

# The political ecology of deforestation. Notes on three contributions to the subject<sup>1</sup>

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## Abstract

This review essay introduces three recent contributions to the issue of deforestation from a political ecology perspective. The case studies examined, Western United States, Indonesia and India, exemplify the power relations and the distributional issues that surround the practices of forest management in these geographical contexts. Thus one common focus of the books is who benefits and who loses from the processes of environmental change induced by forest management.

**Key words:** deforestation, political ecology, power relations, Western United States, Indonesia, India.

## Resum. *L'ecologia política de la deforestació. Notes entorn de tres contribucions al tema d'estudi*

Aquest estat de la qüestió introdueix tres contribucions recents al tema de la desforestació utilitzant la perspectiva de l'ecologia política. Els casos d'estudi examinats, l'oest dels EUA, Indonèsia i l'Índia, palesen les relacions de poder i les qüestions distribuicionals que envolten les pràctiques de gestió forestal en aquests tres contextos geogràfics. Un punt focal dels tres llibres és, doncs, qui se'n beneficia i qui hi perd pel que fa als processos de canvi ambiental generats per la gestió forestal.

**Paraules clau:** deforestació, ecologia política, relacions de poder, oest dels EUA, Indonèsia, Índia.

## Resumen. *La ecología política de la deforestación. Notas sobre tres contribuciones al tema de estudio*

El presente estado de la cuestión introduce tres contribuciones recientes al tema de la deforestación utilizando la perspectiva de la ecología política. Los estudios de caso examina-

1. W. SCOTT PRUDHAM (2005). *Knock on Wood. Nature as commodity in Douglas-Fir county*. Routledge. ISBN 0-415-94401-5, p. 260.  
Anna LOWENHAUPT TSING (2005). *Friction. An Ethnography of Global Connection*. Princeton University Press. ISBN 0-691-12064-1, 321 p.  
Arun AGRAWAL (2005). *Environmentality. Technologies of Government and the Making of Subjects*. Duke University Press. ISBN 0-8223-2480-1, 325 p.

dos, el oeste de los EEUU, Indonesia e India ejemplifican las relaciones de poder y las cuestiones distribucionales que rodean las prácticas de gestión forestal. Así, el nexo de unión de los tres libros es quién se beneficia y quién sale perdiendo en los procesos de cambio ambiental inducidos por la gestión forestal.

**Palabras clave:** deforestación, ecología política, relaciones de poder, oeste de EEUU, Indonesia, India.

**Résumé.** *L'écologie politique de la déforestation. Notes sur trois contributions récentes sur le sujet*

Le présent état de la question propose trois contributions récentes sur l'étude de la déforestation selon la perspective de l'écologie politique. Les études de cas examinés, l'ouest des États Unis, l'Indonésie et l'Inde, fournissent des exemples sur les relations entre le pouvoir et les questions distributionnelles concernant les pratiques de gestion forestière. Ainsi, le point de concordance des trois ouvrages présente les bénéfices et les pertes au sein des processus de changements environnementaux liés à la gestion forestière.

**Mots clé:** déforestation, écologie politique, relations du pouvoir, ouest des États-Unis, Indonésie, Inde.

Political ecology is a critical inter-disciplinary research field with a radical political agenda. Political ecology analyzes environmental problems from the vantage point of power relations and distributional issues (who benefits and who loses from environmental change and how) and with a critical eye on the uneven processes through which environmental problems are discursively and socially constructed.

This review presents three recent political ecological contributions to the issue of deforestation. Each book engages a different disciplinary field (Prudham economics and geography, Tsing, anthropology and cultural studies, and Agrawal political studies) and forests in very different parts of the world (Western US, Indonesia and India, respectively).

