ylläpitäneet vallitsevaa politiikkaa.

Vaikeneminen kertoo paljon – sekä politiikan problematisoinnin kohdalla että sen perustana olevasta tiedosta. Tutkimukseni keskeiset havainnot osoittavat, että sukupuolten epätasa-arvo Ruotsin metsäsektorilla on muotoiltu ensisijaisesti edustuksen ongelmaksi, politiikan keskittyessä naisten osallistumisen lisäämiseen ilman syvällisempää puuttumista systeemisiin ongelmiin, samaistaen samalla metsäsektorin puuteollisuuteen. Kongon altaan alueen kontekstissa ”isännättömän joutomaan” käsitteen avulla on historiallisesti oikeutettu metsävarojen haltuunotto ja alkuperäiskansojen tietämyksen ja käytäntöjen syrjäyttäminen. Hiilimarkkinoiden kasvavan spekulatiivisen paineen keskellä, tämä tutkimus tuo esiin

käsitteen ”intraction”, joka kuvaa luonnonvarojen immobilisoimista hiilihyvitysten saamiseksi. Käsite myös korostaa historiallisten ekstraktivististen toimintatapojen ja nykyisten suojelupyrkimysten välisiä yhtäläisyyksiä, joihin molempiin liittyy paikallisten käyttötapojen vaientaminen. Lopuksi tutkimuksessa tarkastellaan kriittisesti, miten toiminnan läpinäkyvyys on problematisoitu puutavaran arvoketjuissa. Tämä tarkastelu havainnollistaa, miten prosessien läpinäkyvyyden samaistaminen datan saatavaksi tekemiseksi, voi peittää alleen taustalla olevaa vastarintaa ja tiedon suvereniteetteja, samalla hyödyttäen olemassa olevia tiedonvälittäjiä ja vahvistaen vallitsevia valta-asetelmia.

Metsäpoliittisia diskursseja ja niiden taustalla olevaa tietoa tutkimalla tämä väitöskirjatutkimus osoittaa, miten valikoivaa politiikka on. Tässä tutkimuksessa kehitän hiljaisuuksia ja vaientamista koskevaa tutkimusalaa ja osoitan, että hiljaisuus voi toimia alistamisena tai hyväksymisenä, mutta myös vastarintana tai vapautumisena. Kehitän lisäksi teoreettisia ja metodologisia lähestymistapoja hiljaisuuksien ja vaientamisen ymmärtämiseen vallankäytön, tiedon rakentamisen ja havaitsemisen rajallisuuden prisman läpi. Hiljaisuuksien ymmärtäminen edellyttää sekä epistemologisten että ontologisten näkökulmien muuttamista. Tätä kautta voidaan kehittää osallistavampia ja tehokkaampia hallinnan malleja.

Tämän tutkimuksen johtopäätös on, että hiljaisuuden kuunteleminen herkällä korvalla voi tuoda paremmin esiin sen, mitä politiikasta puuttuu. Koska uudet toimintatavat edellyttävät uusia ajattelutapoja, tämä väitöskirja peräänkuuluttaa tarvetta ”more-than-representational” (ei-vain-edustuksellisille) -lähestymistavoille tulevassa tutkimustyössä.

Asiasanat: metsäpolitiikka; tiedontuotanto; hiljaisuus; vaientaminen; Ruotsi; Kamerun; Kongon demokraattinen tasavalta; onto-epistemologia.

Ville A.S.H.G. (2025). Through a glass darkly - shedding light on silences in forest policy and knowledge. 75 p. Dissertationes Forestales 367.
https://doi.org/10.14214/df.367

RÉSUMÉ

De la sécurité alimentaire au combustible, les forêts sont essentielles à notre existence et à la survie des 8,7 millions d'espèces qui peuplent la Terre. La politique forestière, qui vise à régir la forêt pour des usages spécifiques, reflète les objectifs et les ambitions d'intérêts particuliers, à des moments particuliers de l'histoire. Les forêts sont intrinsèquement politiques, tout comme le processus par lequel les connaissances sont produites et filtrées dans l'élaboration des politiques. Dans ce processus, certaines possibilités sont exclues, voire réduites au silence. L'erreur est humaine, mais persévérer dans l'erreur est diabolique. À l'heure où certaines de nos ambitions anthropogéniques en matière de consommation de ressources semblent avoir enflammé les forêts du monde entier, il est crucial - voire éthique - d'examiner de plus près les hypothèses sous-jacentes de ces politiques. Puisque nos savoir-faire sont ancrés dans nos façons de savoir, la compréhension et l'abandon des erreurs du passé nécessitent un changement ontologique. Cette thèse s'intéresse donc à la manière dont les pratiques scientifiques et politiques occidentales, en privilégiant la parole et la voix (le Logos), ont subjugué diverses formes de silences, ignorant ainsi des perspectives différentes et entravant des voies alternatives de changement.

Cette thèse est conçue de la manière suivante. Elle explore les fondements épistémologiques et ontologiques de la politique de la connaissance environnementale, à travers un examen de la politique forestière en Suède, au Cameroun et en République Démocratique du Congo (RDC). Il examine la gouvernance forestière et le commerce du bois à travers le prisme théorique d'une approche à la connaissance par le Nouveau Matérialisme, d'une approche de la gouvernance forestière par le biais de l'Extractivisme et de la Gouvernementalité, et d'une approche foucaldienne du discours et de subjugation. Il combine la recherche d'archives, le travail de terrain, des entretiens semi-structurés et une analyse critique du discours pour découvrir les hypothèses sous-jacentes et les dynamiques de pouvoir qui influencent la politique forestière.

Ce travail examine l'ancrage du discours politique dans les connaissances dont il tire sa légitimité. Ma première étape consiste à analyser la manière dont les représentations des problèmes affectent la formulation des politiques dans le secteur forestier en Suède, au Cameroun et en RDC, étant donné que les politiques « créent » souvent au départ les problèmes qu'elles tentent de résoudre. J'examine ensuite de manière critique les connaissances qui sous-tendent ces problématisations, en me concentrant sur la manière dont la sélection de formes dominantes de « savoir » et la marginalisation d'autres formes ont façonné et maintenu les formulations politiques existantes.

Les silences sont éloquents, tant sur les problématisations politiques que sur les connaissances qui les sous-tendent. Les principales conclusions révèlent que l'inégalité des genres dans le secteur forestier suédois est présentée comme un problème arithmétique de représentation, les politiques se concentrant sur l'augmentation de la participation des femmes sans aborder les questions systémiques plus profondes, et assimilant le secteur forestier à l'industrie du bois. Dans le bassin du Congo, la notion de « terres vacantes et sans maître » a historiquement justifié l'appropriation des ressources forestières, marginalisant les

connaissances et les pratiques autochtones. Alors que le marché du carbone est le sujet de pressions spéculatives croissantes, cette thèse introduit le concept d' « intraction » pour décrire l'immobilisation des ressources naturelles pour les crédits carbone, en soulignant les parallèles entre les pratiques d'extraction historiques et les efforts de conservation contemporains - tout en réduisant au silence les utilisations locales des terres forestières. Enfin, cette thèse examine de manière critique la façon dont la transparence - comprise comme le contraire de l'opacité - est problématisée dans les chaînes de production de bois. J'illustre comment le fait de considérer la transparence comme étant le simple fait de rendre visible l'information, peut occulter les résistances sous-jacentes et la souveraineté des données, tout en profitant aux courtiers de données, préexistants sur le marché de l'information, et en enracinant la dynamique du pouvoir.

En explorant le discours sur la politique forestière et ses connaissances sous-jacentes, cette thèse démontre que les politiques publiques perçoivent souvent à travers un verre opaque (*Through a glass darkly*). En développant le travail sur les silences, je montre que ceux-ci peuvent agir comme une subjugation ou une acceptation, mais aussi comme une résistance ou une libération. Je propose des approches théoriques et méthodologiques pour comprendre les silences, diffractés à travers le prisme du fonctionnement du pouvoir, de la construction du savoir et des limites de la perception. La compréhension de ces silences nécessite un changement de perspective épistémologique et ontologique, afin de développer des cadres de gouvernance plus inclusifs et efficaces. Cette thèse conclut que prêter une oreille curieuse aux silences pourrait permettre de mieux faire entendre ce qui manque aux politiques.

Mots clés : politique forestière ; savoirs ; silences ; Suède ; Cameroun ; République démocratique du Congo ; onto-épistémologies.

ACKNOWLEDGEMENTS

"Soyons reconnaissants aux personnes qui nous donnent du bonheur;
elles sont les charmants jardiniers par qui nos âmes sont fleuries."
Marcel Proust

Many were the times during in the course of this thesis, that I could not see the forest for the trees. In those moments, I was fortunate to have encountered, and been surrounded by, many people who have kept me rooted. They are too numerous to mention all by name, but as per tradition, here we go.

First and foremost, my thanks go to my supervisory trinity. Maria Brockhaus, for the ever-generous sharing of time and ideas, a privilege few PhD students experience. Grace Wong, whose notorious serenity has helped me navigate many storms. And Symphorien Ongolo, whose ideas have greatly inspired and nurtured my work in many ways. I also thank my thesis committee members, Franklin Obeng-Odoom and Victor Galaz, for their consistent encouragement over the years. My pre-examiners, Seema Arora-Jonsson and Verina Ingram, for engaging with my work with care and providing insightful comments that have helped me to sharpen the message I convey, which has (hopefully) improved the quality of the thesis you now have in your hands.

I am grateful to the institutions, including the Volkswagen Foundation that financed my project, which have made it possible for me to devote almost four years of my life to the manic study of one topic. The University of Helsinki, and within it, my home Department of Forest Sciences, have provided me and many other researchers some respite from an otherwise chaotic world. The Helsinki Institute Of Sustainability Science (HELSUS) and the Doctoral Program in Interdisciplinary Environmental Sciences (DENVI) have become some of my favorite acronyms, and allowed me to share some inspiring ranting sessions with Ákos Gosztonyi, Eugenia Castellazzi, Federico Grossi, Laua Wiman, Michiru Nagatsu, Pasi Pouta, Saana Hokkanen, Sara Zaman, Tina Nyfors, Yuwen Pang, and all the others.

To all the informants, guides and friends I have met and spoken to, followed and learned from, along the way. For anonymity, I cannot name any of you – but you know who you are, and hopefully, will find some usefulness in these pages. This journey has taught me that in the midst of differences and diverging views, it is from the practice of finding similarities that one grows the most, and (possibly) finds new pathways. More than once, my Cartesian upbringing has been shaken from its rational roots, and I've become more comfortable in the swampy waters of uncertainty.

To my fellow participants of the 2023 Aboagora retreat, in the Finnish archipelago: Taru Elfving, Ida Grönroos, Aditya Jeevannavar, Sanna Lehtinen, Carlos Lesmes, Saara Mildeberg, Sanna Ryynänen and Nina Vurdelja. Our common exploration of the voids in knowledge turned out to be a revealing moment in my thesis journey, allowed only by the open and curious space you all contributed to created.

To my already or almost doctoral peers, who have auspiciously found their way into my life and whom, from beyond the Baltic Sea, have inspired me to keep steering ahead: Caroline Sartorato Silva Franca, Eva Bernet Kempers, Lucas Teyssier, and Niak Sian Koh. Your support and experience, academic and otherwise, has been vital.

To the elusive natives of Room 539, and heavy co-consumers of (almost) zero-deforestation coffee: Chi Bui, Jin Chen, Johannes Jamaludin, Bijaya Neupane, Karuna Budhathoki. Thank you to the International Forest Policy group: Ayonghe Akonwi, Elina

Savolainen, Hannah Ehrlichmann, Mawa Karambiri, Simon Fleckenstein and Teemu Harrinkari. My PhD sisters and brothers: Alexandra Rasoamanana, Chenmei Li, Dangui Li, Félicien Kengoum, Niina Pietarinen, Roger Mbuyu K. K., Romane Herqué and Sandrine Andong, to whom I have become tied by the sacred bonds of supervision and project coordination. I can never express how much each of you has profoundly shaped, fueled and challenged me in all the right ways. Few PhD students are blessed with having a single project kinfolk, let alone a tribe.

To Will and Minae, my Hämeentie home. You have fed me both intellectually and nutritiously, and as a result, my taste buds and my encephalon have developed in your care. A happy stomach is a happy mind. To Rachel, my academic associate: you have been a perpetual source of hope in humanity, even at times where my skepticism was on the verge of taking over. Malcolm, qui a partagé ce long et sinueux chemin avec moi, avec une patience inouïe, pour le meilleur et pour le pire.

My aunt and uncle, Monica and Didier, who have shown me that the road less traveled is often the worthwhile journey. My parents, Alexandra and Geoffroy, whose unwavering support and trust have allowed me the curiosity to explore strange things, even if this meant far away from them.

Enfin, et par-dessus tout, aux jardinières de mon âme, Liana et Auréane.

Helsinki, April 15th, 2025

Alizée Ville

LIST OF ORIGINAL PUBLICATIONS

I. **Ville, A**., Wong, G., Aceituno, A. J., Downing, A., Karambiri, M., & Brockhaus, M. (2023). What is the 'problem' of gender inequality represented to be in the Swedish forest sector? *Environmental Science & Policy*, *140*, 46–55. https://doi.org/10.1016/j.envsci.2022.11.013

II. Wong, G. Y., Holm, M., Pietarinen, N., **Ville, A**., & Brockhaus, M. (2022). The making of resource frontier spaces in the Congo Basin and Southeast Asia: A critical analysis of narratives, actors and drivers in the scientific literature. *World Development Perspectives*, 27, 100451. https://doi.org/10.1016/j.wdp.2022.100451

III. **Ville, A**., Wong, G., Brockhaus, M., Ongolo, S. (In review) From extraction to intraction: Scientific knowledge and commercial practices in the forests of the Democratic Republic of Congo. Submitted to *Geoforum*.

IV. **Ville, A.,** Kengoum, F., Wong, G., Brockhaus, M. (In review) Seeing through the canopy: What's the problem of transparency represented to be in Cameroon and DRC forest policy? Submitted to *Global Environmental Politics.*

AUTHOR'S CONTRIBUTION

Article I. Research question and methodology was conceptualized by G. Wong, A. Downing, A. Jimenez-Aceituno, M. Karambiri and M. Brockhaus. Alizée Ville performed the policy and interview analysis. Interviews were conducted by Alizée Ville, along with G. Wong and A. Jimenez-Aceituno. Article writing was conducted by Alizée Ville, with support from co-authors. **Article II.** G. Wong and M. Brockhaus designed the research. Alizée Ville curated and analyzed the French literature on the Congo Basin, N. Pietarinen handled the English literature from the Congo Basin and M. Holm reviewed the English literature from South-East Asia. G. Wong and M. Brockhaus led the final analysis and writing. **Article III.** Alizée Ville was responsible for conceptualization, research design, data collection, analysis and writing. G. Wong, M. Brockhaus and S. Ongolo contributed to the conceptualization. Manuscript review and editing were supported by G. Wong, S. Ongolo and M. Brockhaus. **Article IV.** Alizée Ville handled conceptualization, research design, data collection, analysis and writing, with G. Wong, M. Brockhaus and F. Kengoum contributing to the conceptualization. Manuscript review and editing were supported by G. Wong, M. Brockhaus and F. Kengoum.

LIST OF ABBREVIATIONS

BOEIC Bulletin Officiel de l'État Indépendant du Congo
BOC Bulletin Officiel du Congo Belge
CITES Convention on International Trade in Endangered Species of Wild Fauna and Flora
UN United Nations Commodity Trade Database
GHG Greenhouse Gases
EUDR European Union Deforestation Regulation
DRC Democratic Republic of Congo
FAO Food and Agricultural Organization
ITTO International Tropical Timber Organization
MINFOF Ministry of Forestry and Wildlife of Cameroon (Ministère des Forêts et de la Faune)
NGO Non-Governmental Organization
PCPCB Timber Production and Commercialization Monitoring Program
SGS Société Générale de Surveillance
SIGEF Computerized Forestry Management System (DRC)
SIGIF Computerized Forest Information Management System (Cameroon)
VPA-FLEGT Voluntary Partnership Agreement on Forest Law Enforcement, Governance, and Trade
WPR "What's the problem represented to be?" approach

All translations from French or Swedish are mine, unless otherwise stated.

CONTENTS

INTRODUCTION

"Nothing is ever complete, and where to seek or claim completeness is to ignore, to one's peril,
the reality of incompleteness as the normal order of things"
(Nyamnjoh 2015)

Forests are political

It should no longer be need reminding that Earth's safe and just system boundaries have been exceeded (Rockström et al. 2023). Within these boundaries, forests are crucial in sustaining living conditions for humanity (Rockström et al. 2009; FAO & UNEP 2020), maintaining human physical and mental health (van den Bosch 2017). Illustrating this is the importance of mangroves in intercepting river microplastics (Jiao et al. 2022), of taiga in reindeer herding (Mamontova 2020), of pine forests to nurturing spiritual values (Moore 2007; Roux et al. 2022) or broadleaved trees in fertilizing waters for oyster production (Shigeatsu 2019). From Sweden to Central Africa, the past has been shaped by the presence of forests – providing fuel for cooking nutritious diets, wood for pirogues to explore distant lands, beams to build shrines.

However, these forests are being depleted. Sweden's industrial forestry has changed the structure of most of its forest landscape (Östlund et al. 1997), conflicting with goals on forest ecosystem services and biodiversity (Eggers et al. 2022; Blattert et al. 2023). The Democratic Republic of Congo (DRC) holds about 50% of Africa's rainforests (Mayaux et al. 2013; FAO 2020), and 7% of global primary forests (FAO 2020). From 2001 to 2022, the DRC lost 9.2% of its forest cover, equivalent to 11.4 Gt of CO_2 (Global Forest Watch 2024). Especially in tropical regions, forest degradation (Pearson et al. 2014) and deforestation (Austin et al. 2019) are a major source of greenhouse gas emissions from the land-use sector, accounting for approximately 10-12% of global emissions (Griscom et al. 2017). This has led the 'lungs of the Earth' to become a global issue, a recurring theme in the global arena of climate change negotiations and finance. In 2019, echoing his predecessor Jacques Chirac's words (United Nations 2002), French President Emmanuel Macron tweeted "our house is burning" (Macron 2019) – swiftly followed by a US$62 million pledge to 'support Congo's biodiversity', through 'developing private investment' and establishing 'high-integrity social and environmental carbon credits' (France Diplomatie 2023). This prompted some, namely then Brazilian president Jair Bolsonaro, to in turn accuse the use of such discourse to "instrumentalize the topic for personal political gains" (Le Monde 2019). In illustrates how for many, forests are not just ecological treasures; they are also deeply political landscapes.

These political implications are highlighted in the science-policy interface, when politicians call upon scientists to increase and legitimize investments in these ecosystems (White et al. 2021). The journal Nature emphasized in a recent editorial that "We must get a grip on forest science – before it's too late" (Nature 2022). This begs the question of whom must 'get a grip', on what knowledge, for whose purpose? Indeed, decisions on how knowledge is produced and filtered into policy is always motivated by the dominant societal aspirations at any point in time. Previous work has demonstrated how colonial science has

privileged certain ways of knowing (Duvall 2011), becoming a powerful tool of justification and control of tropical forests (Bonneuil 1991). Misreading the African landscape (Fairhead and Leach 1996) has led to selective policymaking, supporting 'politics of exclusion' (Pemunta 2013), to the detriment of the ecosystems and the people they seek to govern, for instance through territorialization (Peluso and Lund 2011; Kelly and Peluso 2015) past policy errors is vital for achieving better future outcomes – which must involve an examination of knowledge.

This knowledge tends to benefit some to the expense of others. Global use of natural resources has reached unprecedented levels and continues to rise (Krausmann et al. 2018). In Sub-Saharan Africa, the expansion of commodity crops for global and domestic markets has surged over the past two decades (Ordway et al. 2017, 2019). Rapid globalization has created a disconnect between where products are consumed and where their raw materials originate (Meyfroidt et al. 2010). Demand from wealthier countries places significant environmental pressures on forest-rich regions, especially those in the tropics (Rice 2007), but also countries like Sweden, whose industry claims that "The world needs Swedish timber" (Swedish Wood 2024). This thesis looks specifically at timber, as flows of timber have historically led to extensive deforestation in the producing countries (Rudel et al. 2005).

Communities living in an around forests are most affected by these large-scale enclosures, seen as the continuation of colonial land dispossession of smallholder farmers (Peemans 2014). While financialization has largely driven this exponential concentration of wealth, land use and traded commodities have also contributed to deepening these inequalities, harming the environment (Hickel et al. 2022b) and sparking local resistance (Pereira and Tsikata 2021). Associated disparity is evident in Africa, where global consumption of its natural resources benefits the rest of the world, rather than its own people, who suffer significantly more from climate change and face dispossession in the scramble for land and resources (Frame 2022). These inequalities are best illustrated by life expectancies at birth. On average, while a Swedish female forest owner lives 84,3 years, a Cameroonian farmer will live 63,7 years, and a Congolese professor will live 63,9 (World Health Organization 2024a, b, c). Bleaker yet, life expectancy for an Mbuti pygmy, 16,6 for Aka populations (Cavalli-Sforza 1986; Migliano et al. 2007) and 23 years for a Baka of Cameroon (Tchoumba 2005).

There is a consensus, within and outside of academia, regarding the need for a profound restructuring of the way modern societies operate (Moore et al. 2014; Beddoe et al. 2009; Calvin et al. 2023), which requires a shift in governance (Westley et al. 2011). Amongst the tools of forest governance, this thesis focuses on forest policy, which provides a roadmap through laws, regulations, procedures and incentives. Policies are based on assumptions about what the world is (ontological beliefs), how it should be (normative beliefs), and how to achieve change (theory of transformation). No matter how technical policies may be, from traceability mechanisms to forest management plans, these always aim to transform existing situations into preferred ones (Simon 1996). Further, policies are path dependent (Ball 1993), rooted in pre-conceived values, hierarchies of knowledge, referred to here as underlying assumptions (Bacchi 1999, 2012; Schneider and Sidney 2009). In this way, policy is understood as discourse (Bacchi 2000, 2005), where different actors shape reality to meet their own objectives. Policy as discourse helps reveal dominant narratives and the interests at play (Arts et al. 2010; Bacchi and Goodwin 2016).

Minding the gap: listening to silences in policy

This thesis is motivated by an interest in how – and at times, why? – Western philosophical, cultural, and political practices, by privileging speech and voice (the *Logos*) have subdued the silences, thereby subjugating different perspectives and hindering valuable pathways for change. It aims to unveil epistemological underpinnings of "certain hegemonic types of truth making" in environmental policy (Neimark et al. 2019). By examining the types of knowledge produced for and embedded in forest policymaking, this thesis explores how 'prevailing expert representations' (Windey 2020) have constructed ideas about value and progress (Latour 1993; Tsing 2003). In the process, I look at how these representations and *problematizations*, have justified benefits and attributed blame, perpetuating the same modes of thinking which contributed to deforestation in the first place.

In the necessary and iterative course correction towards a fairer and more resilient future, it is critical to keep questioning the assumptions underlying our past governance and scientific practices. As Savage notes: "The more societies appear to modernize, the more their pasts actively confront them. Inequality matters, because it carries the weight of history with it" (Savage 2021, p.21). Confronting inequality can help lift the burdens which constrain the future, before the past catches up with us.

The articles in this thesis look at forest governance and timber trade,17hroughh the theoretical lens of a New Materialism approach to knowledge, an Extractivism and governmentality approach to governance, and a Foucauldian approach to discourse and subjugation. I combine archival research, fieldwork, semi-structured interviews, and critical discourse analysis to uncover the underlying assumptions and power dynamics influencing forest policy. While the precise geographic and temporal scope varies between the papers in this thesis, they all endeavor to explore how knowledge and forest policy discourse have constructed and been constructed by a particular understanding of forest ecosystems and people. I examine how power operates through the production of knowledge – and in this process, explore the multiple functions of silence, both as a tool for subjugation and erasure, but also as a space for resistance and liberation.

Assuming we want to steer away from global ecological overshoot (Merz et al. 2023) and towards a fairer sharing of global resources (Hickel et al. 2022a), it appears crucial to understand the historical epistemologies underlying the production of knowledge in forest policy. This means asking what knowledge is sought after, and for whose purpose? To illustrate the paradox embedded in the production of knowledge which feeds into policy, we will first take a brief detour to the village of Yangambi (DRC).

