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Forests and Ecological History
of Assam, 1826–2000

ARUPJYOTI SAIKIA

Forests and Ecological History of Assam, 1826–2000

This book presents a comprehensive account of the transformation of Assam's forests and ecology from the early-nineteenth century to the end of the twentieth century. It locates present-day ecological conflicts in the colonial era when contest over forests, land, and resource began to take new shape.

Arupjyoti Saikia delineates how forest resources in Assam were mapped and integrated with merchant capitalism since the early nineteenth century. He shows how imperial forestry practices led to changes in traditional resource utilization patterns. The book also examines the political economy of conservation practices. It explores the question of law and conservation, role of institutions and organizations, and the changing role of the forests in imperial economy.

Forests and Ecological History of Assam argues how the making of forest policy in the post-colonial period was defined by the complexities of the political matrix. It discusses plantations, silvicultural practices, protection and regeneration of forests, and livelihood practices. The author also analyses public debates surrounding ecology and environment and changes in conservation practices after the 1980 Act.

This book will interest scholars and students of modern Indian history and environmental studies, particularly those concerned with northeast India. It will be an invaluable resource for ecologists, environmentalist, conservationists, and policymakers.

Arupjyoti Saikia is Assistant Professor in history at the Department of Humanities and Social Sciences, Indian Institute of Technology, Guwahati.

*Jacket visual: Coal exploration and tea plantation in an erstwhile densely forested area of eastern Assam.
Courtesy Arupjyoti Saikia*

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UNIVERSITY PRESS

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YMCA Library Building, Jai Singh Road, New Delhi 110 001

Oxford University Press is a department of the University of Oxford. It furthers the University's objective of excellence in research, scholarship, and education by publishing worldwide in

Oxford New York

Auckland Cape Town Dar es Salaam Hong Kong Karachi Kuala Lumpur
Madrid Melbourne Mexico City Nairobi New Delhi Shanghai Taipei Toronto

With offices in

Argentina Austria Brazil Chile Czech Republic France Greece Guatemala
Hungary Italy Japan Poland Portugal Singapore South Korea Switzerland
Thailand Turkey Ukraine Vietnam

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Published in India
by Oxford University Press, New Delhi

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First published 2011

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ISBN-13: 978-0-19-806953-9

ISBN-10: 0-19-806953-7

Typeset in Minion Pro 10/12.6

by Sai Graphic Design, New Delhi 110 055

Printed in India at Rakmo Press Pvt. Ltd., New Delhi 110 020

Published by Oxford University Press

YMCA Library Building, Jai Singh Road, New Delhi 110 001

7210
14/06/11

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Contents

<i>List of Figures and Tables</i>	ix
<i>Acknowledgements</i>	xiii
<i>List of Abbreviations</i>	xvii
Introduction	1
1. Mapping and Imagining Forests: From Mercantilism to Imperial Forestry	20
2. Conservation, Spatial Order, and New Landscape	69
3. Regional Forest: Institutions and Organizations	114
4. Forests in Assam: Merchant Trade to Imperial Economy	146
5. Science in the Forests: Rethinking Conservation	205
6. From Game to Wildlife Conservation: Redefining Conservation	253
7. Livelihood Practices and Dynamics of Forest Conservation	306
8. The Political Forests	350
<i>Select Bibliography</i>	359
<i>Index</i>	377

Introduction

The valley of Assam...is in point of physical resemblance closely connected with Bengal...the atmosphere is drier, clearer, less enervating and more wholesome...where forest alternates with stretches of grass or reeds, thick and dense, the home of the rhinoceros, buffalo and tiger.

—*Imperial Gazetteer of India*, 1909

Assam appears as a grand repertoire of mountains, gentle hills, mighty rivers, and sprawling plains covered with rich vegetation. This description of nature goes back to the early Assamese literature,¹ in which nature was seen to be not only grandiose but also integral to the making of the Assamese society. Contemporary literature, however, defies the mystical symbolization of nature and would rather point to the rapid deforestation or depletion of fauna. Environmental loss is painful to record and document. Attention has been drawn to the increasing conflict between humans and animals over their respective habitat. According to popular opinion, the intensity of floods and land erosion, a direct repercussion of deforestation, has become more threatening than previously experienced, compelling peasant communities to forcefully assert their claim over the government owned forest lands. Forest lands have been converted into agrarian zones. The peasant society and their livelihood practices have emerged as the greatest threat to the forested space. That the Indian Forestry programme continued to undermine the livelihood of forest-dependent communities has repeatedly surfaced in Indian political discourse. In doing so, the big capital has also come under the scanner,

generating further debate. All these concerns have been crystallized into a contested history of forest resources. This has created two separate spaces of public debate. One advocates greater preservation of wild animals and biodiversity. Another section, scattered geographically and socially, supports a more rational redistribution of forest areas amongst the community and peasants while a small section endorses a stricter regime of governmental supervision over forest resources. Scarcity of agricultural land for an increasing peasant population has led to the forest land coming under pressure. More forested areas have come under human occupation. The beneficiaries include not only the peasant society but also the industrial–business class.