«Knock on Wood» is a political-ecological analysis of forestry in the Douglas-Fir region of Oregon, one of the most important timber-producing and wood-product manufacturing areas in U.S and the world. Like many political ecologists, Prudham finds unproductive —analytically and politically— the bipolar between the «limits to growth» thesis vs. the unlimited market and technology-driven growth thesis of mainstream economics (p. 9). In the historical development of the logging industry, Prudham sees not a story of progress and conquest of natural limits, but an «evolving dialectical relationship» in which limits are transformed and reconfigured and new natures —with new problems— produced (p. 83). Importantly, he goes beyond a broad thesis of interdependence between economic and ecological systems to elaborate *how exactly* forest nature matters in logging and reforestation and more so, in Douglas Fir specifically (in what he calls a resource and place specific «regional political ecology»).

Prudham identifies three key factors through which nature affects nature-based industries: constraints of physical space; disjunction between time/rates of natural vs. economic production; and physical form (e.g. commodity's ratio of value to weight). The fixity of mills in land for example, presents industry with a trade-off between owning land and securing long-term access to raw material while exploiting economies of scale (but at the risk of being devalued if economic conditions change) vs. depending on market transactions for trees and being small and mobile (but reducing scale economies and long-term security of supply).

In the Marxist tradition, and drawing from Polanyi and James O'Connor, Prudham sees capitalism as a dynamic system of creative destruction, prone to generate and resolve — partially and temporarily— ecological crises. The fundamental contradiction of the market system stems from commodification and the treatment of nature's products (such as trees) as commodities when these are not (at least, not only, i.e. they are not entirely produced by human hands and for human ends). This disjuncture between commodity production and biophysical nature is a source of crises that undermine the conditions of production (i.e. by resource exhaustion or pollution). Industry's responses to these crises include the relocation of activities and strategies of appropriation (e.g. developing advanced logging technologies) or substitution (e.g. substituting plastic for wood products). These spatial or technological «fixes» generate new ecological problems. Social movements emerge to contest the impacts from this expansion of the market/commodity system and stake competing claims (Polanyi's «double movement»).

With this analytical framework in mind, Prudham goes on to examine forestry in the Douglas-Fir region. Chapters 2-5 examine the effects and interplay of three types of natural constraints with political-economic conditions on: work relations in logging and reforestation (chapter 2), industrial organization (chapter 4), logging industry's specialization (chapter 3) and reforestation activities (chapter 5).

Extensive geographies, frequent relocations of activities, landscape heterogeneity and variable weather confront the continuous deployment of labor, undermine labor supervision and impede the predictability and rationalization of production in logging and reforestation led firms to seek flexibility in production relations. Prudham shows how these factors played out with the specific politics, economics and historical contingencies of the region to produce the specific institutional arrangements that are observed (piece-rate wages / production contracts, repeat contracts and some other company-specific variants).

The industrial organization of the timber industry in Douglas-Fir is characterized by relatively small firms and only a few larger ones. Prudham explains how economies of scale and scope are limited in the wood industry by the heterogeneity and physical form of logs. Firms face a trade-off between increased throughput and economies of scale vs. the increasing transportation costs of additional supplies given the physical form of logs and the spatial extension

of forests. The mills that achieved bigness in Douglas Fir are those few who managed to secure —through political and market means— ownership of a proxime, surrounding «timbershed» and in addition were able to diversify production of wood commodities to suit the diverse mix of logs coming from the forest.

Regional industry's specialization in solid wood-products relates to the specific type of forest stocks initially available, i.e. large, old-growth Douglas-Fir trees. As the industry exhausts old-growth forest however, it moves to the adoption of new energy and chemicals-intensive production techniques that allow the production of new wood products and in this way utilize the more diverse tree stock remaining in the forest. But such appropriation and substitution «fixes» raise in turn new health and environmental concerns due to chemical pollution, greenhouse gas emissions, etc.

In parallel, industry has responded to the exhaustion of old-growth forest with hesitant steps towards reforestation. The disjunction in time rates of ecological and economic production, i.e. the long lags between investments and returns in tree breeding, are a key limiting factor for private investments reforestation. Prudham emphasizes that it was the State and public research institutions that undertook what private capital could not —or was not willing— to do, i.e. invest and experiment with new tree varieties. Tree breeding programs and genetic resources have been shared, since breeding zones typically have to span multiple ownerships. In this respect, the recent shift to genetically-engineered trees can be understood as an effort of the industry to create more formal and exclusive property rights in this previously shared space of knowledge. The success of this increasing commodification however largely depends on state support and public science, Prudham argues.