Knowledge for whom? Science and oxygen thieves

During my research, I travelled to Yangambi, located in the Tshopo province of the DRC. Historically a small village roughly 100km north of the province's capital, Yangambi is now home to the Congo Flux tower, situated in the "very heart of the Congo Basin" (ICOS 2024). The complex ownership and governance structure of Yangambi, spanning different times and countries, warrants its own PhD study – of which I will give only a brief overview.

The National Institute for Agronomic Study of the Belgian Congo (INEAC) was established by a Royal Decree in 1933, replacing the Colonial Plantation Agency (REPCO) created in 1926. Its historical ambition was to be a laboratory for scientific exploration and colonial innovation, studying the taxonomy and growth dynamics of many cash crops such as coffee, cacao and palm oil. Renamed *Institut National des Études et Recherches Agronomiques* (INERA) in 1962, its focus has shifted to studying climate change effects on tropical forests and protecting biodiversity. Nearby, the Yangambi Biosphere Reserve, part of Man and Biosphere program (MaB), is dedicated to conservation, and said to host about 32,000 tree species (UNESCO 2024).

The Congo Flux tower, built in 2020, measures the long-term exchange of greenhouse gases (GHG) between the Congo Basin's mixed lowland tropical forest and the atmosphere (Ghent University 2024). It collects data on atmospheric O3 concentration, tree species composition, net primary productivity, leaf area index, soil data and GHG emission from the soil. A true, natural and positivist scientist's dream. This project, a partnership between the University of Ghent and INERA, is funded by several Belgium funding institutions and UNESCO. Its scientific goals are clear and reflect high-level scientific technology and investigation – it also serves as a diffractive prism through which to view the current state of science.

The crux of the matter lies in the local belief, held by the local communities living around the Yangambi tower, that the tower is collecting and bottling their pure Congolese air, before shipping it to Europe, which they know is suffering from heavy air pollution. Observing the (mostly white) European scientists coming and going around the tower and coinciding with some slight 'abnormal' weather variations, the locals theorized that the researchers were stealing their air – the researchers must be oxygen thieves. Assuredly, none of the scientists are O_2 snatchers: neither the meticulous PhD students collecting soil samples, the senior researchers dedicating their lives to the better understanding of the carbon cycle, nor the diligent Congolese researchers and technicians who see in this project an opportunity to increase knowledge and strengthen their own capacities. However, it is hard to deny that the "Great Acceleration" (Steffen et al. 2015) driven mostly by a spur of rapid growth and consumption in the Global North, has affected global ecosystems and local communities – a trend some have started to mitigate through planting trees in the Global South. Hence, while the local communities are not correct in their belief in oxygen thieves, they are also *not exactly wrong*.

Despite the efforts to promote and disseminate information, undertaken in the context of this research project, it appears that multiple systems of knowledge coexist in this space. As Kuhn noted: "The historian of science may be tempted to exclaim that when paradigms change, the world itself changes with them. […] In a sense that I am unable to explicate further, the proponents of competing paradigms practice their trades in different worlds." (Kuhn 1962, p.150). As a researcher, how can I not repeat the mistakes of my predecessors, and produce knowledge without erasing others? This thesis stems from this seemingly insurmountable paradox.

This thesis demonstrates how forest policy often sees through a glass darkly, construing silences in knowledge, in trade data and in workforce participation as gaps to be filled or silences to be ignored. These silences are rich spaces of meaning, as they may reflect implicit power dynamics and resistances. The purpose of this thesis is to contribute to a better understanding of how silences may hinder but also offer spaces of resistance and change in forest policy. It explores the types of knowledge underlying the assumptions that constitute these policies, building on cases in Sweden, Cameroon, and the Democratic Republic of Congo.

Three central questions guide this thesis:

1) What **knowledge and information**, is wanted by whom, and for what purpose? (mainly Articles III & IV)
2) Where are the gaps and **silences** in forest policy and the knowledge on which it is based? Why and how do silences **subjugate** certain groups and ideas from meaning-making in forest policy? (mainly Articles I & II)
3) How does silence offer space for contestation and **resistance**?

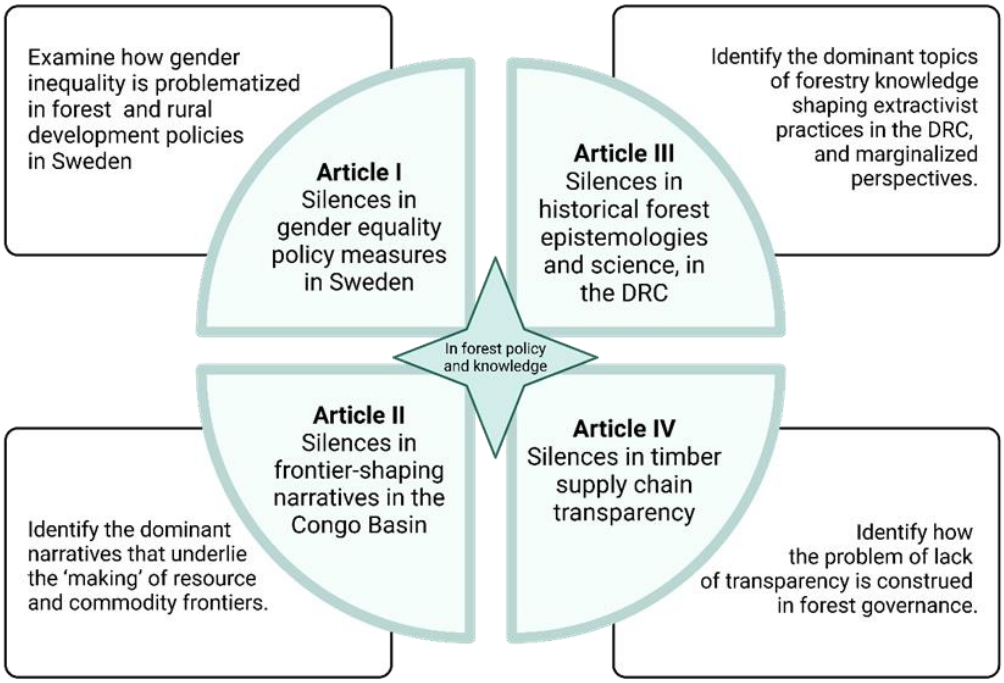

Figure 1 Aims and articles of this thesis.

This summary is structured as follows: it starts by introducing the theoretical framework on which it is founded, through the prism of matter being known, governed, and heard. The Materials and Methods section details the research design, data sources, and analytical approaches The Findings section gives an overview of key results in the case studies of Sweden, Cameroon, and the DRC, structured around the research questions of this thesis. The Discussion section will discuss these findings in light of my conceptualization of silences, before final conclusions.

THEORETICAL FRAMEWORK

"Our knowledge, as well as our ignorance,
at any time and on every issue,
tends to be opportunistically conditioned,
and thus brought to deviate from full truth.
In every epoch and every problem,
this opportunistic tendency operates also in our scientific work,
if not critically scrutinized"
(Myrdal, 1975)

Epistemological positioning and ontological stance

My interest in silence began with a frustration. Early in my collaboration with Dr. Grace Wong, I was distressed by the lack of relevant information I was finding in a text corpus. She remarked that "an absence of information is information in itself", profoundly altering my previous understanding of what constitutes a result and sparking my ensuing interest/obsession with silence. Later, I attended the multidisciplinary ÅBOAGORA conference held in Turku, Finland, based on the work by Japanese philosopher and rōnin Miyamoto Musashi. His *Book of Five Rings* (Musashi 1645) explores the element of Void and its association with consciousness and knowledge. His epistemology suggests that "*By knowing things that exist, you can know that which does not exist*". This reinforced my belief that voids are not de*void* of meaning, allowing me to explore silences in various sensory ways. Echoing astronomer Carl Sagan's aphorism, "*Absence of proof is not proof of absence*", I realized that gaps and lacks were meaning*ful*. Interpretation, only, is absent. My aim is to understand what is conspicuously absent – not necessarily to bring it into light, as it is sometimes designed to stay in the shadows – but to highlight that that which is quiet also matters.

Our understanding of knowledge and truth is guided by our epistemological stance, which also directs our methods and research questions. The so-called Science Wars have made it mandatory to clarify one's position on the man-made scale of philosophy of science. As a scientist, I aim for objectivity and rigor, while recognizing that I am not merely a recorder of reality. Avoiding the trap of seeing oneself as apart from the object of study, I acknowledge that "*We are of the universe – there is no inside, there is no outside. There is only intra-acting from within and as part of the world in its becoming*" (Barad 2007, p.396). As part of this 'field', therefore, scientists walk a tightrope between non-interference and non-indifference. To 'meet the universe halfway', my first step is to take responsibility for my role in a continuingly becoming world (Ingold 2000; Barad 2007). That responsibility has taken shape for me in a no-nonsense commitment to faithful accounts of our world, one that supports more-than-human projects of finite freedom, adequate material abundance, modest meaning in suffering, and limited happiness (Haraway 1988, p.579), in which I advocate for a radical multiplicity of knowledges (Harding 1986). At this time in history, the scientific method still appears to me as one of the safest routes towards this goal, as although "we cannot change the world simply by evidence and reasoning, but we surely cannot change it without them either" (Appiah 1992, p.179). I therefore hold my own knowledge to the standard of rigor, at the service of "human society, justice, and quality of life" (Schneider and Sidney 2009, p.112).

Multidisciplinary, my academic background reflects my belief that understanding the world requires more than one disciplinary monocle, providing a safe home for my tentacular thinking (Haraway 2020). Beyond my academic pedigree, I'm most things one could expect from a Caucasian, bi-national and bilingual French American woman from a comfortable family '*de classe aisée'*. I was taught that borders are constructions, that rights are universal, that culture matters, and the environment must be protected. I grew up hearing my paternal grandfather address the trees as if they were old friends, and my maternal grandmother conversing with animals; all the while striving to maintain their social status in a post-war world marked by uncertainty and fear. Their Western animism has shaped my belief that even within the confines of our proudly rational western world, the seeds of contemporary ecology were being sown. This upbringing granted me an "experience of worldhood" rooted in the comfort and interpretive stability of historically privileged 'home perspectives' (Ruíz 2014, p.196).

Language, therefore, has deeply shaped my experience: I have been a '*franska tjejen'* in Swedish, a '*mundele'* in Lingala, a '*muzungu'* in Swahili, "*la blanche*" in Cameroon, and '*laowai'* in Mandarin. French, my native language and father tongue has been the medium for all my studies leading up to my doctoral studies, language used for my field work in Cameroon and DRC, legacy of the 'Francophonie'; this linguistic particularity gave me both an *etic* and *emic* standpoint, feeling uncomfortably familiar in an environment which was never mine. Swedish, the language of Carl von Linné who formalized binomial nomenclature, read and somewhat learned during my time at the Stockholm Resilience Centre while living in Stockholm; Finnish, much admired but sadly never learned, which surrounded me during my time spent in Helsinki. English, my mother tongue, present day *lingua franca*, professional language and tool. While this perpetual dance between languages has often left me breathless, it also allowed for a unique diffractive understanding of my topic. Just as Latin was in Antiquity, and French was in the Middle Ages in Europe, writing my thesis in English reifies it as the language of publication and theoretical knowledge. However, language can only ever be an incomplete vector of meaning as, as Sartre puts it in this preface: "The feeling of failure before the language when considered as a means of direct expression is at the source of all poetic experience" (Senghor 1969, p. 24). This thesis acknowledges this incompleteness (Nyamnjoh 2015) and attempts that poetic experience.

A final thought on language. Ingold notes the difficulty of using the concept of "Western", which remains troublesome for anthropologists and social scientists alike (Ingold 2000, p.8). When I refer to "Western", I mean to encompass a heritage often associated with humanism, individualism, secularism, and a strong attachment to rationality as the highest form of knowledge. There are endless ways to approach this term critically, highlight its hypocrisy and at times deleterious effects on humans and their environment - especially when writing about colonialism. At the end of the day, however, "there can be nothing more 'Western'" than writing a PhD thesis such as this. Therefore, I use this word with the simultaneous gratitude for the freedom, education and facilities that have allowed me to conduct this work.

Finally, beyond my epistemological stance, I believe our thoughts are shaped by sensory experiences (Ingold 2013). During my PhD, silence has been a constant companion. I've contrasted the quiescence of *Hämeentie Avenue* - my home street in Finland - with the bustling of heavy traffic on the *Boulevard du 30 juin* in Kinshasa. I've noted the near-silent birdless monoculture woods of Sweden, and the blaring chirping in Cameroon's forests. From this iterative process, sensations have emerged as thoughts, crystallized as ideas, and now spill onto paper. Nietzsche, known for his Zarathustra's conception of stillness, believed that most significant events occurred in "our stillest hours" (Nietzsche 1969) p.153–154). I owe

a great deal to the Finnish quietude, half-way between monastic asceticism and oppressive utopia, which allowed me to transform these experiences into somewhat coherent thoughts. The privilege of silence colors my epistemology.

Matter being known

Material implications of epistemology: New Materialism

We are surrounded by, composed of, immersed in, matter. We extract it (Gudynas 2018; Chagnon et al. 2022; Pereira and Tsikata 2021), consume it (Prell and Feng 2016; Bruckner et al. 2023), desire and imagine it (Merleau-Ponty 1945). The epistemologies we engage with have material implications: neo-classical models of economic growth have often ignored material factors such as land (Clark 1891; Hubacek and van den Bergh 2006), focusing instead on capital and innovation. Ignoring matter has caused us a lot of trouble. Solving our current environmental problems thus requires us to reinstate matter - living and non-living, human and non-human - into our equation of humanity.

This thesis is grounded in New Materialism, part of an 'ontological turn' that views matter as the fundamental building block of reality. Coined by scholars from philosophy (Braidotti 2002), visual artists (DeLanda 2008, 2015), feminism (Harding 1986; Willey 2016; Grosz and Mercier 2021), it is influenced by actor-network theory (Latour 2007; Callon et al. 2011), vital materialism (Bennett 2005, 2010; Khan 2012), theories of hybrids and cyborgs (Haraway 1991), and the field of science studies (Coole and Frost 2010). Inspired by Deleuze and Guattari on material becoming and assemblages, Marxist thought and Spinoza's philosophy (Schleusener 2021), it explores the material conditions of production, based on the stance that we can only "follow the flow of matter" (Deleuze and Guattari 1987, p.373). Its novelty comes perhaps from return to the material, following a growing frustration with the limits of language as a subject of study, often coming at the expense of the exploration of material and somatic realities.

A common criticism to New Materialism, particularly from Marxist traditions, is the 'epistemic fallacy', which occurs when epistemological beliefs overshadow ontological ones, basing claims about what exists on what we can know. Critics argue that New Materialism's emphasis on the transitive (which exists relationally) nature of reality overlooks the existence of intransitive (which exists independently) dimensions in social life – leading to relativity, as it seemingly allows for multiple realities (Knudsen 2023). Critical Realism, which adopts a strong ontological realism, contends that an objective, independent truth exists, even if our capacity to grasp it is limited. Heavily influenced by scholars identifying with Marxist theory – amongst whom Collier (2008) or Manicas (1998) – this movement stands against positivism, but also against post-structuralism/interpretivism.

This thesis does not aim to resolve this debate. However, for the present purpose, I posit that any material philosophy must assume the existence of a material world independent of our minds (Interview of Delanda, in Dolphijn and Tuin 2012, p.39). I draw from Barad's concept of *agential realism*, which emphasizes the intra-actions between objects and phenomena. This neither sees everything as socially constructed nor everything as pre-existent: rather, everything is becoming in a process of stabilizing and destabilizing (Barad 2007). Inspired by a 'Deleuzo-Guattarist' rhizomatic relationality (Deleuze and Guattari 1987), New Materialism therefore posits a strong relationality (Harris and Ashcraft 2023), in which reality comes to be constituted through a "stabilizing and destabilizing process of

iterative intra-activity" (Barad 2007, p.210). And while the influence of researchers on the social world is limited (Bhaskar 1998, 2008; Sayer 2000), it is undeniable that one's understanding and conceptualization of landscapes actively shape them (Fairhead and Leach 1996; Windey 2020).

As epistemology and ontology are interwoven and mutually constitutive (Gamble et al. 2019, p.122), it is also true that they have implications for the methods we use and the questions we ask in the first place (Schweiger and Tomiak 2022, p.630). It is also the case that scientific knowledge, whether 'expert' or 'local', is incomplete, partial, cultural, social and political, what Haraway terms 'situated knowledge'. In doing so, I aim to "preserve claims to objectivity without performing the 'god trick'" (Haraway 1991), simply reintegrating scientists within the framework they use, while also avoiding relativism. Based on Barad's 'onto-epistemology' (Barad 2007), I assemble a theory of knowing with a theory of being, acknowledging that "the becoming of the world is a deeply ethical matter" (Barad 2007, p.185). With this stance, this dissertation aims at exploring the 'becoming' of policies relating to forest governance and the knowledge on which they are based, both continuously feeding into each other, in a constant process of intra-activity.

Matter being governed: governmentality & power

Forest policy and governance

Derived from the Ancient Greek "polis" meaning city, and late Latin "politia" referring to State or government, 'policy' is defined as "a plan of action, statement of aims and ideals, esp one made by a government, political party business company, etc" (Hornby 1974). Policy guides resource allocation, government spending and taxation structure, having the power to (re)structure, (re)distribute and (dis)empower humans and non-humans. Policy, therefore, has material implications. Forest policy is a part of forest governance. While governance is as old as human history (Weiss 2000), the notion of 'good governance' gained prominence in English-language international development discourse, particularly following a 1989 World Bank report which defined good governance as efficient public service, reliable judicial systems, and accountable administrations (World Bank 1989, p. xxi). The concept emerged as a counter to state-dominated economic development models prevalent in socialist block countries since the 1950s (Emmerij et al. 2001).

As part of governance, policy is always normative. It *should* "enlighten, educate, and empower citizens", and *avoid* to "confuse, deceive, or disempower" (Schneider and Ingram 1993, p.345). This normativity is political. Bennett suggests that we "define what counts as political by what effect it generated: a political act not only disrupts, it disrupts in such a way as the change radically what people can "see": it repartitions the sensible; it overthrows the regime of the perceptible" (Bennett 2010, p.107). In this reconfiguration of the sensible, this shift in governance, policy is purposeful in achieving its goals by changing people's behavior. This identification of whose behavior should be changed is also political. Therefore, power is an intrinsic element of any collective human action, making necessary the study of these power dynamics within governance practices. Indeed: "A society without power relations can only be an abstraction" (Foucault 1982, p.791). This thesis explores power as the "total structure of actions brought to bear upon possible actions; it incites, it induces, it seduces, it makes easier or more difficult; in the extreme it constrains or forbids absolutely" (Foucault

1982, p.79). Neither 'obdurate' nor perfectly 'fluid' (Jasanoff 2004, p.36), power is the result of a relational processes (Achino-Loeb 2005, p.3). Thus, power is a matter of governance.

Policy as discourse

Discourse manifests as the interplay of power and policy, as "it is in discourse that power and knowledge are joined together" (Foucault 1978, p.100). In this thesis, discourse is understood as the "practices that systematically form the objects of which they speak" (Foucault 1972), meaning that I am interested in the processes which lead to the creation of text, the 'discursive practices' rather than text itself. Inspired by analytical traditions such as Bakhtin (1968), Bataille (1985), and Foucault's work on governmentality (Foucault 1972, 1978, 1980, 1982), it should be therefore clarified that thesis does not conflate discourse with language. Indeed "Discourse is not a synonym for language. […] Discourse is not what is said; it is that which constrains and enables what can be said." (Barad 2007, p.146).
Providing a strong definition of discourse is challenging. According to Bacchi (2000), this challenge lies in the fact that definitions of discourse are reflective of the agenda that policy-as-discourse researchers have for transforming society. Studying policy as discourse allows for policy as something which can be explored, understood and transformed – unlike policy as a 'black box' (Easton 1965) which limits potential for change. Despite this difficulty, discourses are integral to policy, making the study of 'dominant discourses' crucial for understanding policy outcomes (Ball 1993, p.15), especially in forest governance (Arts et al. 2010; Edwards et al. 2022; Pülzl et al. 2024).

Discourse is also materially co-constituted, existing "in tension with one another […] connected in a continual interplay […] and co-emergence" (Putnam 2015, p. 707). Reality is both physical and meaningful; meaning requires materiality (Haraway 1991). For instance, discourse allows policy to respectively attribute 'reward' or 'blame' to positively or negatively constructed groups. By identifying target populations, policy 'characterizes' social groups by the attribution of specific, valence-oriented values (Schneider and Ingram 1993, p.335), through symbolic language, metaphors, or stories (Edelman 1985). Positively constructed 'target groups' receive beneficial policies with high discretion and strong material benefits, while negatively constructed groups face burdensome policies based on fear, with few material benefits (Schneider and Sidney 2009).

One nuance here: I assume that practices are constituted by both meaning and materialities; that while discourse *shapes and inscribes* the world, it does not materially *produce* it (Barad 2007). This thesis explores the tension between material-discursive practices in the "ongoing, dynamic, relational enactment of the world" (Orlikowski and Scott 2015, p. 700; Putnam 2015).

To explore the workings of discourse within forest policy, this thesis draws from Bacchi's "What's the problem represented to be?" approach (Bacchi 2009; Bacchi and Goodwin 2016). Stemming from feminist discourse analysis, it was initially applied to social policy field and health related topics, the WPR expanded to various fields, including forest policy (Holmgren and Arora-Jonsson 2015; Karambiri et al. 2024). The distinction should be made that, though we analyze discourse, we do not conduct "discourse analysis", a tradition stemming from the fields of sociolinguistics and pragmatics, committed to language as the only possible signifier of truth, epitomizing Derrida's infamous quote that "there is nothing outside the text". While I do not provide here an extensive comparison of different approaches to analyzing discourse (for that, see Reisigl 2013), I recognize discourse as a form of social knowledge, composed of different frames and heuristics of thinking, which are

necessary in thinking, speaking, writing and actions (Foucault 1972;Bacchi 2009; Bacchi and Goodwin 2016). We explore this knowledge in the next section.

Science, knowledge and governmentality

The social construction of knowledge through policy – rationalization through government - is what Foucault termed 'Governmentality'. It is defined at the totality of practices, by which one can constitute, define, organize, instrumentalize the strategies which individual in their liberty can have in regard to each other (Foucault 2010). This concept highlights the risk of governance tipping into subjugation and control through excessive political power (Foucault 1982). Governmentality allows the exploration of the scientific production of knowledge, where science supports and is supported by the modern state's desire for order and control (Jasanoff 2004, p.33). Indeed, scientific knowledge is inherently political, as the production of truth is intertwined with power (Foucault 1972; Ball 1993). Knowledge and power are one, as ''we are subjugated to the production of truth through power and we cannot exercise power except through the production of truth'' (Foucault 1980, p.93). Drawing from Bacchi (2000, 2012), this thesis does not treat 'knowledge' as a form of foundational wisdom to be discovered, but as a contested and political *doing*. Therefore, knowledge is always situated (Haraway 1988, 1991), embedded in networks of interests (Shapin and Schaffer 1985; Hacking 2000), apparatus (Barad 2007), social practices, identities, norms, conventions, discourses, and institutions (Jasanoff 2004). In policy, the productive effects of power are observed through problematizations; in science, they are made visible in scientists' elaboration of research questions and methods. Further, because of the interdependence between knowledge and action (Miller and Wyborn 2020, p.88), ways of understanding the world are inseparably linked to how people organize and control it (Jasanoff 2004, p.1). Western knowledge has hence contributed to various forms of control, such as the medicalization of insanity and defining abnormal sexuality (Foucault 1978), the instrumentalizing medicine on African populations (Vaughan 1991), the rise of statistics (Porter 1995, 2020; Hacking 1990; Daston 2021) or creating 'legible' cadastral maps (Scott 1998). Scientific institutions are driven by dreams and constraints.