Can this concern over the environment and natural endowments be historically addressed? If so, is it possible to indicate the defining moment since when dramatic and visible changes can be seen in the forests in Assam? Yes, on several accounts there were perceptible changes in the way the people understood and related with the forests since the nineteenth century. These changes can be broadly understood in terms of management of the jungles, conversion of the forest resources into saleable commodity, and also understanding about the forest. Over the years the wilderness of the forest was tamed and order was brought about. The ‘jungle’ was converted into ‘forest’. Jungle, an erstwhile space for wild animals and ghosts, often memorized through folktales, no more bore a story of unfamiliar and hostile territory.

These forests had traversed a long journey from wilderness to an ordered jungle, from petty trade in forest products to brisk business in the international market, and from hunting areas to national parks. Those changes had far-reaching impact in forest management as well as the perception of the forest. For instance, the sole privilege to extract timber from the forest and to direct the future of forestry remained with the Imperial Forest Department, and it continued with little modification after Independence. By creating and asserting an absolute right of the Forest Department, apart from alienating the traditional rights of the people, the colonial state converted the forest into a commercial commodity. To improve the commercial aspects, management of the forested landscape became vital and it was here that the science of forest management developed. Over the years, both commerce and science went hand-in-hand in the management of forests in Assam. Modern western science as an agency of the colonial state entered into the complex world of forestry to change our perception about nature forever. Changes came

in the pattern of spatial distribution of forest resources. In contrast to the previous history of heterogeneous biomass, the forests now acquired a homogenous character. Within the forest families there was a hierarchy of order which was defined by their commercial importance. Similarly, a new social class came into existence to exploit the forest resources, the benefit of which went to a handful of people who never played any significant role in the society's larger well being or, earned unaccounted profits through this process but did not contribute to the reforestation. There was increasing pressure on the Forest Department to accommodate the interest of non-market forces in deciding the management of forest resources, leading to rapid deforestation. Equally revolutionary was the relation of the forestry programme with the fauna; the transition taking place in the last quarter of the twentieth century. At the same time, the twentieth century also witnessed a contested regime of struggle over the forest resources. The legislative discourses allowed customary agrarian practices like grazing or shifting cultivation to resist hegemony of the imperial forestry programme. The forestry programme had no other option but to negotiate with these claims and key concessions were granted at regular intervals. Amidst these, several popular protests have surfaced, challenging several state-sponsored projects aimed at the further taming of nature. These popular movements have successfully highlighted the onslaught on the local eco-system brought in by these massive projects. At the end of the twentieth century these contested notions of rights took a new turn, resulting in protracted public debate about the idea of forest conservation and utility of the forest resources.

POLITICAL ECONOMY OF MODERN NATURE

These environmental changes—the changes in forest landscape in particular—were not unique to Assam alone. A rich body of historical literature has already contributed to an understanding of the dynamics of changes.² Studies ranging from regional to sweeping coverage of all continents have masterfully related the underlying currents of these changes.³ Works based on the Indian environment have also contributed to this rich body of scholarship and have suggested how State intervention brought enduring changes into the South Asian environment during the colonial era. Despite attempts to generalize the environmental concerns it is a widely accepted scholarly position that unlike Europe the South Asian countries need to be subjected to specific treatment over the question of environmental history. The South or for that instance South-East Asian,

countries cannot ignore the period of colonial rule, which played a key role in bringing several changes in their environment.