In the last two chapters of the book, Prudham addresses how new forms of social regulation (a terminology inspired from the French «Regulation School» of thought) emerge to deal —temporarily— with capital's ecological crises. Two forms of social regulation are examined: sustained yield (chapter 6) and the more recent, New Forestry paradigm (chapter 7).

Sustained yield emerged out of the crisis of cut-and-run forestry and was a rational effort to secure forest renewal and community welfare stability. In turn, recent ecological and social crises stem from the failures of sustained yield. Sustained yield treated forests as assemblages of timber volumes neglecting ecological complexity and hence failed in its renewal goals. Furthermore, it was naïve in expecting that stability in harvests and in relation, community welfare was possible in the face of a dynamic capitalist system with cyclical industrial downturns of over and under production.

The concluding chapter 7 turns to the problem that provided the impetus for the book in the first place: the spotted owl controversy, the most important conservation crisis in post-war US. The protection of the spotted owl and its habitat under the Endangered Species Act (ESA) brought to an end the liquidation of old-growth federal forests in Douglas-Fir and led to a dramatic reduction of timber sales. Prudham dismisses the dominant «environment vs.

jobs» discourse. He argues that the owl controversy should be understood in light of the broader historical dynamics of the industry in the region. «The origins of environmental problems are located in the very character of capitalist society», Prudham argues, implying the inexorable growth and expansion of wood production driven by the quest for accumulation and profit as well as the (pre-ESA) deprivation of local communities as a result of industry's restructuring and relocations. The disappearing owl is not the issue per se, but rather an emblem and an instrument for an environmental movement reacting to an intensifying old forest clearance. Prudham relates the crisis to the failures of sustainable yield regulation. In turn, he shows how the owl controversy led to a new form of social regulation, «New Forestry», characterized by integrated, landscape planning and adaptive ecosystem management. He questions however the viability of New Forestry in so far as it does not challenge the issue of commodification of forest per se, taking economic demands as exogenous and given.

In the words of the author, the structure of the book is «episodic». Different chapters shed light on different aspects of the dialectical evolution of industry and forest. Each chapter is interesting in its own respect. But all together fall somewhat sort of addressing convincingly the driving question of the book, the owl controversy (perhaps a longer and more elaborated final chapter making s connections to the rest of the book would have helped). Echoing other political ecologists, Prudham is critical of the political programs —presumably of some environmentalists— based on premises of return to an «original nature». For Prudham, «the challenge is to re-imagine a politics of nature's social production and to ask what sorts of nature are desirable and who should decide» (p. 138). Unfortunately, as he concedes in the last paragraph of the book, he «offers few explicit solutions» in this direction. For example, he does not explain why environmentalists' success to set aside part of federal forests from further logging is a «bourgeois» wish for wilderness (p. 185) and not a —partial— victory over encroaching commodification. Neither does he defend his wholehearted rejection of commodification against potential critics. For example, less radically-inclined ecological economists would possible see some merit for market instruments for forest protection, at least within a well-regulated public system.

The accusation of «capitalism» as the source of forest degradation inevitably raises the question which alternative socio-economic system(s) would not cause the same outcomes, why and how. Perhaps this is too much to ask from a single book, but if political ecology is to become more politically relevant, some engagement with visions of an alternative ecological economy and polity is necessary.

«Knock on wood» is a best example of cross-disciplinary, problem-oriented research output. It skillfully combines theoretical arguments with empirical, quantitative and qualitative, data and exhibits an impressive and deep understanding of spatial economics, industrial logging and forest ecology as relevant to the empirical case. The book is written in clear and relatively sim-

ple language, addressed though to an academic and not a lay, audience. It is a suitable reading material for graduate courses in economic geography or political ecology and highly recommended to researchers concerned with the political ecology of environmental problems.