This was most explicit in colonial science, promoted in the name of scientific progress, intertwining knowledge, progress and national prestige. Colonial science placed 'propositional' knowledge (or episteme, about what exists) at the service of 'prescriptive' knowledge (or techne, about how things should be done) This approach undermined and delegitimized other forms of knowledge, using the perceived objectivity of the scientific method to discredit alternative sources through subjugation and silencing, focusing on practical applications to serve the metropolis. Frantz Fanon's writings on 'Eurocentric epistemic violence' highlights how historical epistemic choices have caused enduring 'epistemic trauma' among the African people (Fanon 1965). This illustrates the reciprocal influence between science and industry (Hoffman 2011), where the industry tends to have the upper hand: indeed, "although codes and practices circulate in both directions, industry ultimately appears to have an upper hand in this process" (Kleinman and Vallas 2001, p.451). Policy therefore contributes to the social construction of knowledge, emphasizing how meaning-making shapes our understanding of the world (Schneider and Sidney 2009). By defining problems to solve, and characterizing information as relevant or irrelevant, policy legitimizes certain types of knowledge as "technical and scientific", while dismissing others as "anecdotal and impressionistic" (Schneider and Sidney 2009).

This process also determines who is regarded as an expert, highlighting the influence of experts on policymaking and how policy, in turn, legitimizes certain knowledge holders (Schneider and Sidney 2009, p.108). Policy also legitimizes who can benefit from this knowledge. In environmental governance, scientific knowledge, translated through policy discourse, can redraw the lines of power and ownership, facilitating the extraction and commodification of natural resources (Altieri and Bravo 2007; Holt Giménez and Shattuck 2011). Science has promoted nature conservation and environmental services, but also green grabbing, bio-prospecting, and high impact mining. Conversely, policy can disqualify certain social groups from benefiting from these resources, by disqualifying their knowledge. Indigenous epistemologies, for instance, are often "invisible" in scholarly circles, because they are ignored, caricatured or misrepresented in Western categories of 'magic', 'witch-craft', 'sorcery', 'superstition', 'primitivism', 'savagery' and 'animism'" (Nyamnjoh 2017, p.255).

While much has been written on the paradox of 'indigeneity' (Ingold 2000), and the difficulty of construing indigenous and scientific knowledge as distinct and static categories (e.g., Agrawal 1995; Arora-Jonsson 2016), I try to avoid this binary. Instead, my work is interested in the historical process by which Western scientific knowledge has qualified or disqualified certain types of information, as my aim is to contribute to the 'insurrection' of this subjugated knowledge (Hartman 2000).

Policy as simplification

Policy formulation involves a simplification of knowledge, as "certain forms of knowledge and control require a narrowing of vision" (Scott 1998, p.42). By establishing frameworks of thought, policy both produces meaning and constrains thinking (Bacchi and Goodwin 2016), by narrowing the range of available options (Ball 1993). In this way, Bacchi's WPR approach argues that policies simplify complex issues by framing them as specific problems, highlighting certain aspects while ignoring others, thus shaping problem understanding and solutions. This simplification often excludes - and silences – alternative forms of knowledge. Scott illustrated how 18th-century scientific forestry simplified complex forest ecosystems for rational management. High modernist planners created idealized, simplified images of social order, making citizens and their activities more 'legible' - easier to count, survey, order, exploit and control. This approach eliminated small-scale, nomadic lifestyles in favor of large, disciplined spaces of dwellings, croplands and forests. 'Seeing like a State' resulted in uniform, mono-species forests - common to Swedish and Finnish landscapes and beyond - erasing traditional forest uses like fodder, bedding, fencing, medicines and resins (Scott 1998). This discourse influenced policy throughout the 20th century, leading the World Bank to suggest that wood should be "perceived as another agricultural crop - as a commodity [...] using high-yielding technologies for profit" (World Bank 1991, p.49). In this framework, anything that doesn't fit neatly into predefined categories risks being excluded. Excessive rationalization and legibility can lead to oversimplification, making marginalized groups "conceived through a framework inadequate to express their complexity and ambiguity" (Ferrari 2021, p.64).

Transparency versus opacity: Simplification as commodity chain governance. Despite variations, mainstream definitions of forest governance and governance in general share two transversal dimensions: *Accountability* and *Transparency*. The dimension of transparency has become a significant theme in global environmental governance (Langley 2001; Hale 2008; Gupta 2008, 2010; Gupta and Mason 2014; Gupta and van Asselt 2019) and forest

governance (Evans et al. 2019), as it is believed to support reducing deforestation (Bizzo and Michener 2017). Often seen as inherently positive, transparency addresses information asymmetries (Gardner et al. 2019) that have historically benefited more powerful actors (Mol 2010). Advances in data collection, sharing, and processing are expanding the scope of transparency, particularly in forest governance (Pritchard et al. 2022), leading to new infrastructures and intermediaries/information-brokers that facilitate, translate, certify and interpret information (Mol 2015). In this regard, transparency can be regarded as the opposite of opacity - a lack of information - which I understand as a type of silence. Because transparency is necessarily selective, technologically mediated, and governed by historical norms (Weiskopf 2023), shifting away from silence and towards more transparency affects the power dynamics underlying the production and use of information (Lichuma 2021). Further, high level constraints can benefit larger actors and corporations, as these requirements may be more easily met by them (Haufler 2010). If misappropriated, information may be used to manipulate, control and surveil (Mol 2006; Birchall 2011; Christensen and Cheney 2015). This makes transparency a negotiable and contested practice (Weiskopf 2023), which may result in resistance (Gupta and van Asselt 2019; Torres 2020).

Simplification at the frontier: Extractivism, commodification and resistance. Conflict is common in natural resource governance (Martinez-Alier et al. 2010; Scheidel et al. 2020) especially impacting indigenous peoples (Scheidel et al. 2023; Hanaček et al. 2022). Extractivism may trigger various forms of resistance, from vocal to violent contestation. To understand the process of the material use of forests in forest policy, I draw from extractivism, defined here as the "socio-ecologically destructive processes of subjugation, depletion, and non-reciprocal relations" (Chagnon et al. 2022, p.762). This form of resource governance, marked by weak governmental accountability and clientelist enterprises, initially emerged from Latin American natural resource literature. First associated with mining, Extractivism later expanded to include forest products (Ehrnström-Fuentes and Kröger 2018). Materialistic in nature, extractivism involved the appropriate and extraction of large volumes of material, primarily for export with little to no processing (Gudynas 2018), mainly from the 'less developed periphery' to the 'dominant center' (Gago and Mezzadra 2017).

Forest frontiers are notable spaces of negotiated responses, struggles and contestations (Tsing 2011); (Pereira and Tsikata 2021; Hanaček et al. 2024), to which Cameroon (Bigombe Logo 1996; Pemunta 2014), the DRC (Verweijen and Marijnen 2018; Andong and Ongolo 2020) and Sweden (Johansson et al. 2019) are no exceptions. This resistance carries with it the potential for change and can drive sustainability processes (Scheidel et al. 2018). Resistance, therefore, is inherent to governance, as a crucial tool for non-government actors to influence outcomes and alter power relations. While this thesis does not develop a theory of change per se, it demonstrates how understanding opposition and conflict can pave the way for alternative thinking and future pathways. However, these resistances may sometimes remain unheard – these silences are at the core of this thesis.

Where transparency and legibility are promoted as the only solution, silence and complexity are excluded – making policy a tool for erasure. While promotion of 'good governance and its principles' does not necessarily imply their strict application nor appropriation, it is their translation in discourse which we pay attention to here. What cannot be understood from Western science's standpoint is "marked as unintelligible, nonsensical, and inadequate—in a word, as mere silence" (Ferrari 2021, p.12). In both policy and knowledge, though, I find gaps which cannot be easily accounted for – when discourse is speechless, we turn to silences.

Matter being heard: when discourse is speechless

Silence as a conceptual key to understanding power-dynamics

The academic study of silences emerged in the 1950s in anthropology and ethnology, combining methods from ethnoscience and sociolinguistics: studies were conducted on culturally learned non-verbal behavior (Hall 1959) and situational determinants of silence (Basso 1970). Bauman's (1983) analysis of the symbolism of silence and speaking among seventeenth-century Quakers was followed by a surge of interest in silence by researchers in sociolinguistics (Wardhaugh 1985; Tannen 1985), and 'communication studies (Crown and Feldstein 1985; Dendrinos and Pedro 1997). It then gained significant traction in interdisciplinary research in the 1960s–70s (Seljamaa and Siim 2016), having since grown among scholars in the humanities and social sciences, ranging from media studies (Richardson 2007) to literature (Gould 2018).

Silences, sometimes as gaps and sometimes as absences, have been conceptualized as so many different forms of power, leading some to state that "silence is a vehicle for the exercise of power in all its modalities" (Achino-Loeb 2005, p.3). Stemming from a Foucauldian tradition, this assumes that 'silence and secrecy are a shelter for power, anchoring its prohibitions; but they also loosen its holds and provide for relatively obscure areas of tolerance" (Foucault 1980, p.101). Emerging most notably in Foucault's (1972, 1978, 1982) work, understanding of the relationship between silence, power, and subjugation has been central in his exploration of biopolitics and discipline. The role of silences has been explored in the context of symbolic power (Bourdieu 1991), censorship (Herman and Chomsky 1988; Butler 2021), colonization (Fanon 1965; Spivak 1988), and phenomenology (Merleau-Ponty 1945; Fóti 1988; Ferrari 2021). This thesis therefore explores these multifaceted silences, expanding on this "exploration of silence as analytic domain and as window one the elusive and overt roots of power" (Achino-Loeb 2005, p.1), looking at the absences, the voids, the emptiness, the gaps, the unspoken silences that speak volumes (Mazzei 2004, 2007).

Specifically in gender studies, silence has been a common topic of interrogation, as researchers often encounter situations where either "little was said about this", or there is "minimal documentation on gender" (Kronsell 2006, p.112). It should be noted here that the original aim of this thesis was not explicitly to explore silences. Instead, silences were something that I continuously stumbled over, in the course of my attempts to map, collect and understand patterns of inequality. Silences, always in my way, became a familiar feature in an otherwise frustratingly empty landscape. And it eventually appeared obvious that this was where my work was leading me to: silences, gaps and voids. This has been the case in many studies before mine, including a Special Issue on silences which notes that: "None of the case studies presented in this issue were originally about silence. Rather, silence was a feature or analytical tool that emerged in the field and in the process of engaging with fieldwork data. By attempting to listen to silence, authors of this special issue have found it to be filled with intentions, experiences, beliefs and, above all, communication shaped by the particularities of the given context" (Seljamaa and Siim 2016, p.11). This has led many in the field of gender studies to "study what is not said" (Kronsell 2006, p.113), exploring silences in legal settings (Santos de Carvalho 2022), intimate conversations (Okazaki Yohena 2003), domestic violence (Towns et al. 2003), or in post-conflict societies (Mannergren Selimovic 2020). Silence has also been investigated in the political arena, as a performative role in social situations (Donnelly 2018), as resistance in political discourses (Ferguson 2003) or as concealment by politicians (Schröter 2013; Roberts 2006).

This means that silences may shape, hide, and maintain inequalities in subtle but fundamental ways, "by driving them underground", entrenching existing structures, and rendering them permeable to change (Hirschauer 2007; Murray and Durrheim 2019). By remaining silent, opportunities for change are thwarted, acting to suppress the multiplicity of points of view and maintain the status quo (Seljamaa and Siim 2016, p.6). My case studies explore the spaces of silences both in the context of the Global North and of the Global South, as both the domestic and international forest policy are a ripe realm of investigation. Indeed, the global arena of forest governance abounds with discursive and material authority, through globalization, scientific collaboration, international cooperation and development schemes, and funding mechanisms (Thiesmeyer 2003). In this thesis, I look at silences which can be produced and used both on an individual but also collective level, varyingly used by different interest groups to produce and suppress discourse, contributing to shape inequality in subtle ways, but with long lasting effects (Murray and Lambert 2019).

However, silences are, by their nature, ambiguous. To explore them, we must first "look at the interstitial spaces where meaning is ambiguous" (Achino-Loeb 2005, p.16). In an attempt to make sense of these interstices and ambiguities, I suggest a 'quadrant' space in which to map the silences which arise in this thesis, along two perpendicular axes: from *Resistance – Acceptance*, and from *Subjugation – Liberation*. These are presented next.

Silences – From resistance to acceptance

Silence can reveal forms of resistance. In his attempt to explore the structures of power, Foucault most notably suggested to take resistance as a starting point (Foucault 1982). This is an active process of policy: in the process of shaping practices and "everyday existence" (Ball 2015), the objects of policy may deploy creative strategies of reluctance, pointing to "discomforts and misalignments" of the current and dominant policy discourse. It is through the observation of this "recalcitrance of the will and the intransigence of freedom" (Foucault 1982, p.790) that one can identify windows of change. Resistance as silence can take various forms. For instance, what on an individual scale can be understood as passive-aggressive silence, can become on a collective scale a politicized strategy of resistance. In a democratic state, "Silence can serve as resistance to any institution that requires verbal participation" (Ferguson 2003, p.56). In this way, remaining silent allows a path of resistance without paying the price of opposition: "Silence as non-participation is threatening to institutional forces in that silence resists whatever demands are made without necessarily opposing" (Ferguson 2003, p.56). By refusing to participate in speech, and thereby declining to take part in community building or norm setting, silence can therefore become resistance, by rejecting the practices of power: silence can therefore act both as a vessel for power, but also as a barrier against it (Brown 1998, p.316).

This constitutes the entry point of this thesis. I explore the construction of gender inequality in Sweden through the resistance of women in forestry; the construction of narratives in forest frontiers, through the contestations from silenced communities; the production of knowledge in DRC's botanical field, through the survival of alternative forms of knowledge; the construction of transparency in timber commodity chains, through the perspective of resistance to data transparency. On the other hand, silence can also express a form of acceptance. Silence can contain the implicit obvious: Mills (1991) discusses silence as 'the obvious', which is consensually unsaid, that which is agreed upon and needs no mention, or too evident to be made explicit. That which "goes without saying" is silently implicit. In a courtroom for example, this includes the expert's use of legal language and the

unspoken rules of a courtroom setting, leaving anyone outside of this discourse of expertise unable to frame their narrative in the way they would like (Fridland 2003). Here, silence is a practice of discourse through an adherence to customs. Silence may also be the elephant in the room, the taboo (Thiesmeyer 2003), which covers that which is socially, legally, or culturally sensitive (Huckin 2002), which is the result of a form of social acceptance.

At the heart of silence, therefore, lies the paradox of its ambiguity: it can indicate resistance, but also acceptance; it can be either the materialization of agency or lack thereof (Seljamaa and Siim 2016). The murky meaning of silence means that we need to add another framing to our understanding of silence: I explore the existence of silence as *Subjugation* or *Liberation* next.

Silences – From subjugation to liberation

Silence can express itself as a form of subjugation, as the unspoken can lead to erasure and oppression. Suppressive, 'that which is unspoken' is typically construed as erasure. Expressed in this way, silence allows to believe that the "nonspoken is nonexistent" (Achino-Loeb 2005). When this hinders the perception and definition of self and the community, and recognition needed for identity construction, silences therefore become erasure. Silenced, alternative modes of being and forms of knowledge may deliberately be "portrayed as belonging to the past, something only students of deep history or archaeology could excavate to satisfy the curiosities of their discipline" (Nyamnjoh 2017, p.254). An example of this being that even scholars who have argued against a Eurocentric bias in world history have often persisted in relinquishing Africa to the margins of civilization. Prominent anthropologists, such as Jack Goody, maintain claims such as that Africa is stuck in the Neolithic, justified by its technological inertia or magico-religious context (Goody 2010). This has contributed to what some have termed "Neolithicising the 'Uncivilised'" (Rowlands and Fuller 2018; Feuchtwang and Rowlands 2019), where western scientists persist in rejecting all claims to historical continuity.

Therefore, contrasted to the emancipatory tools of voice and speech, silence is often appealed to as something to 'break'. Calls to 'break the silence' (Alcoff and Potter 1992), 'giving voice' (Olsen 1978) and 'speaking out' are popular strategies of vocal deliverance from oppressive structures. Indeed, "in a world where language and naming are power, silence is oppression, is violence" (Rich 1979, p.204). In another form, to "give the silent treatment" may use silence as a tactic of avoidance. As humans are social creatures, negating verbal communication may be used as punishment, where "Silence, both as withdrawal and as pointed avoidance, can be used to manipulate, control, and harm others just as easily as to protect the self." (Ferguson 2003, p.57). Therefore, 'spelling things out', through clear and vocal articulation, can support the exploration of the production and reproduction of power relations, and "possibly even contribute to undoing inequalities" (Seljamaa and Siim 2016, p.11). These different occurrences conflate silence with subjugation, and freedom with noise.

However, silence is deeply contextual. Indeed, at the other end of this spectrum, it can act as liberation. The right to remain silent, granted by the Fifth Amendment in the United States (Ainsworth 2013), illustrates how under certain circumstances, silence can be a powerful symbol of freedom. The potential of silence as liberatory has been explored in philosophy by Ferrari (2021), through her work on the critical phenomenology of what she calls "deep silences", which gives weight to the otherwise dismissal and disregard that Western science often affords to the existence of silence. Often signified negatively, legacies of modern thought continue to treat the phenomenon of silence as "at best, as irrelevant to meaning making and, at worst, as an obstacle that needs to be overcome for meaning to be obtained" (Ferrari 2021, p.13). On the contrary, she posits that deep silences can be a powerful decolonizing tool, proposing that "the modality whereby one bears witness to experiences of marginalization matters to decolonizing endeavors. Mobilizing, rather than eliding, deep silences in one's account decenters key assumption of Western thinking" (Ferrari 2021, p.v). She differentiates between "deep silence" and "mere silence". Mere silence references the "conception largely prevalent in Eurocentered theorizing and informed by modern/colonial assumptions whereby the phenomenon indexes either absence and lack of sense, or the inability to speak resulting from oppressive patterns of exclusion from the subject position, of silencing" (p.6). On the other hand, 'deep silence' "stands for silence as an agent of (personal, ontological, and political) transformation" (Ferrari 2021, p.7). Therefore, silences

can be used to uphold dominant discourses, but also employed as a form of resistance, as an act either of expression or oppression (Clair 1998), subjugation or contestation. This does not mean to say that the silence of native or forest dependent people always embodies empowerment; rather, this thesis means to demonstrate how some silences may bear seeds of change. Therefore, one of the main difficulties in this work lies in the fact that silence is polymorphous.

It should be noted here that this thesis posits that silences exist on a continuum. Indeed, in the process of creating a Subjugation-Liberation axis, I aim to avoid dualities, and recognize that silences can express both Subjugation and Liberation: for instance, the absence of applause at the end of a speech (Billig and Marinho 2019) may be understood as a deafening blow of disapproval, a social norm of agreed upon silence (habitus) or a moment of collective quiet awe. In each form can cohabitate a little bit of the other, nothing being fully exclusive of its opposite.

Mapping silences in discourse

In Western philosophy and thought, discourse – or the articulation of knowledge - is intimately tied to the Logos, understood as 'the spoken word', which assumes that legitimate knowledge must be clear, articulated through spoken, unambiguous words, leaving no space for doubt and ambiguity. Modern epistemic assumptions are therefore said to be 'Logocentric', placing "speech over and against silence, thus not only treating silence as non-sense and, as such, unable to signify on its own, but also conceiving of language as processes of adequation whereby the truth of the phenomenal world, which includes silence, can be grasped by stating it" (Ferrari 2021, p.15). Logos, from the Greek "word, discourse or reason", is a principle which has been used to refer to putting order, arranging, gathering, choosing, counting, reckoning, discerning, saying, speaking: in sum, all the elements of modern reasoning. Aristotle equated Logos to "reasoned discourse", therefore equating an absence of logos to an absence of reason. From Aristotle to Freud, speaking truth always involves *speaking*. Following a tradition developed by the Stoics, who placed the *logos prophorikos* ("the uttered word") above the *logos endiathetos* ("the word remaining within"), Western thought has seen the "triumph of the logos" (Deleuze and Guattari 1987, p.373), resulting in a bias against silence.

Logocentrism, therefore, permeates Western science and its understanding of knowledge, making the study of discourse crucial for those seeking to understand its underlying assumptions. Indeed, I recognize discourse as the "complex and unstable process" which can act as both an "instrument and an effect of power, but also a hindrance, a stumbling block, a point of resistance and a starting point for an opposing strategy" (Foucault 1978, p.101). I assume here that discourse may transmit and also produce power, can undermine but also thwart it.

However, the authority of the Logos has made it difficult to listen to silences. Indeed, "what is not writable, and therefore lost in the transcription, is everything that gives the spoken utterance its 'illocutionary force'" (cited in Ingold 2000, p.507). Even within Science and Technology Studies literature, there is a favoring of "knowledge production" over "non-production of knowledge", "action over inaction" and "processes of becoming or emergence, far more than processes of winnowing or submergence" (Frickel 2014, p.87). As a researcher, I've tried to avert my gaze from the "explicit, eventful, and dramatic", and rather pay attention to what is 'implicit, absent and placid' (Seljamaa and Siim 2016).

This thesis aims at making explicit the epistemic and ontological modern/colonial assumptions whereby the phenomenon of silence is conceived as inadequate to meaning making and rational thinking/argumentation, to further understand how silences may function as a tool of subjugation, but also as a space for resistance and change. In a world where everything is anchored materiality, our framework explores what lies at the intersection of knowledge (matter being known), discourse (matter being governed) and perception (matter being heard). At the center of this relational framework, the silences: that which is not seen or heard, but whose presence is felt through dynamics of resistance.

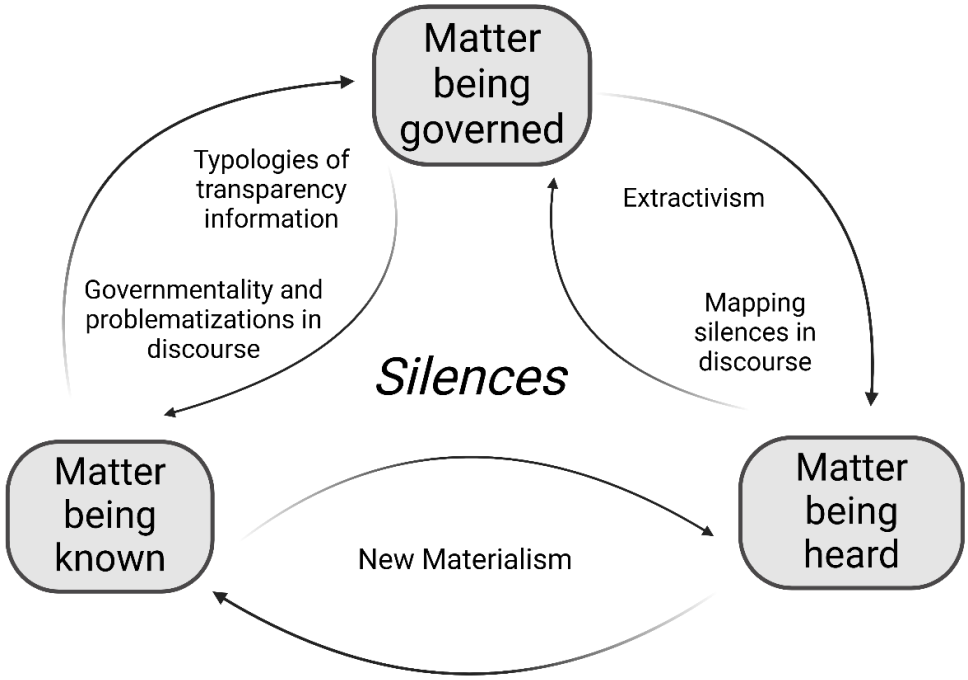

Figure 2 Analytical framework

MATERIALS AND METHODS

Background: The forests of Sweden, Cameroon, and the Democratic Republic of Congo, from 1885 to present.

Sweden's history is deeply intertwined with its forests, from their role in the *Skogsamer's* livelihoods (the forest-dwelling Sámi people) and reindeer herding, to fueling the country's metal industry (Wetterberg 2024). It remains a key industry in Sweden, playing a significant role in rural employment through its timber, pulp and paper industries. Although Sweden's forest sector is now one of the most mechanized and industrialized in the world, swidden agriculture, also known as 'slash-and-burn', was a central feature of forest management for most of its history. The term 'swidden' is derived from the Old Norse 'svithinn', past participle of 'svitha', meaning "to singe, to burn". Considered key to survival on harsh and stony land, it was actively encouraged by the government from the Middle Ages until the early 17th century to open 'wastelands' to human habitation and increase tax revenues. Intensive, larger-scale swidden was practiced in Western areas of Värmland and Dalecarlia, where Finnish migrants brought the practice from Eastern Finland – said to be learned from Russian farmers (Tollin 2019). In 1647, the government issued the first general forestry regulation to prohibit swidden on all State and common land (Hamilton 1997). But the practice continued: in 1749, the Swedish botanist Linnaeus (ennobled as Carl von Linné), known for laying the foundation of modern biological nomenclature, noted the frequent occurrence of 'svedjebruk' (burn-beating) in the landscape (Dove 2015), recognizing its distinct advantages in areas unsuitable for intensive agriculture. The practice eventually slowed in the 19th century, as the growing mining industry called for ever larger quantities of fuel wood (Hamilton 1997). But humans have a short memory, and the practice of swidden has since been demonized: in 1983, Swedish consultant Tord Ekström, in discussing the role of the Swedish Cellulose Co (SCA) in the Congo Basin, warned that: "Shifting cultivation is by far the worst threat to the tropical forest and to forest-based industries" (Ekström 1983, p.14). This 'expert', who would later work for the University of Agricultural Sciences (SLU), echoed a dominant narrative shared by his community at this time. I discuss the emergence of this narrative in this thesis.