In «Friction», Tsing starts from the same vantage point as Prudham: forests are not wild nature, she argues. They are the complex socio-natural outcome of projects from spatially far-flung collaborations and interconnections. Tsing positions her work squarely within a dialectical, political-ecological framework. The goal is to expose the interrelated local-global processes underlying both the destruction and the conservation of the Meratus mountains' forest in Kalimantan, Indonesia.

Friction is more than resistance, Tsing explains. It is a creative force that makes movement(s) possible: a wheel turns because of its encounter with the road. Tsing uses the metaphor to transcend dichotomies between the universal and the culturally specific, the global and the local. She targets neo-Marxian theories that reduce globalization as a world centers'-driven deterministic advance to a global era. Tsing argues that projects in peripheral localities are the outcome of the productive friction between multiple understandings of global universals (such as what she calls «Nature» or «Prosperity») and their multiple culture-specific translations and practical engagements. In a world of divergent claims the most effective projects are those that manage tentatively productive linkages between projects at different scales; international, national, regional and local. Tsing shows how interconnections between international finance capital, franchise cronyism of the Suharto regime and wealth-seeking individuals combined to produce the logging frontier of Kalimantan. Tsing describes vividly how this frontier spiraled out of control during Indonesia's financial crisis leading to the devastating fires of 1997. Recognizing these interconnected scalar dynamics however allows for some hope in the midst of despair. Tsing argues that the successful overturn of a logging concession at the Manggur community was the result of collaboration between environmental NGOs at Jakarta utilizing international connections and «charismatic» global discursive packages (e.g. about Amazonia), provincial urban-based student groups of nature-lovers and the local community leaders. These three groups had divergent understandings of the 'Forest' and incongruent goals and motivations. They all agreed however that something should be done for the forest. Productive confusion allowed them to work—with friction— across cultural differences for a successful multi-scalar collaboration.

The book is organized in three sections, each corresponding to one universal: Prosperity, Knowledge and Freedom. Tsing calls her approach fragmentary. She patches together several episodes to build her argument. Each is a case of extreme interest in its own right: «frontier» logging in Kalimantan (chapter 1), gold extraction and the speculative rise and demise of the Canadian company Bre-X (chapter 2), visions of nature, from John Muir and the Sierra Club, to climate modelers and the International Tropical Timber Organization (chapter 3), the history of student nature-loving groups (chapter 4),

Indonesia's environmental movement (chapter 6) and the Manggur concession case (chapter 7). These are complemented by several personal, theoretically-informed, anecdotes such as a list of local plant species constructed by a Kalimantan elder and its friction with Linnaeus classifications, or the story of a business manager from Singapore, and the multiple timely inter-connections underlying the export of coal. Several brilliant concepts that would deserve a book on their own are also thrown out in several instances (e.g. «spectacular accumulation» in chapter 3 or the «tragedy of the tragedy of the commons» in page 35, the «tragic result of state and corporate policies that assume and enforce open-access conventions as the flip side and precondition of private property»).

Friction makes us think that the fate of Sustainability, a main universal of contemporary interest, will not be decided by its «proper» theoretical definition, but by the ability of its culturally-specific translations working in friction at multiple-scales, to produce change-bringing collaborations. Tsing also challenges us to think beyond a romanticized and naïve view of collaborative (participatory) processes as democracy in action, or their easy dismissal for being captured by elites and their discourses. Collaboration, she argues, draws attention to the formation of *new* cultural and political configurations (for good or for bad) that change the arena of conflict, rather than just repeat old contests.

More ambitiously, and in a truly interdisciplinary fashion, chapter 5 of the book tries to transcend divisions between social and natural environmental sciences or political ecology and biology. The reciprocal ecological interactions between humans (and their variable practices), animals and plants in the making of central Meratus mountains' landscape are beautifully detailed. Tsing proposes a method to transcend social-nature divides by focusing on «gaps». Gaps are conceptual spaces and real places into which powerful universal demarcations do not travel well. Conceptual gaps of definition and real «grey» areas on the landscape. Four such gaps are examined between: the cultivated and the wild; subsistence and market economies; farm and forest (private or communal property vs. «familiar territories»); and settlements and hinterlands (recognized «communities» vs. shadow communities). Locals' perception and language of these areas is juxtaposed to those of outsiders. It is through friction in communication that these areas and their demarcations are changed. But while an interesting research avenue, I felt that the concept of gaps is not pushed forward as it could be, and it remains partly disconnected from the rest of the book.

A notable exception to Tsing's otherwise meticulous documentation of her points, is the case-study of the (defeat of the) Manggur logging concession (chapter 7, «A forest of collaborations»). Here Tsing does not give adequate information about the case to allow us evaluating whether it is indeed as she argues, an example of a successful collaboration between different actors. For example, parts of the story made me think that perhaps the withdrawal of the concession by the State was accidental, if not just temporal. There is no evidence

to judge whether the collaboration between disparate interests worked *despite* differences, or *because* of them, as Tsing more ambitiously argues as the main thesis in her book. In turn, this lack of support undermines Tsing's argument that there is no need for homogeneity in goals or understandings within social movements. The projects that led to the destruction of the forest did share a coherent set of goals at all scales: short-term profit. Cultural or lingual differences may partly impede collaborations, but all business actors (trans-national, State and local) talk the same language of money. Shouldn't environmental-social movements build also a more coherent set of aspirations; a —partly— shared utopia, if they are to achieve something more than symbolic changes here and there? Tsing suggests that they do not: successes can come through a creative friction between differences. But, one might read in the history of the Indonesian environmental movement, precisely the opposite, i.e. the unavoidably short duration and eventual ineffectiveness of social collaborations built around incongruent objectives. Indeed Tsing herself tells us that having to become constructive after the fall of the Suharto-regime (the common enemy that united social movements), the disparate interests that environmental NGOs had built with other social groups collapsed in the face of differences.

This highlights a broader tension in the book between friction as a descriptive pattern and friction as a concept with analytical power. All socio-natural projects have global-local friction and translation across differences at their heart (i.e. friction does exist). But this does not tell us which projects succeed, how and why (i.e. is friction desirable?). Tsing hints to the creative power of friction, but leaves its specific structure and dynamics unaddressed.

Friction is an enjoyable book, theoretically-rich yet written in simple, easy to understand language and hence usable for advanced undergraduate/graduate teaching. Researchers on political ecology, the political economy of globalization and its impacts on resource use, forest management and conservation or collaborative (participatory) processes will find a lot of food for thought in this book.

Arun Agrawal's «Environmentalism», uses a catchy term combining the words environment with Foucault's theory of governmentality, particular popular in the social sciences recently. Governmentality is concerned with «how modern forms of power and regulation achieve their full effects not by forcing people toward state-mandated goals but by turning them into accomplices» (p. 217). In this book, Agrawal shows how «government at a distance» through devolution of power from central to local authorities may provide a more effective and efficient means for resource management by making citizens accomplices in regulation, and in the process, transform them into «environmental subjects», i.e. individuals who care about the environment. In the concept of Environmentalism, Agrawal sees a potential analytical device that combines new institutional (common property) theorists' interest on decentralized institutional arrangements with political ecologists' work on power and politics, and —what he calls— «feminist environmentalism» with its focus on identity in relation to the environment. Environmentalism therefore is an optic to

examine interrelated changes between environmental politics, knowledge/power, institutions and subjectivities.

This optic is applied to examine the historical and contemporary politics of forest management in Kumaon, India. The interest in this case-study stems from it being the world's oldest surviving instance of decentralized forest regulation. Formal state-community partnerships through village forest councils were instituted in Kumaon in the 1930s. Decentralization in Kumaon was state's strategic response to intense local reaction against earlier punitive government policies for forest conservation. Agrawal describes how decentralization of government produced new centers of environmental decision-making, that he calls «governmentalized localities». New regulatory bodies emerged to shape forest-related interactions in local communities («regulatory communities»). The core of the book's argument is that, first, these new decentralized institutional arrangements of governmentalized localities have been proven much more effective than previous, centralized, top-down efforts of government to enforce and monitor forest conservation, and, second, that the participation of (some) Kumaon residents in the regulatory communities has helped them realize intensifying scarcities and benefits from forest conservation, transforming them into «environmental subjects». In that the book makes a strong case in support of decentralized resource conservation governance pointing not only to its effectiveness, economic benefits and fine-tuned control and compliance mechanisms, but also to its transformative potential, by engaging subjects in practical implementation.