Forests have provided livelihoods for men and women alike. The *fäbod* herdswomen reared cattle (Gray 2019) and later worked as cooks in the logging cabins (Östlund et al. 2020). However, the practice of logging and forestry, emerging in the 18th century, is perceived as a masculine sphere (Pierce Colfer 2020; Lidestav and Sjölander 2007; Holmgren and Arora-Jonsson 2015). In Swedish forest policy, gender equality made its first appearance in the 2007 Forest Act which noted that "Gender equality and integration should be strengthened in the forest industry" (Swedish Ministry of Agriculture 2007, p.2). Indeed, while increased female participation is expected to bring about a positive change in attitudes and practices in the forest sector, the literature on this issue is ambiguous. Some studies find that women tend to express higher interest in environmental aspects of forestry (Nordlund and Westin 2011; Eriksson 2018; Umaerus et al. 2019) while others find no impact on the choice of forest management strategy (Eggers et al. 2014). Either way, women continue to be characterized in comparison to (white) men, who are seen as the standard in forest activities and professions.

In Central Africa, archaeological research is relatively limited, resulting in sparse understanding of the historical role of forests in the territories of modern Cameroon and the

Democratic Republic of Congo (DRC). Nonetheless, evidence of human occupation in the dense forests of Southern Cameroon is said to date back at least 7000 years (Lavachery et al. 2010) and was home to the Sao civilization (6th century BCE – 16th century AD) followed by the Kotoko Kingdom (Mveng 1963), the Mandara Kingdom, and the Kingdom of Bamun (1394 -c. 1916). Cameroon was many things for many people: it was a fertile *Rio dos Camarões* (River of Shrimp) for the Portuguese sailors entering the Wouri Estuary in 1472, the *Schutzgebiet* (protected country) of *Kamerun* for the German West African protectorate from 1884 to 1916, before being shared between the English *Cameroon*, and French *Cameroun* protectorates from 1916-1961. Even though, "at the time, no one in European political circles was mistaken about the meaning of the term 'protectorate'" (Mveng 1963, p.309).

In the DRC, traces of human settlements have been dated back to 90,000 years ago (Yellen et al. 1995). Its vast territory was historically home to the Mbuti peoples, until the Bantu expansion. The Seven Kingdoms of Congo dia Nlaza cohabitated, until they merged into the Kingdom of Kongo in the 15e century (Thornton 2020). Additionally, the northern region was dominated by the Empire of Mwene Muji, contemporaneous to the Luba and Lunda empires. European exploration began in the 18th century, culminating in the establishment of the Congo Free State under Belgian rule in 1885 – date of the Conference of Berlin, which formalized the Scramble for Africa. While Congo did not wait for traveler Henri Morton Stanley to enter history (Van Reybrouck 2012), I take 1885 as the starting point of my analysis of policy discourse. The country would later also be known as the Belgian Congo (1908), and Zaire (1971).

In both countries, early commercial forestry was the result of colonial attempts to extract value from colonies, stemming from a search of new outlets for new products and the supply of raw materials, conducted under the guise of a 'civilizing mission' (Petitjean 2005). European observers contributed to narratives of the 'primitiveness' of African natural resource practices (Duvall 2011; Tassin 2015), feeding into a strategic condemnation of the "dreadful consequences of nomadism", including swidden agriculture (De Wildeman, 1940, p. 4). This justified the brutal shift away from "an ill-defined collective property to an individual property protected by the State" (De Wildeman, 1940, p. 4). Having no notion of the extremely complex structure of the local rights of use, let alone endogenous conceptions of collective land ownership, colonial states deprived the populations from one of their biggest sources of livelihood and spiritual guide: forest lands (Van Reybrouck 2012, p.117). In 1898, King Leopold II prohibited any logging in State forests, in the name of conservation (BOEIC 1989, p. 358).

Following both countries' independence in 1960, the timber sector grew rapidly, driven by global demand for tropical hardwoods. To render the industry 'legible', Cameroon introduced in 1998 the Computerized Forest Information Management System (SIGIF) to manage wood production and logging taxes data, becoming the first country in the region to do so. In 2002, the DRC implemented policies to control timber exports, including a 30% log export quota and a moratorium on new logging concessions. The Voluntary Partnership Agreement on Forest Law Enforcement, Governance, and Trade (VPA-FLEGT) negotiations between the DRC and the EU in 2010 led to the development of the Timber Production and Commercialization Monitoring Program (PCPCB), and the Computerized Forest Management Information System (SIGEF). Despite these advancements, the industry in both countries continue to face challenges, with persistence issues with compliance and harmonization. Efforts to improve sustainability led to the implementation in Cameroon of SIGIF 2 in 2020, with mitigated results - according to their European partners.

It is in this contested arena of international forest governance that I anchor this thesis. While the reasons for selecting these countries as case studies for my PhD thesis have largely depended on the serendipitous path of project-based research, they also provide an excellent contrast in how varying systems of knowledge and historically rooted beliefs may support the formulation of different 'solutions' for similar problems. Despite facing similar challenges regarding biodiversity loss, rural development and forest governance, Sweden, Cameroon and the DRC have adopted radically different policy approaches: the forest concession model in Cameroon and the DRC as opposed to the traditionally small-holder and family-based forestry in Sweden, being just one of many examples. This also leads to radically different

On one hand, the perceived ascendency of the Swedish forest model is so significant, that the government aims to "spread knowledge about the Swedish model and sustainable forestry and thus contribute to increased poverty reduction and the fight against global warming" (Ministry of Rural Affairs 2011), p. 10), while on the other hand, the forest models of Cameroon and the DRC are considered "risk countries" for the trade of illegal timber and unsustainable management. This thesis shows that, despite these apparent disparities, the role of the silences which underly the formulation policy is similar.

Data

Written sources

For the case of Sweden in Article I, while I analyzed policy documents from 2018 and 2019, I drew from previous policies to provide context - or genealogy- for analysis, produced by three main Swedish government agencies which oversee the forest sector: the Ministry of Enterprise and Innovation (since renamed the 'Klimat och Näringslivsdepartementet'), the Swedish Forest Agency (Skogsstyrelsen), and the Swedish Board of Agriculture (Jordbruksverket). In Article II, documents selected for final analysis included 296 articles, identified through iterative screenings in the Scopus, Google Scholar and Web of Science databases, dating back to 1911 for the French and 1950 for the English literature. Data corpus for Article III consisted of 300 written documents, including archival records (n=249), and scientific peer-reviewed articles (n=51), collected between January 2022 and April 2023, during an initial desktop search, followed by field work and archive visits in the DRC and Belgium. All data relating to Central Africa was collected taking 1885 as a starting point. Article IV was based on the analysis of 50 policy documents from Cameroon and the DRC, collected from FAOLEX.

Hearing voices: silence through interviews and field work

When text remains mute, interviews offer opportunities to find new meanings. In the search for silences, interviews specifically may help in telling the story of the (un)tellable. Interviews have been a common method used in feminist studies (Kronsell 2005, 2006; Magnusdottir and Kronsell 2015). As an outsider, the researcher can read between the lines, listening for that which was not expressed explicitly (Hovi 2016). Specifically, interviews conducted in the context of field work, with its mobilization of all the senses, may also increase the likelihood of perceiving silences, where a bystander would argue that there is none (Seljamaa and Siim 2016, p.10). While interviews are a rich source of information, I

also paid attention to avoiding 'epistemic objectification', which may confine informants to their passive function of information providers, relegating them to the same epistemic status as a "felled tree whose age one might glean from the number of rings" (Fricker 2011, p.133). However, as fieldwork is an embodied experience, assumptions and invisible bias may privilege, often tacitly, the voices of some interlocutors and pass hasty judgements on the credibility or worth of others (Fernandez 2006). For even in interviews, one must be attentive to what is not spoken, discussed, and answered, paying close attention to censorship, refusal to be interviewed, refusal to grant access to specific types of archives, paywalls, etc., must all become a part of the meaning-making (Mazzei 2003).

For this thesis, I conducted about 10 months of field work, between January 2022 and March 2025, in Cameroon (3,5 months), DRC (2,5 months), Belgium (3 weeks), Germany (1 week) and China (3 months). I do not count research carried out in Sweden during 2019-2021 as field work, as Stockholm was my primary residence during that time.

For Article I, two of my colleagues and I conducted semi-structured interviews with 18 experts in Sweden. Because of Covid, these were conducted through video-call, lasting between 40-98 minutes. Interviews for Articles III & IV were conducted in Cameroon, the Democratic Republic of Congo, France and China, between December 2022 and April 2024. For article III, I conducted 15 semi-structured interviews, relating to forestry knowledge production in the Congo Basin. Article IV draws from interviews conducted with 143 informants in Cameroon, the Democratic Republic of Congo, France and China, including actors relating to forest governance in the Congo Basin and to the timber commodity chain, ranging from government officials, national park officers, NGOs, academics, consultants, local communities and private sector operators, including industrial and artisanal harvesters, labor unions, retailers and maritime fret officers. While none of the articles included in this thesis draw directly from my data collected in China, my time spent there largely contributed to inspire and sharpen my theoretical understanding of silence, as it is considered as a foundational element of Chinese philosophy, a 'transcendence of speech' (Lik Kuen 1975).

When possible, interviews were recorded, anonymized and transcribed. In China, where authorization for recording was not granted, extensive notes were taken instead. Informants were anonymized, and prior and informed consent was systematically collected. All data collected for this thesis can be found in Appendix 1.

Analytical approach

Reading between the lines: critical and qualitative text analysis

In a space where data is scarce and incomplete, a qualitative methodology seemed most appropriate for answering the research questions of this thesis, mapping the gaps in knowledge, and capturing the silences. However, the exploration of silences in discourse constitutes a methodological challenge: how does one explore, rather than assume, the meaning behind the pauses, the intentional gaps and unintentional silences? Previous, more literal approaches have consisted in recording and comparing speaking time taken by groups of men and women (Dyer 2018), while others have compared how the same issue is covered in different text sources (Huckin 2002), or across time (Wang and Kádár 2018). I follow here the path of discourse analysis. For articles I & IV, I use the 'What's the problem represented to be?' (WPR) approach, developed by Bacchi (Bacchi 1999, 2000, 2009; Bacchi and Bonham 2014). This discourse analysis approach applies six analytical questions to

discourse, most commonly to policy texts. Question 1 involves identifying how problems are represented in the material; Question 2 explores the underlying assumptions and rationalities of these representations; Questions 3 and 4 examine the conditions and historical events that enable or constrain these problem representations, typically using both empirical material (e.g., interviewee insights) and previous research. Question 5 focuses on critical perspectives, sometimes suggesting alternative problem representations; Question 6 synthesizes the analysis by reflecting on how the dominant problem representation legitimizes certain policies measures while excluding others.

This thesis applies critical policy analysis (Article I & IV) as well as interpretive thematic analysis (Avineri 2017) of scientific literature and archives (Article II), using a hybrid inductive and deductive coding process (Fereday and Muir-Cochrane 2006), supported by the qualitative analysis software Atlas.ti. In Article III, I adopt a threefold analytical frame to the data corpus, based on the questions "1. What knowledge; 2. Does who want; 3. For what purpose?". When confronted to opposing beliefs or knowledge systems – as is often the case in the political forest - I adopt a 'diffractive' reading as a tool for critical inquiry (Barad 2007; Kaiser and Thiele 2014). Diffraction seeks to overcome traditional dichotomies such as nature/culture, mind/matter, Human/non-human. This urges to rethink differences beyond these Hegelian oppositions since, in a relational perspective, negation implies relation (Serres and Latour 1995). Adopting a diffractive reading allows us to read data from empirical research alongside other, sometimes seemingly contradictory materials, to provide novel insights on past events and their implications for the present: as I do in Articles III & IV.

And because the past is never finished, "may be out of reach but not necessarily out of touch" (Barad 2007) p.394), this thesis (Articles II & III) places particular importance on the exploration of archives and historical materials. From these, I present some findings below.

FINDINGS

What knowledge and information, does who want, for what purpose?

Counting bodies like counting trees: gender equality in the Swedish forest sector (Article I)

In Sweden, the issue of gender inequality in the forest workforce is often framed as a problem of representation. In Article I, we show that the policy approach is circular: the lack of women in the workforce is seen as a problem that needs to be addressed by increasing their numbers. This frames gender equality as essential for securing jobs and growth in the Swedish forest industry, particularly in areas with declining populations. Policy emphasizes the need for the forest industry to be able to recruit staff both today and in the future, with gender equality promoted to enhance sustainability and workplace conditions.

The indicators used to monitor progress in gender equality focus on three areas of representation: forest education, industry workforce, and land ownership. The Swedish Forest Agency reports improvements in gender balance across most indicators since 2011, with women even outnumbering men among doctoral students at the Faculty of Forest Science at SLU (indicator u8). However, despite educational gains, economic indicators reveal a decline in the number of women employed in large-scale forestry, female contractors, and female forest owners with more than 50 hectares of land. This focus on statistics highlights the technical nature of gender strategies in forest policies. One informant noted that the sector's focus on quantitative aspects is equivalent to rational forest management practices of counting trees: "they are very much focused on those kinds of quantitative aspects – whether it's counting trees or counting bodies or people, it's sort of the same for them" (Interview 6, academia). Consequently, achieving gender equality is equated with simply increasing the number of women in the workforce, seen to foster competition and growth in commercial forestry.

Previous policies framed gender inequality as an informational deficiency, advocating for: "All information and education campaigns carried out in the forest industry [...] is aimed equally at women and men" (section 4.11). However, the increasing representation of women in forest education clearly indicates that information asymmetry is no longer the main obstacle to equality. This suggests that current policy formulations are incomplete, missing a part of the puzzle.

Counting carbon stocks: data as power (Article III)

In the early days, research on forests primarily focused on their role in climate regulation, particularly in hydrological cycles (Vanderweyen et al. 1953). However, over the past 15 years, there has been a significant increase in scientific literature on carbon sequestration. Accurate data on carbon stocks and monitoring is considered crucial for the DRC to participate in the international climate change arena, secure funding and engage in carbon markets. The slogan "Congo, Pays solution" (*Congo, the solution country*) is commonly heard in DRC. However, as one Congolese scientist points out: "*we are the world's second largest lung, but in terms of carbon sequestration, how much do we sequester?*" (Interview 12). Data is a crucial for governance, power and influence. Without data, there is no voice; a belief particularly strong in Global North scientific institutions. A Belgian scientist highlights that the DRC, which holds 60% of the Congo Basin forests, lacks data, limiting their

influence: “they never have anything to say, because they have no data” (Interview 14). The government is also seen as lacking ‘experts’. One Congolese scientist laments that "the government has no experts. The government has no data. [...] Yes, it's a big forest, it's a solution. But what is the rate of sequestration, what is the rate of emissions?" (Interview 3). For government officials, NGOs and scientists, knowledge on carbon sequestration is deemed crucial for climate change action.

This knowledge is also highly valuable for the private sector, which has shown a keen interest in carbon data, as an opportunity to benefit from carbon credits. In the DRC, the same companies that hold logging concessions and have profited from timber markets are now seeking alternative revenue flows from carbon credit markets (Pietarinen et al. 2023). Underlying, the same mechanisms of land control and benefit sharing. In Article III, the concept of ‘intraction’ is introduced. Carbon bonds are traded based on the immobilization of extensive natural landscapes (such as forests, peatlands, mangroves), keeping natural resources *in situ*. To account for this specific process, I introduced here the concept of ‘intraction’. With this, I refer to the confinement of natural resources, showing how this intraction is supported by the same scientific and political mechanisms historically employed to justify extraction. It allows to understand the parallel dynamic of trade aimed at fulfilling societal goals in distant countries: while timber has been extracted and moved, through a process of extraction, carbon credits allow trees to be locked in situ, through a process of intraction.

Counting trees: commodifying knowledge and tracing timber flows (Article III & IV)

A similar interest in quantification is found over a hundred years prior, in Belgian Congo. Botanical knowledge of tree species was essential for establishing a commercial forest sector in colonial Belgian Congo. In 1917, Government official Maertens stressed that botanical, chemical and analytical studies of tree species were “the only way to provide us with stable data that will enable us to regulate the industry that is to be created”. Forest science was closely aligned with industry goals, rendering the forest a laboratory for exploration, collection, and inventory, facilitating a global botanical exchange. Interest in botanical knowledge surged alongside the timber industry’s need for accurate species identification, requiring vast taxonomical mapping, inventories of all forest species, and certain species garnered more attention, due to significant commercial interest. Article III maps the evolution of the topics of forest knowledge in the DRC, from 1872-2021. By the mid-nineteenth century, European governments, chartered companies and industries actively collected useful plants. Botanical gardens were established or expanded to classify and exchange exotic plants, improving and adapting them for commercial production (Brockway 1979). Herbariums served as records of potential commercial uses of new species, and as catalogues for traders, who needed to correctly identify the novel African wood species arriving in Belgium. Scientific knowledge and industry worked alongside each other (Vanderweyen et al. 1953, p.37).

Article IV finds a similar attachment to the keeping of records in timber commodity chain governance, in which transparency has become central to several policies, often referred to as the “transparency turn” (Gupta 2010; Mol 2010, 2015). Based on Gardner et al.’s (2019) typology of transparency information, we find that policies in the DRC and Cameroon emphasize two types of information: policies in Cameroon focus on traceability information, while the DRC prioritizes transaction information. This ‘visibility turn’ is reinforced by

policies such as the EUDR, which emphasize traceability and geolocation, often to the exclusion of other types of transparency.

In both cases, such preference for numbers can be seen as a form of simplification. Indeed, the focus (quantitative) on particular types of information (representational, traceability and transaction information) may lead to gaps and unaccounted silences in policy. I explore these in the next section.

Where are the gaps and silences in forest policy and the knowledge on which it is based? How do silences subjugate certain groups and ideas from meaning-making in forest policy?

Silenced landscapes: the 'idle and masterless lands' of Central Africa (Article II & III)

Article II explore how the notion of 'vacant and masterless lands' (in French "terres vacantes et sans maître") has permeated the discourse on Congo Basin forests since the 15th century. Early European explores and settlers often described these regions as 'untouched wilderness' (Tassin 2015), devoid of human presence. This romanticized view of the tropical forest as 'empty' and 'idle' effectively erased the existence of local and indigenous communities, particularly affecting nomadic populations. Some estimate that nomadic and semi-nomadic peoples make up about 3% of the DRC's population (ICI 2024), including various groups such as the Pygmy People, who prefer to be referred to by their ethnicities: the Aka, the Batwa, the Mbuti, the Cwa and the Twa (IWGIA 2022). But also, the more recently documented Mbororo pastoralists (Bembiade et al. 2022). Despite this, a prominent NGO representative from Kinshasa, claimed that there are no nomadic populations in the DRC.

The principle of terra nullius (nobody's land) in international law has been used to justify land appropriation and occupation, supporting mechanisms like concessions and land grabbing (Coquery-Vidrovitch 1972; Cleary 2005; Rasmussen and Lund 2018). This principle was prevalent during the colonial period: in Congo, it was instituted as legal principle, according to which "all vacant land must be considered as belonging to the State. No one has the right to occupy vacant land without title" (Department of Foreign Affairs 1907). This has persisted into the post-colonial era, for instance employed by the Cameroonian state to enclose and allocate land to foreign corporations, under the guise of 'development' (Pemunta 2014). The frontier – seen as lying on the 'margins of civilization', is framed as needing development. A 2009 World Bank report described African land as "underused" (p.2) and requiring "agricultural intensification" (p.64) due to "low population densities" (World Bank 1989,p.2). Preserved through time, the same narrative emerged in interviews conducted for Article IV, when an NGO representative noted that "the state doesn't have the means to implement its policy. Certain logging concession areas have been locked away ['mis sous cloche'], and these areas are vacant and masterless lands, given over to illegal exploitation" (Interview 29, DRC). A French consultant argued that "a forest that isn't exploited is a forest that disappears" (Interview 70, France), suggesting that only logging concessions can protect the forest.

Article III discusses the marginalization of endogenous knowledge, despite its critical role in early tropical botanical studies. Local informants and guides were essential for foreign botanists and foresters, to locate valuable tree species and navigate the forest (Coote et al. 2017), yet their knowledge was dismissed as anecdotal or superstitious (Petitjean 2005). Still today, I have yet to see a foreign operator go out to the deep forest without being accompanied

by a local. This marginalization continues today, portraying Baka and Bagyeli knowledge systems and land use practices as irrational (Pemunta 2013) legitimizing their exclusion from development processes (Oyono 2006). This epistemological dominance has resulted in the subjugation of local and indigenous voices (Lanz 2000). Paradoxically, while being subjugated (Foucault 1980), this knowledge was also integrated, anonymized and absorbed, into what is now considered "scientific knowledge" (Petitjean 2005). Science and industry have attempted to exploit and profit from it (Banerjee and Linstead 2001), such as patenting intellectual property rights around indigenous knowledge (Merino 2023) or leverage community stewardship for carbon offsetting (Gauthier 2018). Bonneuil (1991) suggests that these colonial legacies have set the stage for subsequent interest in the values of indigenous knowledge. And while the past 40 years have demonstrated renewed interest in local communities' knowledge and perceptions (UNESCO 1981, p.31), particularly regarding the social and medicinal value of tree species, this knowledge remains mediated by those with the 'right' social markers (Fortmann and Ballard 2011; Fricker 2011).

When they were not ignored altogether, considered absent from the empty forest regions, small-holder farmers were blamed for environmental degradation, through practices such as swidden agriculture. Early settlers perceived Africa's savannas as the product of anthropogenic deforestation, a notion popularized by French botanist André Aubréville, coined 'desertification' (Tassin 2015). To counter this perceived issue, (semi-)settled monocultural agriculture was promoted as the solution "to ward off the dreadful consequences of nomadism –translated into the destruction of forest resources reserves and soil erosion" (De Wildeman, 1940, p. 4). This lifestyle, escaping the 'legibility' of the state, was seen as inconvenient for the administration, described as "floating" outside of governance: "The disadvantages of this custom are many and very serious. Firstly, from a political point of view, it leaves something floating and unfixed in the state and knowledge of the country, which is very inconvenient for its administration" (Comte de Briey and De Wildeman 1920). This 'inconvenience' has been increasingly recognized as a rational solution to the environmental constraints of iron rich soils. And despite mounting evidence of large-scale drivers such as commodity agriculture and global trade networks (Geist and Lambin 2002; Molinario et al. 2020), the path dependency of small-scale swidden agriculture remains sticky.

Silent passivity: Governance as "awakening"?

Another silence in existing narratives is the perception of Africa and its people as being in a "slumber". This is illustrated by a 2009 World Bank report titled "Awakening Africa's Sleeping Giants" (World Bank 2009). Western governance and market-based mechanisms are expected to 'awaken' Africa, a narrative common among foreign officers in Central Africa, portraying Central African States as passive or absent. Both national and international actors have expressed frustration over the perceived passivity of these countries in international negotiations, prompting a European delegation member to lament Cameroon's lack of diplomatic engagement, stating that "Cameroon is asleep right now". Akin to what Ongolo (2015) coined as ''gecko politics'', understood as cunning behaviors adopted by administration under limited statehood, this passivity may be interpreted as a strategy of avoidance of the interplay of multiple and often diverging interests from external public and private interests.