The book is divided in two parts. Part I (Power/Knowledge and the Creation of Forests) looks at technologies of governing the forest in India and pre-1930s Kumaon. Chapter 2 shows how statistics and numbers as forms of knowledge made centralized forms of government possible and how they brought into being what today is understood as the Indian forest. Chapter 3 describes these centralized forms of control and shows how they failed in Kumaon instigating local revolt and sabotage by the excluded from the forest population. This paves the way for the second part of the book where the new decentralized technology of government is examined. Chapter 4 describes the emergence of the governmentalized localities whereas chapter 5 looks in more detail inside the regulatory community documenting differences and improvements compared to centralized control. Chapter 6 is concerned with the making of environmental subjects through «intimate government» and regulatory practice. Chapter 7 concludes by presenting the theoretical corpus of environmentalism.

The methodology combines quantitative with qualitative information and there is a strong effort by Agrawal to systematize and back claims with numerical data extracted from archives and interviews. The evidence does not appear always conclusive. For example, there is no definitive data to support the main thesis, i.e. that decentralization has improved forest management/condition or that it reduced infractions. Indeed, Agrawal himself recognizes the difficulties of such a task given the lack of reliable temporal data collected by the

villages and the fact that better enforcement/monitoring may lead to better detection of infringements, hence give a false picture of increasing violations. Concerning subject formation, chapter 6 provides temporal and cross-comparative data from interviews that substantiates an association between proximity to regulation and environmental awareness. The main variable is the degree of agreement of residents to the statement that the «forest should be protected» with a differentiation between «environmental» and «economic» reasons (though Agrawal recognizes elsewhere that such a distinction cannot be easily maintained). There is a discrimination in the regression against other types of practices, subject identifications vis-à-vis village characteristics that may influence environmental awareness. Furthermore, one could hypothesize that the increased awareness is not an outcome of participation in regulation, but simply of more exposure of the residents to environmental protection discourses, partly transforming their rhetoric. Agrawal defines as environmental subjects those who care about the environment and in relation perform some of their actions (not necessarily leading to conservation), but still awareness for forest protection is a rather «thin» indicator.

In the trade-off between new institutionalists' formality vs. political ecologists' holism, and their respective emphasis on quantitative vs. qualitative analysis, Agrawal tilts towards the first. This quest for methodological elegance does injustice to some of the most interesting questions posed in the book. For example, while most of chapter 6 is concerned with the empirical documentation of a simple (rather obvious) association between environmental awareness and participation in regulation, the multiple and intricate forces that must have combined to transform residents of these villages in time from saboteurs to collaborators in environmental protection are left unaddressed. Similarly, the State (in the face of the Forest Department) is reduced to a rational actor with a clear, undisputed goal to reserve the forest for sustainable harvesting, unchanged from colonial 19<sup>th</sup> century to modern day India. This reduction may conform to new institutionalisms' requirements for formal reasoning and modelling but runs counter to Agrawal's own call for a more refined analysis of groups, interests and power dynamics. Indeed, the book is at its best when detailed narrative information is provided e.g. about variations in regulatory practices or about the ways in which decentralized government works for the better (chapters 4 and 5). An ethnographic type of research appears better suited to the type of Foucauldian governmentality research envisaged by Agrawal.

Despite such shortcomings, «Environmentality» flags an exciting research agenda for a multi-disciplinary study of environmental politics combining elements from institutional, power/access and subject/identity analysis. As such it will be of interest for scholars in the fields of environmental policy and politics and it will give food for thought to scholars in the three broad literatures that it addresses. Policy-makers in environment and natural resources will find interest in the strong case made for decentralized governance (though it is not clear to which extent and under which conditions the Kumaon experience is transferable to other areas and/or other types of resources).

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