Hence, to demonstrate their capacity to govern, African States must 'suggest alternatives', 'defend their position' and 'mobilize' (Article IV). Failure to do so is considered reckless,

warranting Western intervention. Historically, this intervention was justified by the need to expand civilization, later to develop, and now to protect the forests. This makes one wonder: even if Africa and its leaders were sleeping, what gives Western governments the prerogative to wake them up? Western intervention remains prevalent in the region for various reasons – geopolitical, commercial, and less rational ones, such as what has been described as the fear of losing Eden (Grove 1995), supporting Green Colonialism (Blanc 2022; Nsah 2023). This fear is driven by the belief that "The more nature disappears in the West, the more we fantasize about it in Africa. The more we destroy our nature here, the more we try to save it there" (Blanc 2022, p.1). A French consultant working in Cameroon notes that it is those who have deforested their own lands, who are now most vocal about preventing deforestation:

> *"the most demanding are those who have already destroyed everything in their own country. So, they had already completely cut their forests, totally eliminated their wild fauna. And once they'd eliminated everything, wildlife and forests, they say... 'We have to be very careful not to do it elsewhere'." (Interview 53, Cameroon)*

Losing the Congo Basin forests is equated with a loss of primal authenticity, unlike the 'artificial' forests of Europe. This overlooks that foreign companies overwhelmingly exploit natural resources, often excluding local entrepreneurs. A Cameroonian businessman from the forest region lamented: "It must be said that we were born in forested areas. It's strange that we can't export our own resources" (Interview 50, Cameroon). This exclusion from resource use constitutes the finality of their material subjugation.

Silent fears: depopulation in Sweden and demographic growth in Central Africa (Article I & II)

Article II demonstrated how smallholders practicing shifting cultivation, a common agricultural method across the world, are blamed for deforestation and environmental degradation in the Congo Basin, which has been exacerbated by population growth and migration. This perception may stem from the historical Malthusian view in Europe, which linked 'unsustainable' population growth to resource scarcity (Pierre and Cassagne 2005), justifying resource management mechanisms like 18th century enclosures in England. Our examination of the literature demonstrates how the mission of colonial forest engineers to promote and develop export commodities, while protecting the 'endangered' forests against the perceived ignorant and destructive local populations, was supported by stringent assumptions, which persist in post-colonial policies (Ballet et al. 2009; Bisiaux et al. 2009; (Pemunta 2013, 2014; Nasser et al. 2020). The DRC's current Forest Policy links population density and deforestation, noting that the densely populated areas of Kinshasa and Bas-Congo have the highest deforestation rates.

In contrast, Sweden's forest policy addresses fears of a declining population by aiming to 'revitalize' the countryside. Article I shows how forest policy objectives are intertwined with rural development goals, driven by concerns over depopulation and the 'fear of a dwindling rural sector' (Article I, p.51). Sweden, described as one of "the most sparsely populated country in the EU with only 23 persons/km2" (Jordbruksverket 2015, p.30), views women as crucial for rural survival. A 2004 policy document highlights the trend of women leaving rural areas to pursue higher education as "worrying", since "Without increased gender equality, rural areas will die out […] Women are seen as a resource for rural areas that cannot be expendable" (Swedish Ministry of Agriculture 2004, p.66). Women are seen as both the

problem and the solution to reviving the forest workforce. This deep connection between people and forests is a common yet overlooked assumption in forest strategies influenced by Europeans, both in Sweden and the Congo Basin, painting people as the problem.

When silence is power

In Sweden, policy measures often focused on providing "training and information to women in the sector" (Swedish Ministry of Agriculture 2004), construing women as 'passive' and 'uninterested'. By doing so, policies overlooked a significant target group: men. In Article I, we term this approach the "Don't disturb the men" strategy – based on the words of one of our informants. This perspective overlooks the dynamics of power, which is more indicative of the men who refuse to let go of said 'power', than the women who must become 'empowered'. As one informant notes: *"Well, it's the questions of power are not discussed […]. It's that nobody wants to look at why is it that women are not there? What is it that's keeping women back?" (*Interview 1). This approach can be understood as a form of silence: when power is entrenched and established, it becomes an "obvious" that doesn't need reiteration. Problematizing women as untrained and lacking capacity allows the role played by their male counterparts to be left silent: indeed, little funding is allocated for educating men about traditional male roles, leaving the women to bear the burden of transformation.

Although gender equality is framed as a female problem, this has not always been the case. In 1970, Swedish Prime Minister Olof Palme stated, "One should not speak of the problem of women's role in society, but of the sex-role problem in order to emphasize that the problem also concerns the traditionally male role" (Palme 1970). For example, the *#slutavverkat* movement challenged the status quo on gender equality in the Swedish forest sector, highlighting discriminatory behaviors perpetuated by men, against women. Analogous to the #MeToo movement, it revealed some of the unspoken reasons for women's absence in the sector.

In another instance of this, Article IV explores the implications of transparency within the timber commodity chain, emphasizing traceability and transaction information, primarily driven by donors and trade partners from the Global North. However, this transparency is often one-sided, focused on where the wood comes from, rather than on where it goes. Producers often lack insight into the timber's subsequent journey. Interviews with forest operators reveal a gap in knowledge regarding the final destination of the timber they produce. Both small and large-scale producers may know the country of destination but often lack specifics about the markets or products their timber supports. A producer in Cameroon admits: "I couldn't tell you exactly what they [the consumers] do." (Interview 45, Cameroon). Similarly, another producer notes the Chinese buyers' preference for Padouk (a wood typically identified as *Pterocarpus soyauxii*, but which can also hide a variety of other species), without understanding its ultimate use: "the Chinese, for example, we don't know what they do with Padouk, but they buy it in large quantities." (Interview 22, DRC). This focus on the origin of the wood, without understanding its downstream trajectory, represents a one-sided transparency. A small-scale, artisanal producer in the DRC humorously remarks that his wood goes on to live its own life, like turtle eggs heading to the sea:

> *« The final product? In any case, it makes, it makes children of turtles. Do you know what that is? When the turtle lays its eggs, the offspring follow its path and go on to make their own lives [laughs] »*
> *(Interview 1, DRC)*

In the same way, institutional transparency processes also tend to prioritize the producer country over the donor or partner. In the context of the VPA-FLEGT negotiations, the burden of transparency often lies on the producing countries, rather than on the consumer partner. One informant highlights that donor countries rarely offer transparency regarding their own operations, creating an expectation that transparency is a one-sided obligation, always placed on "the other":

> *"When it comes to governance, you can always come to the ministry and burn things to the floor or whatever, saying we don't have any visibility on this or that. Whereas we don't even know what's going on on your side. We don't know anything. I've never come to you to ask what is this, who's doing what, why he's doing this, why the article's written like that. But you're always there, playing the policeman at other people's houses. So it's paradoxical [...] Yes, of course, when we talk about transparency, it's the other guy." (Interview 52, Cameroon)*

These examples illustrate how the demand for transparency information is often unilateral, allowing certain actors to withhold their own data. The perceived 'lack of transparency' extends to the markets for tropical timber in China and Europe, where the final use of the wood remains obscure, raising questions about comprehensive downstream transparency.

Where the state is said to be "fragile" (Karsenty and Ongolo 2012), the private sector comes into play: who, then, holds the data? One respondent from Cameroon comments that the forest sector is not in the hands of the Ministry, but of the private sector: "Quite sincerely, I think that [...] our Ministry of Forestry […] they don't have a direct impact on the sector." (Interview 36, Cameroon). When the State lacks the capacity to produce data, it gives room to data brokers, professional information providers, who can build a monopoly on their expertise. Article IV shows that policies focusing on transparency as an outcome rather than as a process risk reinforcing the monopoly on data by international consultants and private firms. For example, the Société Générale de Surveillance (SGS) was contracted to develop tools and provide training for a national timber traceability system in Cameroon and DRC, placing them in a privileged position to become monopolies of data once this information becomes mandatory. Neutral technical claims to transparency overlooks the complex power dynamics and inequalities involved, where transparency initiatives within and directed at Global South states are predominantly led by Global North forestry operators, consultants and logistics firms. This creates a 'invisible' information market, common feature of Central Africa's Forest arena.

How does silence offer space for contestation and resistance?

Silence as resistance: opacity against transparency

Despite the high visibility of the forest sector on international agendas, there is a surprising gap in contemporary Central African trade data. Declarations from the DRC in international databases, e.g. UN-COMTRADE, are widely recognized as incomplete (Ferrari et al. 2023). Additionally, DRC's artisanal timber, which by law should only serve the domestic market, often finds its way to neighboring countries, with trade passing through the Eastern Boarder in direction of Burundi, Rwanda, Tanzania and Zambia (Interviews 20, DRC). One small-

scale operator notes that “If you go to Nairobi, I can tell you that 90% of the wood in Nairobi comes from the Congo” (Interview 23, DRC). This ‘illicit’ trade complicates efforts to determine the true extent of timber exports (Lukumbuzya and Sianga 2017; Kambugu et al. 2023), with estimates of timber export through the country’s eastern border which may double, depending on the methods used and the year of recording (Cerutti et al. 2017, Ongona et al. 2018).

In Article III, archive research revealed that as the timber sector expanded under Belgium rule, so did the documentation of timber trade records. The *Bulletin Officiel du Congo* meticulously recorded goods imported from and exported to the DRC. In 1909, before the timber industry had fully developed, these bulletins recorded the export of 4,5 cubic meters of wood from the DRC (Ministry of Foreign Affairs 1909). This meticulous – if not maniac – recording was part of a ‘governance through numbers’ (Supiot 2015) which aimed to make the messy timber trade more ‘legible’ (Scott 1996).

One significant limitation of this simplification is the lack of detailed information on tree species. In 1921, the Director of Economic Affairs of Boma lamented the difficulty of providing exact information on the “various species imported”. Although timber is often perceived as a homogenous product, tree species vary widely in characteristics and market prices. The high value of certain species can incentivize both small-scale and large-scale operators to venture beyond their legally allocated plots, driving them towards extinction. National customs data from countries like Cameroon, the DRC, or China often aggregate timber species under broad commercial names like “African mahogany” or “padouk,” obscuring the true extent of species-specific exploitation. I argue that monitoring and tracing harvested quantities by their taxonomic names, is therefore crucial to ensure sustainability. While the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) has made significant steps toward restricting or banning the trade of specific species, access to detailed information is limited. Indeed, Article 8 of the CITES convention calls for the disclosure of data, including exporters and importers names, type of permits, traded quantities, and species (Multilateral 1973, p.14) - information which remains unavailable to the public.

A preference for ‘glossing over’ tree species is also prevalent in the European market. For example, in the European decking industry—Europe's largest consumer of tropical wood—the focus on simplifying stock management hinders the promotion of lesser-known Central African timber species. Retail chains in France (e.g. Leroy Merlin) prefer to minimize the number of species they handle to simplify stock management (Interview 68, France). Similarly, maritime shipping companies exhibit a lack of interest in detailed species breakdown, focusing solely on the volume of wood transported and leaving species declaration to the customer (Interview 41, Cameroon). This practice reflects a broader market disinterest in species-specific data: "We're interested in the volume of wood exported for us, for example. [...] But we're really not interested in going down to the level where it's such and such a species. We don't keep those kinds of statistics” (Interview 41, Cameroon). This silence on trade data, and specifically tree species, therefore, allows for deliberate, but also unintended, unsustainable practices to persist in timber trade.

This absence of information may also reflect a form of resistance, either passive or active. Reliable data is considered a foundational element for forest governance, especially in efforts to curb tropical deforestation and degradation. Policies like the EUDR have increased pressure on producer countries to demonstrate their credentials. Article IV shows that demands for greater transparency and traceability standards in Cameroon and the DRC have led to various forms of resistance to external pressures and reforms. In Cameroon, this

‘passive transparency’ manifests through strategies of delay and passive compliance. By keeping control over their data and traceability software, the Cameroonian government highlights the tension between national sovereignty and international demands for transparency.

On the other hand, the case of Chinese customs illustrates resistance through active opacity. Since 2015, Chinese customs have restricted their trade data availability due to ‘data misuse’. Chinese informants (Article IV) suggest this practice is part of a broader strategy to escape the “long arm” policies of the USA and EU, characterized by one nation exercising its jurisdiction over others. The concept of “long arm policy” originates from the International Shoe Co. Vs Washington case, which established that a corporation could be subject to a state's jurisdiction if it had minimal contacts there: analogous to the EUDR current approach. In contrast, China follows a self-described non-interventionist policy. Amid trade tensions with the USA, Chinese customs have therefore limited public access to detailed trade data, making it available only to Chinese citizens for a fee.

Silence as irony: Humor as a serious strategy of resistance

On an individual level, verbal humor such as irony, can serve as a strategy of resistance, allowing people to express dissent, hint at, or push back on difficult issues, while avoiding direct confrontation. For instance, in the DRC, forest management plans are legally required to be made public. When asked about their plan’s availability, a forest operator deflected by blaming the internet, saying “Well, don't forget the Internet [...] The Internet network in the Congo is very slow. Maybe it hasn't had time to load yet [laughs]. It's the upload, I'm sure. How many pages is it? A lot of pages, isn't it?” (Interview 27, DRC). This ironic response allows the speaker to answer without revealing anything. Irony can therefore highlight multiple, sometimes contradictory, realities (Johansson and Woodilla 2005), such as the fact that despite the legal obligation to disclose forest management plan, very few operators actually do so, making it a customary practice. Humor and irony provide a platform for free expression, where silences can emerge (Zalewski 2006). Its epistemological nature allows for important features to appear which might otherwise be lost (Johansson and Woodilla 2005), exposing prevalent official and unofficial norms (Wieslander 2021). When asked about the purpose of the multiple ‘unofficial taxes’ levied upon them by the administration - a form of corruption - one operator answers: “There is no lack of creativity here [laughs]” (Interview 2, DRC). Documented in several contexts, as the Swedish Police (Wieslander 2021), or peasant resistance (Scott 1985), irony allows expression without incurring the risk of reprisals (Wieslander 2021, p.29). As a strategy of non-violent resistance (Sorensen 2008), irony can also serve to maintain order, such as reactionary statements which may be protected under the guise of humor (Brassett 2021). Thus, irony is inherently contradictory (Butler 2021).

DISCUSSION

The problems we face cannot be solved at the same level of thinking we were at when we created them. However, we continue to think policy in similar terms. In forest policy, problems and their proposed solution appear circular. With Articles I & IV, I highlight how forest policy shapes our understanding of people and social relations, making it "difficult to speak outside the terms of reference they establish" (Bacchi 2009, p.35). In Articles II & III, I investigate the historical knowledge production mechanisms, including colonial science, that underpin these policies. I demonstrate that, across time and geographies, silence as gaps and absences has been problematized as a lack of female representation (Article I), an empty territory to be occupied (Article II), an ignorance to be corrected (Article III) or as more transparency information to be provided (Article IV). Forest policy, therefore, assumes that the solution to this 'lack' is to provide 'more'. Attempting to answer Schneider & Sidney's (Schneider and Sidney 2009, p.103) call to expand investigation into the social construction of knowledge, ubiquitous in the policy field, this thesis examines forest policy as a form of social knowledge.

With this thesis, I aim at exposing some dynamics, shed light on resistances, open possibilities for thinking and hearing things differently. Indeed, "the social scientist's role is not only to expose but also to explain the existence of such false knowledge in order to make things better, to improve society, to remove 'ills'. Unseen structures may be oppressive, and social science has […] a mandate and responsibility to work for human emancipation." (Knudsen 2023, p.16). I approach this through the exploration of silences. One of the main points of this thesis is that "silence is an integral part of sense and sense-making practices and invite us to deploy other interpretative aptitudes vis-à-vis the phenomenon of silence" (Ferrari 2021, p.8).

Theoretical contributions

Tongue tied: A quiet quadrant of silences

"You look but you do not see. You touch, but you do not feel.
You listen, but you do not hear.
Without sight or touch,' he continued, 'one can learn a great deal.
But you must learn how to hear or you will learn little about our ways.'
(Stoller and Olkes 1989)

This thesis offers new theoretical insights into the multiple roles of silences. A typology is proposed along the axes of silence as *a)* subjugation and liberation, and *b)* resistance and acceptance. As mentioned earlier, this thesis posits that silences exist on a continuum. This typology posits that within each form of silence can cohabitate a little bit of the other, nothing is fully excusive of its opposite. Drawing from several case studies, I explore the different functions of silences along these lines, looking at how silences play out in the arena of forest policy making and its underlying knowledge. This helps us to create a typology of modes and functions of silences, of how they have played out in history, and in everyday practices. Unpacking these dimensions of silences reveals the power dynamics at play within forest policy, with implications for policy makers and knowledge producers hoping to contribute to

better forest policies. The exploration of silence does not aim at full epistemic transparency – rather, it embraced the "incompleteness as a normal order of things" (Nyamnjoh 2015, p.2).

Silence as resistance and acceptance. In Sweden, I showed how the masculine-coded culture focusing on a traditional understanding of wood production hinders innovation and renewal in the sector and constitute an obstacle to attracting more women into the workforce. The expected positive influence of female actors tends to be diluted and dismissed by the dominant masculine and productionist norms (Vainio and Paloniemi 2013). The 'Don't disturb the men' strategy is the manifestation of a deeply embedded acceptance for a certain kind of forestry. Practices and norms related to masculinity and productive forestry are allowed to remain unchecked, and women who wish to enter the sector are expected to adapt. They often come short: Johansson et al. (2018) show that widespread sexual harassment has led many women to retreat from the forest sector, after repeated misconducts from their male counterparts (Article I).

Regarding the transparency turn, silence (as opacity) is characterized as extraneous and irrational, transparency is framed as a desirable guiding principle of meaning and signification (Article IV). This framing leads to information disclosure being often one-sided, allowing for the growth of an information market, often held by data professionals. These information brokers, mostly from the private sector, whose headquarters are mostly located in the Global North, are the manifestation of the acceptance of a status quo, playing into what Gupta et al (Gupta 2010) have referred to as "a neoliberal privileging of market-based solutions to environmental and social challenges and support for "light touch" regulation of the private sector", empowering private corporations and consultants in the process of 'global sustainability'.

Silence as subjugation and liberation. Many emancipatory movements have aimed to "break the silence", viewing voice as an act of liberation (Article I), akin to Foucault's insurrection of subjugated knowledge' (Article II & III). While the value of 'voice' and 'speech' is undeniable, I highlight examples of silences which can also reflect power and achieve liberation. In the West, the ascendency given to reason, dialogical communication, and voice, has led to the common view of silence as an "inarticulate void" (Fóti 1988, 274). Reclaiming silence as a site of resistance may require challenging logocentrism. Power lies, for instance, in "the freedom of not having to exist constantly in reaction to what is said" (Malhotra and Rowe 2013, p.2). By considering "silence and language as structurally intertwined" (Ferrari 2021, p.16), we can create new assumptions, recognizing that silence, too, contributes to sense-making.

Western thought is rooted in an understanding of sense and reality as transparent, sanitized from affect, ambiguities, and gaps in existence. Through speech, truth is expected to be clearly and linearly conveyed through the "conceptual and propositional paradigms of European modernity." (Ferrari 2021, p.24). Logocentrism assumes that miscommunications result from a lack of speech: hence, problems of miscomprehension are expected to simply be solved by more speech: more data, more knowledge, more information. Western theories of meaning strive for full epistemic transparency, treating the "residue of meaning" (i.e. silence) as irrelevant to the formation of meaning and knowledge, a 'semantic incommensurability' outside of reason (Schutte 1998). This renders silences irrelevant to policymaking.

However, silences hold meaning. This work contributes to unveiling some of these epistemic silences, to "allow the silences to build arguments" (Mignolo 2011, p. 162) and challenging hegemonic "rhetorics of representation" at the roots of all uneven development

(West 2016). These assumptions can be seen as a form of silence, where power is crystallized into invisibility. Recognizing the necessity of lending an ear to silences raises methodological and ontological questions: Can one listen to silence? Is such a study falsifiable and reproducible? And if so, how should it be approached?

Addressing these questions involves examining the material and historical structures, as well as those affected by them. It implies asking why silences are deemed inadequate as legitimate evidence, and who has this framing served? A (decolonizing) critical phenomenology, useful to both the Global South and North, would first include developing sensibilities capable of listening for what otherwise falls through the cracks of a policy analysis. This requires resisting the "epistemological habit of erasing" (Lugones 2010, p.753), by dwelling in silences a moment longer, rather than immediately assigning meaning to them. It means avoiding early conceptualization, embracing the hesitation, avoiding the overly familiar. To embrace "complexity, liminality and ambiguity" (Ferrari 2021, p.87) requires, to some extent, the 'demolition', if only the suspension, of the ego. As Merleau-Ponty puts it, we must release things from the "prison of our chatter". Second, this would require expressing such experiences without an appeal to those same normative structures as Western logos, transparency, and the linearity of time that sustain the modern/colonial apparatus.

This may open up a landscape, what Durrheim and Murrey have imagined as a "topographical map of discursive possibilities [...] structured around collective presences and absences, the sayable and unsayable, the doable and the undoable, cultural taboos and prescriptions" (Murray and Durrheim 2019, p.275). While some might characterize these as "hazy elusive dithering[s]" (Hornborg 2017, p.15), I hope this work may help achieve a better understanding of the silences we must learn to cohabitate with, which – yes – might sometimes require some dose of imagination.

Introducing intraction

Building on the Extractivism literature, this thesis introduces the concept of "intraction" to conceptualize immovable forms of extraction. Extractivism traditionally focuses on tangible, material, natural resource (Gudynas 2018). In this context, some have described the appropriation of nature as 'green grabbing' (e.g. Fairhead et al. 2012), 'greening extractivism' (Voskoboynik and Andreucci 2022), "plant extractivism" (Homma 2012), or "eco-extractivism" (Núñez et al. 2018). Recent literature has explored the extraction of immaterial goods like carbon credits, highlighting the need to expand the conceptual limits of extractivism (Gago and Mezzadra 2017; Post 2023). Bruna (2022) therefore proposed "Green Extractivism" to describe the expropriation of carbon emission rights from local communities living around the target lands. However, the concept of 'Green Extractivism' lacks strong conceptual grounding, as it often merges with descriptions of traditional extractive processes that have undergone greenwashing, such as 'green' industrial uses of nickel (Andreucci et al. 2023), 'green' lithium mining (Blair et al. 2023), or 'green' hydrogen imports (Kalt et al. 2023), often at the expense of local communities and ecosystems (Dunlap et al. 2024).

To surmount this nomenclature wall, I propose "intraction" as the confinement of natural resources in situ. A brief etymological note might be needed here. Extraction, derived from the Latin "ex-" (from) and 'trahere' (to draw out), means to 'draw from' (Willow 2018). In contrast, 'intraction', comes from the Latin "in-" (not, without) and -traction (to draw out), illustrating the immobilization of natural landscapes (e.g. forest, peatlands, mangroves) and

the confinement of resources, often at the expense of local communities. In Article III, I argue that intraction is supported by the same scientific and commercial mechanisms historically used to justify extraction, fulfilling societal goals in distant countries. For example, conservation concessions in the DRC are expected to provide carbon sinks to developed nations eager to offset their emissions. I argue that the emergence of an *intractive* economy, under the guise of conservation, may lead to unintended consequences, like silencing local communities from their own landscapes. Words are powerful vectors of meaning, and given the urgency of effective climate finance, we need terms which avoid greenwashing and ambiguity. Intraction aims to be this small yet salient contribution to nomenclature.

Practical implications and policy recommendations

While researchers are often asked to provide policy recommendations, this thesis has demonstrated the importance of understanding and sifting through what is problematized, by whom, and for what purpose. Poet and politician Aimé Césaire wrote that "A civilization that proves incapable of solving the problems it creates, is a decadent civilization, is a stricken civilization" (Césaire 1972, p.9). Following this logic, this section suggests listening to silences and overcome blindness to alternative policy proposals - while trying to avoid reproducing this same process of problematization. Further, while a distributive approach to agency, such as the case of New Materialism, might be at risk of "attenuating the blame game" (Bennett 2010 p.37), it does not abandon the project of identifying the source of harmful effects, broadening the range of places to investigate.

This thesis has demonstrated how blind abidance to historical narratives and epistemologies is likely to perpetuate similar outcomes. In 2021, the European Union and the KfW issued a joint statement on the "Position of European Partners on SIGIF 2 in Cameroon", declaring the EU's commitment to supporting Cameroon's improved forest governance and transparency, in the name of "the common good of the State, the people of Cameroon, the future of its children, and our common home, the Earth" (European Union & KfW 2021). European policy has historically justified its actions in the name of a 'common good', supporting everything from colonization to conservation. This type of framing, shared by many educated experts, may "push forward the very same (colonial) mechanisms that contribute to deforestation and uneven development in the first place" (Windey 2020, p.xvi). The road to hell is paved with good intentions, and the effectiveness of future forest governance policies such as the EUDR will depend on this recognition.

Timber trade data: Calling them by their name

What would happen to our thinking about nature if we experienced materialities as actants, and how would the direction of public policy shift? With this question, Bennett nudges us to acknowledge how accounting the matter's agency may broaden our capacity for fair governance. In this thesis, I highlighted the emphasis on quantitative perspectives in forest science, particularly in trade data. However, this data often overlooks tree species. While traceability and transparency mechanisms, particularly in regard to deforestation, are important (as emphasized by policies like the EUDR), biodiversity must also become a key focus in timber data. I argue that species-specific data is crucial, not only to monitor market trends and assess the pressures on endangered species, but also to reinscribe the living back into the way we look at data. Consumers typically tend to perceive wood as a homogenous

product, differentiated only by its color and density. However, this wholly ignores that trees are living creatures, able to outlive most mammals on this planet. As Ingold notes: “Of an ancient tree that has persisted over successive human generations it would seem more appropriate to say that it has played its part in the domestication *of* humans rather than having been domesticated *by* them” (Ingold 2000, p.106). In the study and trade of fauna, it has become natural to detail the species, as the goal is to contribute to the survival of each species individually. The same logic should be applied to trees. Bennett (2010) speculates that energy policy would be transformed, would we consider it as an “actant” rather than a simple instrumentalized commodity. Calling trees by their name may be a semantically small, but meaningful step in the direction of a more distributive agency.

Uncertainties and limitations

Gaps and challenges in data

As we’ve seen in this thesis, data is inherently political. In terms of quantitative data, centralized trade databases like Comext (managed by Eurostat, the statistical office of the European Commission), Faostat (managed by the FAO), UN COMTRADE (managed by the UN) and Market Information Service (managed by ITTO), frequently lack accurate data on Central African timber statistics (Zhao et al. 2020; Liu et al. 2020; Crawford 2023). This makes it challenging, even for powerfully mandated institutions such as the World Bank, to obtain an accurate picture of taxable flows in terms of production, export or areas held (World Bank 2010). This issue is said to be worsened by a seemingly “deliberate withholding of information at all levels, which significantly affects the execution of the roles expected of each stakeholder" (Mahonghol et al. 2017, p.7), which impacted my own capacity to collected data. In this context of quantitative data scarcity, a qualitative methodology seemed most appropriate (Windey 2020).

However, qualitative methodologies, while providing depth and context, also bear limitations. Archives, for instance, are records created under colonial rule, and maintained by postcolonial and neocolonial norms (Namhila 2016). In the hands of archivists, records are selected, stored, classified and made available according to fluctuating, human criteria. This makes access to records a human endeavor. Further, silence is also at the heart of the archivist’s work, as “Sometimes the information withheld is more charged with value than the information communicated; what we do not say can sometimes be more important than what we do say” (Grönroos 2025, p.48).

Therefore, while they offer unique insights into the beliefs of 20th-century scientists and knowledge producers, they can only provide an incomplete, single-voiced recollection of the past. Further, my reliance on interviews was limited by my time spent in the field (around 10 months) and access to certain forest sector actors. Many excellent quantitative studies have been produced in recent years, which aim to fill this data gap (e.g. Pendrill et al. 2022). Going a step beyond, multidisciplinary research could help to understand – if not fill - these gaps more meaningfully.

Scope: temporal, geographical and anthropocentric

The broad temporal and spatial scope of this thesis presents limitations. The historical analysis of forest policy and knowledge production spans – in the case of my central African

case studies - over a century. While providing a comprehensive overview, it is subjected to the availability of traces left behind. Similarly, the focus on Sweden, Cameroon, and the Democratic Republic of Congo, while offering valuable comparative insights, may not fully capture the diversity of forest governance practices and challenges in other regions, such as the forest-rich Latin American or South-East Asian context. Perhaps the greatest limitation of this thesis is its human-centered scope. Put simply, I spent significantly more time with people than with trees. While I was unable to include more-than-human methodologies in my thesis, further research could explore more-than-human approaches to *being* in the field.

On the limits of typologies

Creating typologies can lead to static, rigid conceptualization that constrain thinking. The study of silences entails recognizing their multilayered, multi-dimensional and context specific nature, which cannot be fixed of predetermined. This means that any attempts at the "determinative classification of the power dynamics inherent within silence, is consequently doomed to fail" (Ferguson 2003, p.62). Given the limited time spent in the field, and the perspectives not heard because of the languages not spoken (Lingala, Swahili, etc.) this thesis does not aim to provide a systematic classification but offers glimpses of various forms of silence that have emerged at specific times and places, acknowledging that temporal and geographical generalizations may often conceal as much as they explain (Ciccantell and Smith 2009, p. 364). However, while addressing silences may work to "reproduce and reinforce the inequality" they conceal, the act of recognizing silences "can, in and of itself, be a form of social action" (Murray and Lambert 2019, p.102).

Further, the investigation of silences can reveal things that might be better left in the shadows. Epistemic extractivism (Grosfoguel 2019; Pereira and Tsikata 2021) can be one such manifestation of this, akin to sharing someone else's secret. Ethical considerations are paramount here. While this thesis adhered to ethical guidelines, including informed consent and anonymity, the potential for harm or discomfort among participants remains a concern. The power dynamics inherent to the researcher-informant relationship, particularly in post-colonial contexts, necessitate ongoing reflection – particularly in the exploration of silences.

Limitations in research design

The conceptual framework of this thesis, which draws on theories of governmentality, discourse analysis, and new materialism, provides a robust lens for examining forest policy and knowledge production. However, these theoretical approaches also have their limitations. For instance, the focus on discourse and power dynamics may overlook other important factors, such as economic and technological influences, that also shape forest governance. Additionally, the introduction of new concepts, such as 'intraction,' while innovative, may require further refinement and validation through additional empirical research.

Situatedness of my own research

My findings may also be limited by my own situatedness (Haraway 1988; Nightingale 2015), on which I reflected in the positionality section at the beginning of this summary. Many elements may have influenced my engagement with various opinions and beliefs; in turn, may have shaped how informants in the field engaged with me – many of which I may be unaware of. For instance, though my interview questions were not explicitly about France's

colonial past and the on-going grip of its neo-colonialism on their natural resources, this topic often arose, likely triggered by my visibly European origin. Depending on whether people were cautious not to upset me with uncomfortable past events or expected me to act on their behalf in some capacity, or perhaps triggered by my presence expressed some resentment or suspicion, mentioning France's role took varying intensities and depths. Simultaneously, as I am not impervious to a fascinated and intractable guilt, my curiosity possibly elicited these conversations. This duality made accessing information both easier and harder, as informants were more willing to talk, but tailored their responses to my perceived status as a white female. While this strong 'othering' eventually faded over the course of our interactions, I often remained a witness, rather than a peer. However, as Windey (2020, p.20) suggests, "if we avoid a simple realist epistemology in our research practices, we should be equally modest about assuming that we know which part of our identity really influenced our interactions, what our informants really think about us".

Directions for future research

A relational ontology of silences posits that new ways of thinking require new ways of sensing (Ferrari 2021). This thesis examines how power structures create fields of visibility, embedding values and beliefs into discourse and silencing specific types of knowledge and solutions. This thesis briefly addresses the prominence of the Logo, which leads to an "abstract and uncritical appeal to voice", which becomes "complicit in the reproduction and reification of colonizing epistemic and ontological norms […] ultimately preemptively foreclosing ways of reading and writing reality that uphold its complexity and ambiguity" (Ferrari 2021, p.62-63). It shows how it has led conventional social science methodologies to often overlook and expunge "the lost ideas, the broken thoughts, the puzzles, the curiosities, the silences, the not seen/not there, "the disqualified" […] the (un)thought, the (un)imagined, the forgotten, the disliked, the abject, the feared and the (un)remembered" (Zalewski 2006, p.52). A relational ontology of silences could develop new tools for listening and engaging with these silences, both within and outside of text. As Bennett wonders: "How can humans learn to hear or enhance our receptivity to 'propositions' not expressed in words?" (Bennett 2010, p.104).

This would have political and ontological implications. Politically, this allows to better think from the vantage point of the experience of those who inhabit the 'dark side of modernity' (Mignolo 2011). Ingold suggests that a shift in sensory practice may lead to a shift in thought patterns, proposing that "exploring the common ground between vision" may lead to "a more generous, open-ended and participatory understanding of thought" (Department of Foreign Affairs 1907), p.362). Going forward, and assuming that a deeper exploration of silences could occur in a more-than-visual landscape, I aspire to reincorporate multiple senses into my scientific endeavors.

CONCLUSION

This thesis explored the multifaceted role of silences in forest policy, emphasizing how these silences can both hinder change and offer spaces for resistance. Through a detailed examination of forest policies in Sweden, Cameroon, and the Democratic Republic of Congo (DRC), this work has grappled with the epistemological and ontological underpinnings that shape environmental governance. Western theories of knowledge strive for full epistemic transparency and perceptual visibility, treating silences as irrelevant to the formation of meaning and policymaking.

Silences, I find, speak volumes. Similar struggles occur in both the Global North and South, through the proximity of subjugation and resistance. Article I illustrated how in Sweden, the focus on gender equality in the forest sector reveals a paradox where women are both the problem and the solution. Policies aimed at increasing female representation often overlook deeper, systemic issues that perpetuate gender inequality – while leaving the men undisturbed. As demonstrated in Article II, the concept of 'terra nullius' and the portrayal of African forests as 'idle and masterless lands' in the Congo Basin have justified the appropriation and exploitation of these resources, often at the expense of local communities. The historical and ongoing marginalization of local and indigenous knowledge systems underscores the colonial legacies that continue to influence forest governance. Article III contributed to advance conceptual thinking of extractivism, by introducing the concept of 'intraction'. This highlights the immobilization of natural resources for carbon credits, revealing the complexities and potential pitfalls of market-based conservation strategies if underlying beliefs are not addressed. Further, Article IV advances thinking on how transparency – perceived as the opposition of silence – is being renegotiated, and possibly encountering some resistances, in the timber commodity chain. This further illustrates the selective nature of what information is required, for whom and for what purpose. While there is significant focus on traceability and transaction information, the downstream journey of timber remains obscure, reflecting a one-sided transparency that benefits certain actors while marginalizing others. The role of information brokers and the monopolization of data by private firms raise critical questions about the power dynamics inherent in transparency initiatives.

Overall, this thesis demonstrates how forest policy sees through a glass darkly. By not paying attention to silence, it has lost sight of some alternative pathways. Understanding these silences requires a shift in both epistemological and ontological perspectives, to develop more inclusive and effective governance frameworks. By drawing from these different case studies, this work illustrates how silences transcend Global North and South contexts, making the interest in silences a common venture. By challenging the dominant discourses and making space for alternative voices and perspectives, we can move towards more equitable and sustainable management of forest resources. The exploration of silence does not aim at full epistemic transparency – rather, it embraced the incompleteness as a normal order of things.

Future research should continue to explore the intersections of knowledge, power, and governance, with a particular focus on the sensory dimensions of silences. Developing new tools and methodologies to listen to and interpret silences can provide deeper insights into the complexities of environmental governance and contribute to more just and resilient policy outcomes.

REFERENCES

Achino-Loeb M-L (2005) Silence. Berghahn Books, New York & Oxford

Agrawal A (1995) Dismantling the Divide Between Indigenous and Scientific Knowledge. Dev Change 26:413–439. https://doi.org/10.1111/j.1467-7660.1995.tb00560.x

Ainsworth J (2013) Silence, Speech, and the Paradox of the Right to Remain Silent in American Police Interrogation. Law and Language

Alcoff Linda, Potter Elizabeth (1992) Feminist Epistemologies. Routledge

Altieri M, Bravo E (2007) The ecological and social tragedy of crop-based biofuel production in the Americas. Food First/Institute for Food & Development Policy 2006:1–5

Andong S, Ongolo S (2020) From global forest governance to domestic politics: The European forest policy reforms in Cameroon. For Policy Econ 111:. https://doi.org/10.1016/J.FORPOL.2019.102036

Andreucci D, García López G, Radhuber IM, et al (2023) The coloniality of green extractivism: Unearthing decarbonisation by dispossession through the case of nickel. Polit Geogr 107:102997. https://doi.org/10.1016/j.polgeo.2023.102997

Appiah KA (1992) In My Father's House. Oxford University Press, New York

Arora-Jonsson S (2016) Does resilience have a culture? Ecocultures and the politics of knowledge production. Ecological Economics 121:98–107. https://doi.org/10.1016/J.ECOLECON.2015.11.020

Arts B, Appelstrand M, Kleinschmit D, et al (2010) Discourses, actors and instruments in international forest governance

Austin KG, Schwantes A, Gu Y, Kasibhatla PS (2019) What causes deforestation in Indonesia? Environmental Research Letters 14:024007. https://doi.org/10.1088/1748-9326/aaf6db

Avineri N (2017) Interpretive Analysis of Qualitative Data. In: Research Methods for Language Teaching. Macmillan Education UK, London, pp 161–181

Bacchi C (2012) Why Study Problematizations? Making Politics Visible. Open J Polit Sci 02:1–8. https://doi.org/10.4236/ojps.2012.21001

Bacchi C (1999) Women, Policy and Politics: The Construction of Policy Problems. Women, Policy and Politics: The Construction of Policy Problems. https://doi.org/10.4135/9781446217887

Bacchi C (2005) Discourse, Discourse Everywhere: Subject "Agency" in Feminist Discourse Methodology. Nordic Journal of Women's Studies 13:198–209. https://doi.org/10.1080/08038740600600407

Bacchi C (2000) Policy as Discourse: What does it mean? Where does it get us? Discourse: Studies in the Cultural Politics of Education 21:45–57. https://doi.org/10.1080/01596300050005493

Bacchi C, Bonham J (2014) Reclaiming discursive practices as an analytic focus: Political implications. Foucault Studies 179–192. https://doi.org/10.22439/FS.V0I17.4298

Bacchi C, Goodwin S (2016) Poststructural Policy Analysis. Poststructural Policy Analysis. https://doi.org/10.1057/978-1-137-52546-8

Bacchi CL (2009) Analysing Policy: What's the problem represented to be? Introducing a "whats the problem represented to be?" approach to policy analysis 1–24

Bakhtin M (1968) Rabelais and His World. MIT Press

Ball SJ (1993) What is policy? Texts, trajectories and toolboxes. The Australian Journal of Education Studies 13:10–17. https://doi.org/10.1080/0159630930130203

Ball SJ (2015) What is policy? 21 years later: reflections on the possibilities of policy research. Discourse: Studies in the Cultural Politics of Education 36:306–313. https://doi.org/10.1080/01596306.2015.1015279

Ballet J, Koffi KJM, Komena KB (2009) La soutenabilité des ressources forestières en Afrique subsaharienne francophone : Quels enjeux pour la gestion participative ? Mondes Dev 37:31–46. https://doi.org/10.3917/MED.148.31

Banerjee SB, Linstead S (2001) Globalization, Multiculturalism and Other Fictions: Colonialism for the New Millennium? Organization 8:683–722. https://doi.org/10.1177/135050840184006

Barad K (2007) Meeting the Universe Halfway Quantum Physics and the Entanglement of Matter and Meaning. Duke University

Barks C, Moyne J (1995) The Essential Rumi. Castle Books, NewYork

Basso KH (1970) "To Give up on Words": Silence in Western Apache Culture

Bataille G (1985) Visions of Excess: Selected Writings, 1927-39, 1st editio. University of Minnesota Press, Minneapolis

Bauman R (1983) Let your words be few : symbolism of speaking and silence among seventeenth-century Quakers. Cambridge University Press, Cambridge

Beddoe R, Costanza R, Farley J, et al (2009) Overcoming systemic roadblocks to sustainability: The evolutionary redesign of worldviews, institutions, and technologies. Proceedings of the National Academy of Sciences 106:2483–2489. https://doi.org/10.1073/pnas.0812570106

Bembiade AP, Francis Mosala, Modeste Ndaba Modeawi, et al (2022) Survey of Uncontrolled Slaughter in the Central Market of Yakoma City (Nord-Ubangi Province, Democratic Republic of the Congo): The Case of Beefs. Konfrontasi: Jurnal Kultural, Ekonomi dan Perubahan Sosial 9:413–420. https://doi.org/10.33258/konfrontasi2.v9i3.234

Bennett J (2005) The Agency of Assemblages and the North American Blackout. Public Culture 17:445–466. https://doi.org/10.1215/08992363-17-3-445

Bennett J (2010) Vibrant Matter. Duke University Press

Bhaskar R (1998) Philosophy and Scientific Realism. In: Archer M, Bhaskar R, Collier A, et al. (eds) Critical Realism: Essential Readings. Routledge, p 32

Bhaskar R (2008) Dialectic. Routledge

Bigombe Logo P (1996) Contestation de l'État et attestation d'une identité spatiale dans le Cameroun méridional forestier. Polis-Revue camerounaise de Science politique 1:3–12

Billig M, Marinho C (2019) Literal and Metaphorical Silences in Rhetoric: Examples from the Celebration of the 1974 Revolution in the Portuguese Parliament. In: Qualitative Studies of Silence. Cambridge University Press, pp 21–37

Birchall C (2011) Introduction to 'Secrecy and Transparency': The Politics of Opacity and Openness. Theory Cult Soc 28:7–25. https://doi.org/10.1177/0263276411427744/ASSET/IMAGES/LARGE/10.1177_0263276411427744-FIG1.JPEG

Bisiaux F, Peltier R, Muliele J-C (2009) Plantations industrielles et agroforesterie au service des populations des plateaux Batéké, Mampu, en République Démocratique du Congo. Bois et Forêts des Tropiques 301:21. https://doi.org/10.19182/bft2009.301.a20404

Bizzo E, Michener G (2017) Forest Governance without Transparency? Evaluating state efforts to reduce deforestation in the Brazilian Amazon. Environmental Policy and Governance 27:560–574. https://doi.org/10.1002/eet.1776

Blair JJA, Balcázar RM, Barandiarán J, Maxwell A (2023) The 'Alterlives' of Green Extractivism: Lithium Mining and Exhausted Ecologies in the Atacama Desert. Revue internationale de politique de développement. https://doi.org/10.4000/poldev.5284

Blanc G (2022) The invention of green colonialism. Polity Press, Cambridge, UK

Blattert C, Mönkkönen M, Burgas D, et al (2023) Climate targets in European timber-producing countries conflict with goals on forest ecosystem services and biodiversity. Commun Earth Environ 4:119. https://doi.org/10.1038/s43247-023-00771-z

Department of Foreign Affairs (1989) Bulletin officiel de l'Etat indépendant du Congo CONGO. [Congo Free State, 1885-1908]. Bulletin Officiel de l'État Indépendant du Congo

Bonneuil C (1991) Des savants pour l'Empire. La structuration des recherches coloniales au temps de « la mise en valeur des colonies françaises ». ORSTOM

Bourdieu P (1991) Language and Symbolic Power: The Economy of Linguistic Exchanges. Harvard University Press

Braidotti Rosi (2002) Metamorphoses : towards a materialist theory of becoming. Published by Polity Press in association with Blackwell Publishers

Brassett J (2021) Irony and the Liminality of Resistance. In: The Ironic State. Policy Press, pp 77–96

Brockway LH (1979) Science and colonial expansion: The role of the British Royal Botanic Gardens. Academic Press, New York

Brown W (1998) Freedom's Silences. In: Post RC (ed) Censorship and Silencing : Practices of Cultural Regulation. Getty Research Institute for the History of Art and the Humanities, Los Angeles, pp 313–327

Bruckner B, Shan Y, Prell C, et al (2023) Ecologically unequal exchanges driven by EU consumption. Nat Sustain 6:587–598. https://doi.org/10.1038/s41893-022-01055-8

Bruna N (2022) A climate-smart world and the rise of Green Extractivism. J Peasant Stud 49:839–864. https://doi.org/10.1080/03066150.2022.2070482

Butler Judith (2021) Excitable speech : a politics of the performative. Routledge

Callon M, Lascoumes P, Barthe Y (2011) Acting in an Uncertain World. The MIT Press

Calvin K, Dasgupta D, Krinner G, et al (2023) IPCC, 2023: Climate Change 2023: Synthesis Report, Summary for Policymakers. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, H. Lee and J. Romero (eds.)]. IPCC, Geneva, Switzerland.

Cavalli-Sforza LL (1986) African pygmies. Academic Press, Orlando

Cerutti PO, Suryadarma D, Nasi R, et al (2017) The impact of forest management plans on trees and carbon: Modeling a decade of harvesting data in Cameroon. J For Econ 27:1–9. https://doi.org/10.1016/J.JFE.2017.01.004

Césaire A (1972) Discourse on colonialism. New York

Chagnon CW, Durante F, Gills BK, et al (2022) From extractivism to global extractivism: the evolution of an organizing concept. J Peasant Stud 49:760–792. https://doi.org/10.1080/03066150.2022.2069015

Christensen LT, Cheney G (2015) Peering into Transparency: Challenging Ideals, Proxies, and Organizational Practices. Communication Theory 25:70–90. https://doi.org/10.1111/comt.12052

Ciccantell P, Smith DA (2009) Rethinking Global Commodity Chains. Int J Comp Sociol 50:361–384. https://doi.org/10.1177/0020715209105146

Clair RP (1998) A World of Possibilities. State University of New York Press

Clark JB (1891) Distribution as Determined by a Law of Rent. Q J Econ 5:289. https://doi.org/10.2307/1879611
Cleary M (2005) “Valuing the tropics”: discourses of development in the farm and forest sectors of french indochina, circa 1900-40. Singap J Trop Geogr 26:359–374. https://doi.org/10.1111/j.1467-9493.2005.00229.x
Collier Andrew (2008) Marx : a beginner’s guide. Oneworld
Comte de Briey J, De Wildeman E (1920) Mission forestiere et agricole. Archives - Musee Royal pour l’Afrique Centrale
Coole D, Frost S (2010) New Materialisms: Ontology, Agency, and Politics. Duke University Press
Coote A, Haynes A, Philp J, Ville S (2017) When commerce, science, and leisure collaborated: the nineteenth-century global trade boom in natural history collections. J Glob Hist 12:319–339. https://doi.org/10.1017/S1740022817000171
Coquery-Vidrovitch C (1972) Le Congo au temps des grandes compagnies concessionnaires, 1898-1930. EHESS 239:133–158
Crawford D (2023) Sustainable Timber Trade: A Study on Data Discrepancies and Risk of Illegality in International Trade Relationships. Master’s Thesis, University of Washington
Crown CL, Feldstein S (1985) Psychological Correlates of Silence and Sound in Conversational Interaction. In: Tannen D, Saville-Troike M (eds) Perspectives on Silence. Ablex Publishing, Norwood, NJ
Daston L (2021) Classical Probability in the Enlightenment. Princeton University Press
DeLanda M (2008) Chapter 8 Deleuze, Materialism and Politics. In: Deleuze and Politics. Edinburgh University Press, pp 160–177
DeLanda M (2015) The New Materiality. Architectural Design 85:16–21. https://doi.org/10.1002/ad.1948
Deleuze G, Guattari F (1987) A thousand plateaus: capitalism and schizophrenia. University of Minnesota Press, Minneapolis
Dendrinos B, Pedro ER (1997) Giving Street Directions: The Silent Role of Women. In: Jaworkski A (ed) Silence: Interdisciplinary Perspectives. Mouton de Gruyer, Berlin
Department of Foreign Affairs (1907) Bulletin Officiel de l’État Indépendant du Congo. Bulletin Officiel
Dolphijn R, Tuin I van der (2012) New Materialism: Interviews and Cartographies. Open Humanities Press
Donnelly F (2018) Silence is golden : Commemorating the past in two minutes. Political Silence 78–95. https://doi.org/10.4324/9781315104928-5
Dove MR (2015) Linnaeus’ study of Swedish swidden cultivation: Pioneering ethnographic work on the ‘economy of nature.’ Ambio 44:239–248. https://doi.org/10.1007/s13280-014-0543-6
Dunlap A, Verweijen J, Tornel C (2024) The political ecologies of “green” extractivism(s): An introduction . J Polit Ecol 31:436–463. https://doi.org/10.2458/jpe.6131
Duvall CS (2011) Ferricrete, forests, and temporal scale in the production of colonial science in africa. In: Mara J. Goldman PN and MDT (ed) Knowing Nature. University of Chicago Press, Chicago, pp 113–127
Dyer M (2018) Transforming communicative spaces: the rhythm of gender in meetings in rural Solomon Islands. Ecology and Society 23:art17. https://doi.org/10.5751/ES-09866-230117
Easton D (1965) A systems analysis of political life. John Wiley & Sons, New York
Edelman MJ. (1985) The symbolic uses of politics. University of Illinois Press

Edwards P, Brukas V, Brukas A, et al (2022) Development of forest discourses across Europe: A longitudinal perspective. For Policy Econ 135:102641. https://doi.org/10.1016/j.forpol.2021.102641
Eggers J, Lämås T, Lind T, Öhman K (2014) Factors Influencing the Choice of Management Strategy among Small-Scale Private Forest Owners in Sweden. Forests 5:1695–1716. https://doi.org/10.3390/f5071695
Eggers J, Lundström J, Snäll T, Öhman K (2022) Balancing wood production and biodiversity in intensively managed boreal forest. Scand J For Res 37:213–225. https://doi.org/10.1080/02827581.2022.2066170
Ehrnström-Fuentes M, Kröger M (2018) Birthing extractivism: The role of the state in forestry politics and development in Uruguay. J Rural Stud 57:197–208. https://doi.org/10.1016/j.jrurstud.2017.12.022
Ekström T (1983) Forestry and development: Possibilities of Central and West Africa. Minerals & Energy - Raw Materials Report 2:12–23. https://doi.org/10.1080/14041048309408455
Emmerij L, Jolly R, Weiss TG (2001) Ahead of the curve? UN ideas and global challenges, United Nat. Indiana University Press, Bloomington and Indianapolis
Eriksson L (2018) Explaining gender differences in private forest risk management. Scand J For Res 33:716–723. https://doi.org/10.1080/02827581.2018.1453944
European Union & KfW (2021) Position of European Partners on SIGIF 2 in Cameroon. Yaoundé
Evans K, Flores S, Larson AM (2019) Participatory Monitoring in Forest Communities to Improve Governance, Accountability and Women's Participation. Small-scale Forestry 18:165–187. https://doi.org/10.1007/S11842-019-09413-9/TABLES/4
Fairhead J, Leach M (1996) Misreading the African Landscape. Cambridge University Press
Fairhead J, Leach M, Scoones I (2012) Green Grabbing: a new appropriation of nature? Journal of Peasant Studies 39:237–261. https://doi.org/10.1080/03066150.2012.671770
Fanon F (1965) A dying colonialism. Grove Press, New York
FAO (2020) Global Forest Resources Assessment 2020. FAO, Rome
FAO & UNEP (2020) The State of the World's Forests 2020. Forests, biodiversity and people. FAO and UNEP, Rome
Fereday J, Muir-Cochrane E (2006) Demonstrating rigor using thematic analysis: a hybrid approach of inductive and deductive coding and theme development. Int J Qual Methods
Ferguson K (2003) Silence: A Politics. Contemporary Political Theory 2:49–65. https://doi.org/10.1057/palgrave.cpt.9300054
Fernandez J (2006) Silences of the Field. In: Achino-Loeb ML (ed) Silence: The Currency of Power. Berghahn Books, New York and Oxford, pp 158–173
Ferrari M (2021) Decolonizing Silences: Toward a Critical Phenomenology of Deep Silences with Gloria E. Anzaldúa and Maurice Merleau-Ponty
Ferrari S, Cerutti PO, Forestry I (2023) Timber trade in the eastern Democratic Republic of the Congo (DRC): effectiveness of timber parks in tackling tax frauds. 25:177–189
Feuchtwang S, Rowlands M (2019) Neolithicities: From Africa to Eurasia and Beyond. In: Civilisation Recast. Cambridge University Press, pp 75–94
Fortmann L, Ballard H (2011) Sciences, knowledges, and the practice of forestry. Eur J For Res 130:467–477. https://doi.org/10.1007/s10342-009-0334-y
Fóti V (1988) Merleau-Ponty on Silence and the Work of Philosophy. Springer, Dordrecht, pp 272–288

Foucault M (1982) The Subject and power. Crit Inq 8:777–795
Foucault M (1978) The History of Sexuality, Volume 1: An introduction. Vintage Books, New York
Foucault M (1972) The Archeology of Knowledge: and the discourse on language. Pantheon Books, New York
Foucault M (1980) Power/knowledge: Selected interviews and other writings., 1st edn. Pantheon Press, New York
Foucault M (2010) The Government of Self and Others Lectures at the Collège de France, 1982-1983. Michel Foucault Lectures at the Collège de France (Volume 10) 10:432
Frame ML (2022) Ecological Imperialism: A World-Systems Approach. The American Journal of Economics and Sociology 81:503–534. https://doi.org/10.1111/ajes.12472
France Diplomatie (2023) The Democratic Republic of the Congo, France and their international partners announce a $62-million partnership to support the DRC's biodiversity and climate ambition (03 Dec. 2023) - Ministry for Europe and Foreign Affairs. In: https://www.diplomatie.gouv.fr/en/country-files/democratic-republic-of-the-congo/news/article/the-democratic-republic-of-the-congo-france-and-their-international-partners. https://www.diplomatie.gouv.fr/en/country-files/democratic-republic-of-the-congo/news/article/the-democratic-republic-of-the-congo-france-and-their-international-partners. Accessed 28 Nov 2024
Frickel S (2014) Absences: Methodological Note about Nothing, in Particular. Soc Epistemol 28:86–95. https://doi.org/10.1080/02691728.2013.862881
Fricker M (2011) Epistemic Injustice. Oxford University Press
Fridland V (2003) 4. Quiet in the court. John Benjamins Publishing Company, pp 119–138
Gago V, Mezzadra S (2017) A Critique of the Extractive Operations of Capital: Toward an Expanded Concept of Extractivism. Rethinking Marxism 29:574–591. https://doi.org/10.1080/08935696.2017.1417087
Gamble CN, Hanan JS, Nail T (2019) What is New Materialism? Angelaki 24:111–134. https://doi.org/10.1080/0969725X.2019.1684704
Gardner TA, Benzie M, Börner J, et al (2019) Transparency and sustainability in global commodity supply chains. World Dev 121:163–177. https://doi.org/10.1016/j.worlddev.2018.05.025
Gauthier M (2018) Mai-Ndombe: Will the REDD+ Laboratory Benefit Indigenous Peoples and Local Communities? Washington, DC
Geist HJ, Lambin EF (2002) Proximate causes and underlying driving forces of tropical deforestation. Bioscience 52:143–150. https://doi.org/https://doi.org/10.1641/0006-3568(2002)052[0143:PCAUDF]2.0.CO;2
Ghent University (2024) CongoFlux — Department of Green Chemistry and Technology — Ghent University. https://www.ugent.be/bw/gct/en/research/isofys/projects/yps-congoflux. Accessed 21 Nov 2024
Global Forest Watch (2024) Democratic Republic of Congo. In: World Resource Institute. https://gfw.global/3TXQLBn. Accessed 16 Apr 2024
Goody Jack (2010) The Eurasian miracle. Polity, Cambridge
Gould T (2018) Silence in Modern Literature and Philosophy. Springer International Publishing, Cham
Gray S (2019) Women of the Fäbod: An Ethnological Study of the Swedish Fäbod Culture at the Turn of the 20th Century. Independent thesis Basic level (degree of Bachelor), Stockholm University
Griscom BW, Adams J, Ellis PW, et al (2017) Natural climate solutions. Proceedings of the National Academy of Sciences 114:11645–11650. https://doi.org/10.1073/pnas.1710465114

Grönroos I (2025) “I Can’t Play God, You Know”: Ethical Dilemmas that Archivists Face in the Assessment of Records from Social and Psychiatric Care. Uppsala University
Grosfoguel R (2019) Epistemic Extractivism : A Dialogue with Alberto Acosta, Leanne Betasamosake Simpson, and Silvia Rivera Cusicanqui. In: Knowledges Born in the Struggle. Routledge, pp 203–218
Grosz E, Mercier TC (2021) Immaterial Matters, or the Unconscious of Materialism: A Conversation with Elizabeth Grosz. Síntesis Revista de Filosofía 4:141–166. https://doi.org/10.15691/0718-5448Vol4Iss2a363
Grove RH (1995) Green Imperialism: Colonial Expansion, Tropical Island Edens and the Origins of Environmentalism, 1600-1860. Cambridge University Press
Gudynas E (2018) Extractivisms. In: Reframing Latin American Development. Routledge, Abingdon, Oxon ; New York, NY : Routledge, 2018. | Series: Routledge critical development studies ; 4, pp 61–76
Gupta A (2008) Transparency Under Scrutiny: Information Disclosure in Global Environmental Governance. Glob Environ Polit 8:1–7. https://doi.org/10.1162/glep.2008.8.2.1
Gupta A (2010) Transparency in Global Environmental Governance: A Coming of Age? Glob Environ Polit 10:1–9. https://doi.org/10.1162/GLEP_e_00011
Gupta A, Mason M (2014) A Transparency Turn in Global Environmental Governance. In: Transparency in Global Environmental Governance. The MIT Press, pp 3–38
Gupta A, van Asselt H (2019) Transparency in multilateral climate politics: Furthering (or distracting from) accountability? Regul Gov 13:18–34. https://doi.org/10.1111/rego.12159
Hacking I (2000) The Social Construction of What? Harvard University Press
Hacking I (1990) The Taming of Chance. Cambridge University Press
Hale T (2008) Transparency, Accountability, and Global Governance. Global Governance 14:73–94
Hall ET (1959) The Silent Language. Doubleday & Company, New York
Hamilton H (1997) Slash-and-Burn in the History of the Swedish Forests. London
Hanaček K, Kröger M, Scheidel A, et al (2022) On thin ice – The Arctic commodity extraction frontier and environmental conflicts. Ecological Economics 191:107247. https://doi.org/10.1016/j.ecolecon.2021.107247
Hanaček K, Tran D, Landau A, et al (2024) “We are protectors, not protestors”: global impacts of extractivism on human–nature bonds. Sustain Sci 19:1789–1808. https://doi.org/10.1007/s11625-024-01526-1
Haraway D (1988) Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective. Feminist Studies 14:575. https://doi.org/10.2307/3178066
Haraway D (1991) Simians, Cyborgs, and Women_ The Reinvention of Nature
Haraway DJ (2020) 2. Tentacular Thinking. In: Staying with the Trouble. Duke University Press, pp 30–57
Harding S (1986) The Science Question in Feminism. Cornell University Press, Ithaca and London
Harris KL, Ashcraft KL (2023) Deferring Difference No More: An (im)modest, relational plea from/through Karen Barad. Organization Studies 44:1987–2008. https://doi.org/10.1177/01708406231169424
Hartman A (2000) In Search of Subjugated Knowledge. J Fem Fam Ther 11:19–23. https://doi.org/10.1300/J086v11n04_03

Haufler V (2010) Disclosure as Governance: The Extractive Industries Transparency Initiative and Resource Management in the Developing World. Glob Environ Polit 10:53–73. https://doi.org/10.1162/GLEP_a_00014
Herman ES., Chomsky Noam (1988) Manufacturing Consent : the Political Economy of the Mass Media. Pantheon Books
Hickel J, Dorninger C, Wieland H, Suwandi I (2022a) Imperialist appropriation in the world economy: Drain from the global South through unequal exchange, 1990–2015. Global Environmental Change 73:102467. https://doi.org/10.1016/j.gloenvcha.2022.102467
Hickel J, O'Neill DW, Fanning AL, Zoomkawala H (2022b) National responsibility for ecological breakdown: a fair-shares assessment of resource use, 1970–2017. Lancet Planet Health 6:e342–e349. https://doi.org/10.1016/S2542-5196(22)00044-4
Hirschauer S (2007) Puttings things into words. Ethnographic description and the silence of the social. Hum Stud 29:413–441. https://doi.org/10.1007/s10746-007-9041-1
Hoffman SG (2011) The new tools of the science trade: contested knowledge production and the conceptual vocabularies of academic capitalism. Social Anthropology 19:439–462. https://doi.org/10.1111/J.1469-8676.2011.00180.X
Holmgren S, Arora-Jonsson S (2015) The Forest Kingdom – with what values for the world? Climate change and gender equality in a contested forest policy context. Scand J For Res 30:235–245. https://doi.org/10.1080/02827581.2014.1002216
Holt Giménez E, Shattuck A (2011) Food crises, food regimes and food movements: rumblings of reform or tides of transformation? Journal of Peasant Studies 38:109–144. https://doi.org/10.1080/03066150.2010.538578
Homma AKO (2012) Plant extractivism or plantation: what is the best option for the Amazon? Estudos Avançados 26:167–186
Hornborg A (2017) Dithering while the planet burns: Anthropologists' approaches to the Anthropocene. Reviews in Anthropology 46:61–77. https://doi.org/10.1080/00938157.2017.1343023
Hornby A (1974) Policy. Oxford Advanced Learner'S Dictionary Of Current English
Hovi T (2016) Self-fulfilling words and topics not to be touched upon: Noncommunication in Neo-Charismatic Rhetoric. Ethnol Eur 46:44–57. https://doi.org/10.16995/ee.1187
Hubacek K, van den Bergh JCJM (2006) Changing concepts of 'land' in economic theory: From single to multi-disciplinary approaches. Ecological Economics 56:5–27. https://doi.org/10.1016/j.ecolecon.2005.03.033
Huckin T (2002) Textual silence and the discourse of homelessness. Discourse & Society 13:347–372. https://doi.org/10.1177/0957926502013003054
ICI (2024) DR Congo - Scaling Indigenous-led conservation in the Congo Basin. In: ICI. https://inclusiveconservationinitiative.org/geography/dr-congo/. Accessed 22 Nov 2024
ICOS (2024) ICOS Belgium. https://www.icos-belgium.be/ESCongoFlux.php. Accessed 21 Nov 2024
Ingold T (2000) The Perception of the Environment, 1st edn. Routledge, London
Ingold T (2013) Making. Routledge
IWGIA (2022) Democratic Republic of the Congo Country Technical Note on Indigenous Peoples' Issues
Jasanoff S (2004) The idiom of co-production. In: Jasannoff S (ed) States of Knowledge - The co-production of science and social order. Routledge, p 317
Jiao M, Ren L, Wang Y, et al (2022) Mangrove forest: An important coastal ecosystem to intercept river microplastics. Environ Res 210:112939. https://doi.org/10.1016/j.envres.2022.112939

Johansson K, Andersson E, Johansson M, Lidestav G (2019) The Discursive Resistance of Men to Gender-equality Interventions: Negotiating “Unjustness” and “Unnecessity” in Swedish Forestry. Men Masc 22:177–196. https://doi.org/10.1177/1097184X17706400

Johansson M, Johansson K, Andersson E (2018) #Metoo in the Swedish forest sector: testimonies from harassed women on sexualised forms of male control. Scand J For Res 33:419–425. https://doi.org/10.1080/02827581.2018.1474248

Johansson U, Woodilla J (2005) Irony and Organizations: Epistemological Claims and Supporting Irony and Organizations: Epistemological Claims and Supporting Field Stories Field Stories. In: Johansson U, Woodilla J (eds). Malmö

Jordbruksverket (2015) Sweden-Rural Development Programme (National). Jordbruksverket

Kaiser BM, Thiele K (2014) Diffraction: Onto-Epistemology, Quantum Physics and the Critical Humanities. Parallax 20:165–167. https://doi.org/10.1080/13534645.2014.927621

Kalt T, Simon J, Tunn J, Hennig J (2023) Between green extractivism and energy justice: competing strategies in South Africa’s hydrogen transition in the context of climate crisis. Rev Afr Polit Econ 50:302–321. https://doi.org/10.1080/03056244.2023.2260206

Kambugu RK, Banana AY, Byakagaba P, et al (2023) The informal sawn wood value chains in Uganda: structure and actors. International Forestry Review 25:61–74. https://doi.org/10.1505/146554823836902635

Karambiri M, Ville AHG, Wong GY, et al (2024) What is the Problem of Gender Inequality Represented to be in Inter-National Development Policy in Burkina Faso? Forum Dev Stud 51:71–100. https://doi.org/10.1080/08039410.2024.2303004

Karsenty A, Ongolo S (2012) Can “fragile states” decide to reduce their deforestation? The inappropriate use of the theory of incentives with respect to the REDD mechanism. For Policy Econ 18:38–45. https://doi.org/10.1016/j.forpol.2011.05.006

Kelly AB, Peluso NL (2015) Frontiers of Commodification: State Lands and Their Formalization. Soc Nat Resour 28:473–495. https://doi.org/10.1080/08941920.2015.1014602

Khan GA (2012) Vital Materiality and Non-Human Agency: An Interview with Jane Bennett. In: Dialogues with Contemporary Political Theorists. Palgrave Macmillan UK, London, pp 42–57

Kleinman DL, Vallas SP (2001) Science, capitalism, and the rise of the “knowledge worker”: The changing structure of knowledge production in the United States. Theory Soc 30:451–492. https://doi.org/https://doi.org/10.1023/A:1011815518959

Knudsen S (2023) Critical realism in political ecology: An argument against flat ontology. J Polit Ecol 30:. https://doi.org/10.2458/jpe.5127

Krausmann F, Lauk C, Haas W, Wiedenhofer D (2018) From resource extraction to outflows of wastes and emissions: The socioeconomic metabolism of the global economy, 1900–2015. Global Environmental Change 52:131–140. https://doi.org/10.1016/j.gloenvcha.2018.07.003

Kronsell A (2006) Studying silences on gender in institutions of hegemonic masculinity. In: Feminist Methodologies for International Relations. Cambridge University Press, pp 108–128

Kronsell A (2005) Gendered practices in institutions of hegemonic masculinity. Int Fem J Polit 7:280–298. https://doi.org/10.1080/14616740500065170

Kuhn TS. (1962) The structure of scientific revolutions, 1st edn. University of Chicago Press, Chicago

Langley P (2001) Transparency in the Making of Global Environmental Governance. Global Society 15:73–92. https://doi.org/10.1080/13600820123590
Lanz TJ (2000) The Origins, Development and Legacy of Scientific Forestry in Cameroon. Environ Hist Camb 6:99–120. https://doi.org/10.3197/096734000129342235
Latour B (1993) We Have Never Been Modern. Harvard University Press, Cambridge, MA
Latour B (2007) Can We Get Our Materialism Back, Please? Isis 98:138–142. https://doi.org/10.1086/512837
Lavachery P, Maceachern S, Bouimon T, Mbida Mindzie C (2010) Komé – Kribi: rescue archaeology along the Chad-Cameroon Oil Pipeline, 1999-2004/ De Komé à Kribi: archéologie preventive le long le Oléoduc Tchad-Cameroun, 1999-2004. Africa Magna Verlag
Le Monde (2019) Climat : Macron accuse Bolsonaro d'avoir « menti » et s'oppose au traité entre l'UE et le Mercosur. Le Monde
Lichuma CO (2021) (Laws) Made in the 'First World': A TWAIL Critique of the Use of Domestic Legislation to Extraterritorially Regulate Global Value Chains. Zeitschrift für ausländisches öffentliches Recht und Völkerrecht / Heidelberg Journal of International Law 81:497–532. https://doi.org/10.17104/0044-2348-2021-2-497
Lidestav G, Sjölander AE (2007) Gender and forestry: A critical discourse analysis of forestry professions in Sweden. Scand J For Res 22:351–362. https://doi.org/10.1080/02827580701504928
Lik Kuen T (1975) The meaning of philosophical silence: some reflections on the use of language in Chinese thought. Journal of Chinese Philosophy
Liu F, Wheiler K, Ganguly I, Hu M (2020) Sustainable Timber Trade: A Study on Discrepancies in Chinese Logs and Lumber Trade Statistics. Forests 2020, Vol 11, Page 205 11:205. https://doi.org/10.3390/F11020205
Lugones M (2010) Toward a Decolonial Feminism. Hypatia 25:742–759. https://doi.org/10.1111/j.1527-2001.2010.01137.x
Macron E (2019) Notre maison brûle.
Magnusdottir GL, Kronsell A (2015) The (In)visibility of gender in scandinavian climate policy-making. Int Fem J Polit 17:308–326. https://doi.org/10.1080/14616742.2014.896661
Mahonghol D, Ngeh P, Chen HK (2017) Cameroon Timber Trade - Legality Training Manual
Malhotra S, Rowe AC (2013) Silence, Feminism, Power. Palgrave Macmillan UK, London
Mamontova N (2020) Taiga Forest reindeer herders and hunters, subsistence, stewardship. In: The Routledge Handbook of Indigenous Environmental Knowledge. Routledge, Abingdon, Oxon ; New York, NY : Routledge, 2021., pp 153–168
Manicas P (1998) A Realist Social Science. In: Critical Realism, 1st edn. Routledge
Mannergren Selimovic J (2020) Gendered silences in post-conflict societies: a typology. Peacebuilding 8:1–15. https://doi.org/10.1080/21647259.2018.1491681
Martinez-Alier J, Kallis G, Veuthey S, et al (2010) Social Metabolism, Ecological Distribution Conflicts, and Valuation Languages. Ecological Economics 70:153–158. https://doi.org/10.1016/j.ecolecon.2010.09.024
Mayaux P, Pekel J-F, Desclée B, et al (2013) State and evolution of the African rainforests between 1990 and 2010. Philosophical Transactions of the Royal Society B: Biological Sciences 368:20120300. https://doi.org/10.1098/rstb.2012.0300
Mazzei L (2007) An absent presence : Theorizing silence. Counterpoints 318:27–43
Mazzei LA (2004) Silent Listenings: Deconstructive Practices in Discourse-Based Research. Educational Researcher 33:26–34. https://doi.org/10.3102/0013189X033002026

Mazzei LA (2003) Inhabited Silences: In Pursuit of a Muffled Subtext. Qualitative Inquiry 9:355–368. https://doi.org/10.1177/1077800403251758
Merino R (2023) Indigenous Knowledge and International (Anthropocentric) Law. In: Chapaux V, Mégret F, Natarajan U (eds) The Routledge Handbook of International Law and Anthropocentrism, 1st edn. Routledge, London, pp 198–214
Merleau-Ponty M (1945) Phenomenology of Perception. Routledge, London & New York
Merz JJ, Barnard P, Rees WE, et al (2023) World scientists' warning: The behavioural crisis driving ecological overshoot. Sci Prog 106:1–22. https://doi.org/10.1177/00368504231201372
Meyfroidt P, Rudel TK, Lambin EF (2010) Forest transitions, trade, and the global displacement of land use. Proc Natl Acad Sci U S A 107:20917–20922. https://doi.org/10.1073/PNAS.1014773107/SUPPL_FILE/PNAS.201014773SI.PDF
Migliano AB, Vinicius L, Lahr MM (2007) Life history trade-offs explain the evolution of human pygmies. Proceedings of the National Academy of Sciences 104:20216–20219. https://doi.org/10.1073/pnas.0708024105
Mignolo WD (2011) The Darker Side of Western Modernity: Global Futures, Decolonial Options. The Darker Side of Western Modernity. https://doi.org/10.1215/9780822394501
Miller CA, Wyborn C (2020) Co-production in global sustainability: Histories and theories. Environ Sci Policy 113:88–95. https://doi.org/10.1016/j.envsci.2018.01.016
Mills MAnn (1991) Rhetorics and politics in Afghan traditional storytelling. University of Pennsylvania Press
Ministry of Foreign Affairs (1909) Bulletin Officiel du Congo Belge. Bulletin Officiel du Congo Belge
Ministry of Rural Affairs (2011) The Forest Kingdom - with values for the world. Action Plan.
Mol APJ (2010) The Future of Transparency: Power, Pitfalls and Promises. Glob Environ Polit 10:132–143. https://doi.org/10.1162/GLEP_a_00018
Mol APJ (2015) Transparency and value chain sustainability. J Clean Prod 107:154–161. https://doi.org/10.1016/j.jclepro.2013.11.012
Mol APJ (2006) Environmental governance in the Information Age: The emergence of informational governance. Environ Plann C Gov Policy 24:497–514. https://doi.org/10.1068/c0508j
Molinario G, Hansen M, Potapov P, et al (2020) Contextualizing Landscape-Scale Forest Cover Loss in the Democratic Republic of Congo (DRC) between 2000 and 2015. Land (Basel) 9:23. https://doi.org/10.3390/land9010023
Moore KD (2007) In the Shadow of the Cedars: the Spiritual Values of Old-Growth Forests. Conservation Biology 21:1120–1123. https://doi.org/10.1111/j.1523-1739.2007.00669.x
Moore M-L, Tjornbo O, Enfors E, et al (2014) Studying the complexity of change: toward an analytical framework for understanding deliberate social-ecological transformations. Ecology and Society 19:art54. https://doi.org/10.5751/ES-06966-190454
Multilateral (1973) Convention on International Trade in Endangered Species of Wild Fauna and Flora. Multilateral agreement, Washington
Murray AJ, Durrheim K (2019) Qualitative Studies of Silence. Cambridge University Press
Murray AJ, Lambert N (2019) Intimate Silences and Inequality: Noticing the Unsaid through Triangulation. In: Qualitative Studies of Silence. Cambridge University Press, pp 89–106
Musashi M (1645) A Book of Five Rings. Allison and Busby, London

Mveng E (1963) Histoire du Cameroun. Présence africaine, Paris
Namhila EN (2016) Content and use of colonial archives: an under-researched issue. Archival Science 16:111–123. https://doi.org/10.1007/s10502-014-9234-0
Nasser F, Maguire-Rajpaul VA, Dumenu WK, Wong GY (2020) Climate-Smart Cocoa in Ghana: How Ecological Modernisation Discourse Risks Side-Lining Cocoa Smallholders. Front Sustain Food Syst 4:. https://doi.org/10.3389/fsufs.2020.00073
Nature (2022) We must get a grip on forest science — before it's too late. Nature 608:449–449. https://doi.org/10.1038/d41586-022-02182-0
Neimark B, Childs J, Nightingale AJ, et al (2019) Speaking Power to "Post-Truth": Critical Political Ecology and the New Authoritarianism. Ann Am Assoc Geogr 109:613–623. https://doi.org/10.1080/24694452.2018.1547567
Nietzsche F (1969) Thus Spoke Zarathustra. Penguin Classics
Nightingale A (2015) A Feminist in the Forest: Situated Knowledges and Mixing Methods in Natural Resource Management. In: ACME: An International Journal for Critical Geographies. pp 77–90
Nordlund A, Westin K (2011) Forest values and forest management attitudes among private forest owners in Sweden. Forests 2:30–50. https://doi.org/10.3390/f2010030
Nsah KT (2023) Conserving Africa's Eden? Green Colonialism, Neoliberal Capitalism, and Sustainable Development in Congo Basin Literature. Humanities 12:38. https://doi.org/10.3390/h12030038
Núñez A, Aliste E, Bello A, Astaburuaga JP (2018) Eco-extractivismo y los discursos de la naturaleza en Patagonia-Aysén: nuevos imaginarios geográficos y renovados procesos de control territorial. Revista Austral de Ciencias Sociales 133–153. https://doi.org/10.4206/rev.austral.cienc.soc.2018.n35-09
Nyamnjoh FB (2015) Amos Tutuola and the Elusiveness of Completeness. Wiener Zeitschrift für kritische Afrikastudien/ Vienna Journal of African Studies 29:1–47. https://doi.org/10.25365/phaidra.360_01
Nyamnjoh FB (2017) Incompleteness: Frontier Africa and the Currency of Conviviality. J Asian Afr Stud 52:253–270. https://doi.org/10.1177/0021909615580867
Okazaki Yohena S (2003) 3. Conversational styles and ellipsis in Japanese couples' conversations. John Benjamins Publishing Company, pp 79–110
Olsen Tillie (1978) Silences. The Feminist Press at CUNY
Ongolo S (2015) On the banality of forest governance fragmentation: Exploring "'gecko politics'" as a bureaucratic behaviour in limited statehood. For Policy Econ 53:12–20. https://doi.org/10.1016/j.forpol.2015.01.005
Ongona PT, Lescuyer G, Schure J, Lokombe D (2018) Analyse de la chaine de legalite des filieres de sciage artisanal et du bois energie a Kisangani en Republique Democratique du Congo. Tropicultura
Ordway EM, Asner GP, Lambin EF (2017) Deforestation risk due to commodity crop expansion in sub-Saharan Africa. Environmental Research Letters 12:044015. https://doi.org/10.1088/1748-9326/aa6509
Ordway EM, Naylor RL, Nkongho RN, Lambin EF (2019) Oil palm expansion and deforestation in Southwest Cameroon associated with proliferation of informal mills. Nat Commun 10:114. https://doi.org/10.1038/s41467-018-07915-2
Orlikowski WJ, Scott S V. (2015) Exploring Material-Discursive Practices. Journal of Management Studies 52:697–705. https://doi.org/10.1111/JOMS.12114
Östlund L, Öbom A, Löfdahl A, Rautio A-M (2020) Women in forestry in the early twentieth century – new opportunities for young women to work and gain their freedom in a traditional agrarian society. Scand J For Res 35:403–416. https://doi.org/10.1080/02827581.2020.1808054

Östlund L, Zackrisson O, Axelsson A-L (1997) The history and transformation of a Scandinavian boreal forest landscape since the 19th century. Canadian Journal of Forest Research 27:1198–1206. https://doi.org/10.1139/x97-070

Oyono PR (2006) Acteurs locaux, représentation et «politics» des éco-pouvoirs dans le Cameroun rural post-1994. Canadian Journal of Development Studies / Revue canadienne d'études du développement 27:163–185. https://doi.org/10.1080/02255189.2006.9669134

Palme O (1970) The emancipation of Man. Washington D.C.

Pearson TRH, Brown S, Casarim FM (2014) Carbon emissions from tropical forest degradation caused by logging. Environmental Research Letters 9:034017. https://doi.org/10.1088/1748-9326/9/3/034017

Peemans J-P (2014) Land grabbing and development history: the Congolese (RDC) experience. In: Losing your Land: Dispossession in the Great Lakes. James Currey, pp 11–35

Pemunta NV (2013) The governance of nature as development and the erasure of the Pygmies of Cameroon. GeoJournal 78:353–371. https://doi.org/10.1007/s10708-011-9441-7

Pemunta NV (2014) New forms of land enclosures: Multinationals and state production of territory in Cameroon. Studia Universitatis Babes-Bolyai Sociologia 2014:35–58

Pendrill F, Gardner TA, Meyfroidt P, et al (2022) Disentangling the numbers behind agriculture-driven tropical deforestation. Science (1979) 377:. https://doi.org/10.1126/science.abm9267

Pereira C, Tsikata D (2021) Feminist Africa: Extractivism | Resistance | Alternatives. Institute of African Studies University of Ghana, Accra

Petitjean P (2005) Science and the "Civilizing Mission": France and the Colonial Enterprise. In: Stutchey B (ed) Science Across the European Empires - 1800-1950. Oxford University Press, pp 107–128

Pierce Colfer CJ (2020) Masculinities in Forests. Routledge, Abingdon, Oxon ; New York, NY : Routledge, 2021.

Pierre J-M, Cassagne B (2005) Etude sur le plan pratique d'Aménagement des Forêts Naturelles de Production Tropicales Africaines Application au cas de l'Afrique Centrale Volet 2 « Aspects Sociaux »

Pietarinen N, Koh N, Ville A, et al (2023) Can REDD+ finance compete with established and emerging land investments? The case of Mai-Ndombe, Democratic Republic of Congo. Center for International Forestry Research (CIFOR)

Porter TM (1995) Trust in numbers, 1st edn. Princeton University Press, Princeton, New Jersey

Porter TM (2020) The rise of statistical thinking

Post E (2023) Expanding Extractivisms: Extractivisms as Modes of Extraction Sustaining Imperial Modes of Living. Revue internationale de politique de développement. https://doi.org/10.4000/poldev.5376

Prell C, Feng K (2016) Unequal Carbon Exchanges: The Environmental and Economic Impacts of Iconic U.S. Consumption Items. J Ind Ecol 20:537–546. https://doi.org/10.1111/jiec.12377

Pritchard R, Sauls LA, Oldekop JA, et al (2022) Data justice and biodiversity conservation. Conservation Biology 36:1–10. https://doi.org/10.1111/cobi.13919

Pülzl H, Wydra D, Obeng-Odoom F, et al (2024) Current Forest-related Discourses

Putnam LL (2015) Unpacking the Dialectic: Alternative Views on the Discourse–Materiality Relationship. Journal of Management Studies 52:706–716. https://doi.org/10.1111/JOMS.12115

Rasmussen MB, Lund C (2018) Reconfiguring Frontier Spaces: The territorialization of resource control. World Dev 101:388–399. https://doi.org/10.1016/j.worlddev.2017.01.018
Reisigl M (2013) Critical Discourse Analysis. In: The Oxford Handbook of Sociolinguistics. Oxford University Press, pp 67–90
Rice J (2007) Ecological unequal exchange: International trade and uneven utilization of environmental space in the world system. Social Forces 85:1369–1392. https://doi.org/10.1353/sof.2007.0054
Rich A (1979) On lies, secrets, and silence
Richardson J (2007) Analysing Newspapers: An approach from critical discourse analysis. Palgrave, New York
Roberts A (2006) Blacked out: Government secrecy in the information age. Blacked Out: Government Secrecy in the Information Age 1–322. https://doi.org/10.1017/CBO9781139165518
Rockström J, Gupta J, Qin D, et al (2023) Safe and just Earth system boundaries. Nature 619:102–111. https://doi.org/10.1038/s41586-023-06083-8
Rockström J, Steffen W, Noone K, et al (2009) Planetary Boundaries: Exploring the Safe Operating Space for Humanity. Ecology and Society 14:
Roux J-L, Konczal A, Bernasconi A, et al (2022) Exploring evolving spiritual values of forests in Europe and Asia: a transition hypothesis toward re-spiritualizing forests. Ecology and Society 27:art20. https://doi.org/10.5751/ES-13509-270420
Rowlands M, Fuller DQ (2018) Deconstructing Civilisation: A 'Neolithic' Alternative. In: Trade and Civilisation. Cambridge University Press, pp 172–194
Rudel TK, Coomes OT, Moran E, et al (2005) Forest transitions: towards a global understanding of land use change. Global Environmental Change 15:23–31. https://doi.org/10.1016/j.gloenvcha.2004.11.001
Ruíz EF (2014) Musing: Spectral Phenomenologies: Dwelling Poetically in Professional Philosophy. Hypatia 29:196–204. https://doi.org/10.1111/hypa.12066
Santos de Carvalho J (2022) The powers of silence: Making sense of the non-definition of gender in international criminal law. Leiden Journal of International Law 35:963–985. https://doi.org/10.1017/S0922156522000541
Savage Michael (2021) The return of inequality : social change and the weight of the past. Harvard University Press
Sayer A (2000) Realism and Social Science. SAGE Publications Ltd, 1 Oliver's Yard, 55 City Road, London EC1Y 1SP United Kingdom
Scheidel A, Del Bene D, Liu J, et al (2020) Environmental conflicts and defenders: A global overview. Global Environmental Change 63:102104. https://doi.org/10.1016/j.gloenvcha.2020.102104
Scheidel A, Fernández-Llamazares Á, Bara AH, et al (2023) Global impacts of extractive and industrial development projects on Indigenous Peoples' lifeways, lands, and rights. Sci Adv 9:. https://doi.org/10.1126/sciadv.ade9557
Scheidel A, Temper L, Demaria F, Martínez-Alier J (2018) Ecological distribution conflicts as forces for sustainability: an overview and conceptual framework. Sustain Sci 13:585–598. https://doi.org/10.1007/s11625-017-0519-0
Schleusener S (2021) A Politics of Things? Deleuze and the New Materialism. Deleuze and Guattari Studies 15:523–542. https://doi.org/10.3366/dlgs.2021.0456
Schneider A, Ingram H (1993) Social Construction of Target Populations: Implications for Politics and Policy. American Political Science Review 87:334–347. https://doi.org/10.2307/2939044

Schneider A, Sidney M (2009) What Is Next for Policy Design and Social Construction Theory? Policy Studies Journal 37:103–119. https://doi.org/10.1111/j.1541-0072.2008.00298.x
Schröter M (2013) Silence and Concealment in Political Discourse. John Benjamins
Schutte O (1998) Cultural Alterity: Cross-Cultural Communication and Feminist Theory in North-South Contexts. Hypatia 13:53–72. https://doi.org/10.1111/j.1527-2001.1998.tb01225.x
Schweiger E, Tomiak K (2022) Researching Silence: A Methodological Inquiry. Millennium: Journal of International Studies 50:623–646. https://doi.org/10.1177/03058298221083999
Scott JC (1985) Weapons of the Weak. Yale University Press, New Haven, CT
Scott JC (1998) Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed
Scott JC (1996) State simplifications: Nature, Space and People. American Society for Political and Legal Philosophy 38:42–85
Seljamaa E-H, Siim PM (2016) Where silence takes us, if we listen to it. Ethnol Eur 46:5–13. https://doi.org/10.16995/ee.1184
Senghor LS (1969) Anthologie de la nouvelle poésie nègre et malgache de langue française, 9th edn. Presses Universitaires de France, Paris
Serres M, Latour B (1995) Conversations on science, culture, and time. University of Michigan Press
Shapin S, Schaffer S (1985) Leviathan and the Air- Pump: Hobbes, Boyle, and the Experimental Life. Princeton University Press, Princeton, N.J.
Shigeatsu H (2019) La Forêt amante de la mer. Domaine sauvage
Simon HA. (1996) The sciences of the artificial. The MIT Press
Sorensen MJ (2008) Humor as a Serious Strategy of Nonviolent Resistance to Oppression. Peace & Change 33:167–190. https://doi.org/10.1111/j.1468-0130.2008.00488.x
Spivak GC (1988) Can the Subaltern Speak? In: Nelson C, Grossberg L (eds) Marxism and the Interpretation of Culture. Basingstoke: Macmillan, pp 271–313
Steffen W, Broadgate W, Deutsch L, et al (2015) The trajectory of the Anthropocene: The Great Acceleration. The Anthropocene Review 2:81–98. https://doi.org/10.1177/2053019614564785
Stoller Paul, Olkes Cheryl (1989) In sorcery's shadow : a memoir of apprenticeship among the Songhay of Niger. University of Chicago Press, Chicago
Supiot A (2015) La Gouvernance par les nombres -- -- 2015
Swedish Ministry of Agriculture (2007) Regeringens proposition. Jordbruksdepartementet, Stockholm
Swedish Ministry of Agriculture (2004) Det går långsamt fram – jämställdheten inom jordoch skogsbrukssektorn [Slow to progress - gender equality in the agriculture and forestry sector]. Stockholm
Swedish Wood (2024) The world needs Swedish timber - Swedish Wood. In: https://www.swedishwood.com/about_us/news/2024/5/the-world-needs-swedish-timber/. https://www.swedishwood.com/about_us/news/2024/5/the-world-needs-swedish-timber/. Accessed 28 Nov 2024
Tannen D (1985) Silence: Anything But. In: Tannen S-TD (ed). Praeger, Norwood, pp 93–111
Tassin J (2015) André Aubréville (1897-1982), a pioneering forester and a visionary mind. Bois et Forêts des Tropiques 323:7. https://doi.org/10.19182/bft2015.323.a31240

Tchoumba B (2005) International Labour Organization Project to Promote ILO Policy on Indigenous and Tribal Peoples (PRO 169) Indigenous and Tribal Peoples and Poverty Reduction Strategies in Cameroon
Thiesmeyer L (2003) Discourse and Silencing. John Benjamins Publishing Company, Amsterdam / Philadelphia
Thornton JK (2020) The Development of States in West Central Africa to 1540. In: A History of West Central Africa to 1850. Cambridge University Press, Cambridge, pp 16–55
Tollin C (2019) Svedjebruket i syd- och mellansverige för den agrara revolutionen, med särskild inriktning på tidigmodern tid. Bebyggelsehistorisk tidskrift 77:23–41
Torres G (2020) Institutional Resistance To Transparency: The Quest for Public Sector Information in Mexico. Journal Of Resistance Studies 5:. https://doi.org/10.33767/osf.io/2bxsy
Towns A, Adams P, Gavey N (2003) 2. Silencing talk of men's violence towards women. John Benjamins Publishing Company, pp 43–77
TRAFFIC KCH (2008) Lost in Transit: Export and Import Protocols as Contributors to Discrepancies in International Timber Trade Data. Cambridge
Tsing AL (2003) Natural Resources and Capitalist Frontiers An Abandoned Logging Road. Econ Polit Wkly 38:5100–5106
Tsing AL (2011) Friction. Princeton University Press
Umaerus P, Högvall Nordin M, Lidestav G (2019) Do female forest owners think and act "greener"? For Policy Econ 99:52–58. https://doi.org/10.1016/j.forpol.2017.12.001
UNESCO (2024) Yangambi - Man and the Biosphere Programme (MAB). https://www.unesco.org/en/mab/yangambi. Accessed 21 Nov 2024
UNESCO (1981) Domination or sharing? Report on Indigenous Development and the transfer of knowledge
United Nations (2002) France | Statement by His Excellency Mr. Jacques Chirac. https://sdgs.un.org/statements/france-14917. Accessed 9 Dec 2024
Vainio A, Paloniemi R (2013) Adapting to the gender order: Voluntary conservation by forest owners in Finland. Land use policy 35:247–256. https://doi.org/https://doi.org/10.1016/j.landusepol.2013.05.017
van den Bosch M (2017) Impacts of urban forests on physical and mental health and wellbeing. In: Routledge Handbook of Urban Forestry. Routledge, London ; New York : Routledge, 2017., pp 82–95
Van Reybrouck D (2012) Congo. Une histoire. Actes Sud
Vanderweyen R, Moureau J, Buyckx EJE, et al (1953) Le Palmier à huile (Elæis) et sa culture au Congo. Revue internationale de botanique appliquée et d'agriculture tropicale 33:1–19. https://doi.org/10.3406/jatba.1953.6558
Vaughan M (1991) Curing their Ills: Colonial Power and African Illness. Polity Press, Cambridge
Verweijen J, Marijnen E (2018) The counterinsurgency/conservation nexus: guerrilla livelihoods and the dynamics of conflict and violence in the Virunga National Park, Democratic Republic of the Congo. J Peasant Stud 45:300–320. https://doi.org/10.1080/03066150.2016.1203307
Voskoboynik DM, Andreucci D (2022) Greening extractivism: Environmental discourses and resource governance in the 'Lithium Triangle.' Environ Plan E Nat Space 5:787–809. https://doi.org/10.1177/25148486211006345
Wang J, Kádár DZ (2018) Silence and Absence in Chinese Smog Discourses. Exploring Silence and Absence in Discourse 191–212. https://doi.org/10.1007/978-3-319-64580-3_7

Wardhaugh R (1985) How Conversation Works. Basil Blackwell, Oxford
Weiskopf R (2023) Dis/organising visibilities: Governmentalisation and counter-transparency. Organization 30:326–344. https://doi.org/10.1177/1350508421995751
Weiss TG (2000) Governance, Good Governance, and Global Governance: Conceptual and actual challenges. Thinking about Global Governance: Why People and Ideas Matter 21:168–189. https://doi.org/10.4324/9780203807057-19
West Paige (2016) Dispossession and the environment : rhetoric and inequality in Papua New Guinea. 195
Westley F, Olsson P, Folke C, et al (2011) Tipping Toward Sustainability: Emerging Pathways of Transformation. Ambio 40:762–780. https://doi.org/10.1007/s13280-011-0186-9
Wetterberg G (2024) Träd : en vandring i den svenska skogen, 1st edn. Albert Bonniers Förlag
White LJT, Masudi EB, Ndongo JD, et al (2021) Congo Basin rainforest — invest US$150 million in science. Nature 598:411–414. https://doi.org/10.1038/d41586-021-02818-7
Wieslander M (2021) Challenging and destabilizing official discourses: irony as a resistance resource in institutional talk. Culture and Organization 27:16–32. https://doi.org/10.1080/14759551.2019.1699093
Willey A (2016) A World of Materialisms. http://dx.doi.org/101177/0162243916658707 41:991–1014. https://doi.org/10.1177/0162243916658707
Willow AJ (2018) Understanding ExtrACTIVISM, 1st edn. Routledge
Windey C (2020) From Geocoded to Entangled Landscape: Forests, REDD+ Environmental rule and everyday practices in the DR Congo. University of Antwerp
World Bank (1989) Sub-Saharan Africa: From Crisis to Sustainable Growth. World Bank, Washington D.C.
World Bank (1991) The Forest Sector. The World Bank, Washington D.C.
World Bank (2009) Awakening Africa's sleeping giant: prospects for commercial agriculture in the Guinea Savannah Zone and beyond. World Bank, Washington D.C.
World Bank (2010) Enhanced Integrated Framework (EIF) Diagnostic Trade Integration Study. Kinshasa
World Health Organization (2024a) Democratic Republic of the Congo. In: World Health Organization. https://data.who.int/countries/180. Accessed 27 Nov 2024
World Health Organization (2024b) Cameroon. In: World Health Organization. https://data.who.int/countries/120. Accessed 27 Nov 2024
World Health Organization (2024c) Sweden. In: World Health Organization. https://data.who.int/countries/752. Accessed 27 Nov 2024
Yellen JE, Brooks AS, Cornelissen E, et al (1995) A Middle Stone Age Worked Bone Industry from Katanda, Upper Semliki Valley, Zaire. Science (1979) 268:553–556. https://doi.org/10.1126/science.7725100
Zalewski M (2006) Distracted reflections on the production, narration, and refusal of feminist knowledge in International Relations. Feminist Methodologies for International Relationse 42–61. https://doi.org/10.1017/CBO9780511617690.004
Zhao Y, Krott YM, Ongolo S (2020) The governance of global forest statistics: case study on forest products trade between Sub-Saharan Africa and China. International Forestry Review 22:408–424. https://doi.org/10.1505/146554820830405591

APPENDIX. DATA USED FOR THIS THESIS

Table. Data used for this thesis

Source	Type	Total selected documents
Desktop search (Scopus, FAOLEX, Web of Science, Google Scholar)	**Article I** Swedish policy documents from the Swedish Board of Agriculture (2), the Swedish Forest Agency (1) and the Ministry of Enterprise and Innovation (3). **Article II** Peer-reviewed scientific articles in English and French (296) **Article III** Peer-reviewed, scientific articles English (42) and French (9) language. **Article IV** Policy documents from Cameroon (15), the DRC (32) and multilateral agreements (4).	**Article I** N = 6 **Article II** N= 296 **Article III** n = 51 **Article IV** N=51
Semi-structured interviews	**Article I** 18 forest experts, including forest owners and practitioners (15 female, 3 male), from academia (n = 6), government (n = 2), the private sector (n = 6), forest owners (n = 3) and members of female networks (n = 7). Conducted through video-call in Sweden. **Article III** 15 semi-structured interviews conducted with 20 people involved in the production of forestry knowledge. senior scientists (11), junior researchers (5) and people involved in research projects (4). Carried out in-person, during field work in the DRC. **Article IV:** 99 interviews conducted with 137 informants, conducted in: DRC: academia (1), central government (5), large-scale operator (10), local community member (2), local government (11), media (1), NGO (2), professional association (1), small-scale operator (11) = 44 informants Cameroon: central government (8), consultant (2), development bank (1), intergovernmental	**Article I** N = 18 **Article III** N = 20 informants **Article IV** N= 143

	organization (2), International cooperation agency (1), international research organization (3), large-scale operator (11), maritime shipping company (2), media (2), national EU delegation (1), NGO (8), professional association (3), public company (3), small-scale operator (1) = 48 informants France: consultant (1), international cooperation agency (1), professional association (3) = 5 informants China: academia (13), international cooperation agency (2), large-scale operator (4), NGO (14), port customs (3), private collector (3), professional association (1) = 40 informants In-person, during field work in Cameroon, the DRC, France and China.	
Archives search Archives of the Ministry of Foreign Affairs, Brussels Archives Africaines (1885-1962), attributions des services de l'État Indépendant du Congo et de l'ancien ministère des Colonies et des Affaires africaines Archives Diplomatiques (1830-1934), Correspondance diplomatique et consulaire belge Henri Morton Stanley Collection, Tervuren Royal Library of Belgium, Brussels General library collection, Tervuren Yangambi herbarium, Tshopo Province, DRC	**Article III** Colonial government reports, correspondences (6) Colonial and institutional scientific publications (28) Travel literature - Journals and correspondence of Henri Morton Stanley (18 letters) Herbarium collection (194 samples)	**Article III** Archival records n = 249