As is well known, the South Asian environmental history began with a critique of the political economy of British imperialism. The Indian environmental history, in its early phase of the 1980s, essentially focused on those political movements that resisted the trader-political nexus leading to extensive deforestation. These enquiries were exhaustive studies of the imperial polity, as the latter was responsible for creating a regime of forest management as well as effective commercial exploitation of the Indian forests. Another aspect of this phase of historical enquiry was to see how peoples' right was alienated from their traditional dependence on natural resources. These studies could not escape strong challenges put forward by other scholars who refused to accord a primary thrust to a commercial motive in the imperial conservation and forestry debates.⁴ Such scholarships highlight the role played by an enlightened group of colonial officials who could well foresee the danger of rapid deforestation, that required immediate state intervention. A second wave of works representing a thin line of departure, from a previously total focus on environmental history based on the political economy of imperial polity, began to appear in the 1990s.⁵ A collective body of social scientists, environmental scientists, and environmental activists began to redefine the agendas of the Indian environmental history. This new wave of historical investigation was also witness to a series of interventions by the Indian State. A crucial entry was that of the proactive Indian judicial system, which strongly criticized the administrative-bureaucratic laxity in enforcing forest conservation. This enthusiasm of the Indian State hardly succeeded in bringing anything new to the imperial framework of conservation. A rigid understanding of conservation of forest based on an exclusionist policy further put people's livelihood at stake. New scholarship brought into light the complex interplay of people's livelihood and ecological dynamics. Essentially these scholarships suggest that the making of the modern forests in India was largely an outcome of the imperial enterprise. These key historiographical aspects are important to recast the evolution of imperial forestry programme in Assam.

Evolution of Ideological Paradigm

The official history of the Imperial Forest Department links the forestry programmes growth to the process of large-scale removal of timber from the Indian forest since the middle of the nineteenth century.⁶ The

agencies of removal were instruments of the imperial civilizing mission, the railway, which had begun to expand greatly, or the agenda of agrarian expansion. The colonial state advocated the destruction of the forests for the expansion of the agrarian frontier. Felling operations of the forests continued unsupervised. For instance, the sub-Himalayan forests were destroyed very rapidly.⁷ Petty timber trade, involving both Indian and European capital, grew, catering to the imperial needs, and the movement of timber went beyond the territorial limits imposed by pre-imperial polity. The first phase of modern deforestation began, requiring a supervisory control over this deforestation as well as creating a sustained supply for future imperial needs.⁸ As the forestry programme began to evolve, the primary agenda was the management and exploitation of the inexhaustible timber resources. The south Indian forests offered a fine example of the deforestation and simultaneous forest conservation schemes of the East India Company. In practising forest conservation, the Company administration appropriated the existing principles of resource use and allowed the Indian system to continue. A regular forest administration was put in place in Malabar in 1806, but soon it was dissolved and the affairs of the same were entrusted to the Revenue Department. This also resulted in the monopoly of the colonial state over the management of the Indian forest. For a considerable period, the Company administrators, who wanted a guaranteed supply of timber, ensured that preventive measures were taken to restrict the exhaustion of the natural resources. Thus, on one hand securing profits from trade in the forest produce, and on the other hand, revenue generation became the primary purposes of early colonial forest policy. D. Brandis, the German forester, repeatedly appeared on the stage with his various types of innovation in Indian forest management. He was instrumental in crafting the nineteenth-century India's forest policy and also in the making of the 1878 Forest Act. Moreover, he is credited for coining the magic words 'sustainable management'. Along with the move to create a Forest Department, an attempt was made to develop commercial plantation. Though it failed initially, success came eventually with the experimentation at the Botanical Garden in Calcutta in 1805 to develop teak plantation, which made India's path towards monoculture plantations, primarily consisting of tropical hardwoods, an easier one. From mapping to plantation, it was a great leap forward for the Indian forestry. Even though the official scientific forest conservation commenced since the middle of the nineteenth century, the commercial

motive was the primary agenda of such conservation projects. By the end of the century, a sizeable amount of forested areas came under the regime of colonial forest conservation.

Exactly when the votaries of scientific management of forest took over the reins of the Indian forest administration is still a contested subject.⁹ Nonetheless, the intellectual burden of this new concept could be traced to those who propagated the idea of the desiccation theory.¹⁰ The principal argument of this theory was that deforestation was central to the cause of climatic changes, including a decrease in rainfall and a general reduction of humidity, particularly the drying up of the soil. Botanists, doctors, and foresters were convinced of the water-storing function of forests. It was now an accepted proposition that forest coverage played a highly important role in the climate. This compelled the propagator of the desiccation theory to advocate for the rigid protection of forests as well as the creation of the Forest Department. The rapid depletion of forest in north and south India and growing need of sleepers for the railway department paved the way for the establishment of the Forest Department in various parts of imperial India.

Several recent studies have strongly argued that the colonial era interventions were mediated in complex ways by local pressures.¹¹ These often blunted the sharper edge of exclusion of traditional people's right over natural resources. On the other hand, it has been suggested that imperial forestry in the subcontinent emerged out of contesting paradigms. It is also often argued that what won out in the end was the continental European forestry paradigm.¹² I would also suggest that this continental forestry was largely dependent on the bureaucratic pillars of the imperial state. Both botanists and industrial lobbies came to play key roles in the imperial forest management after the First World War, with impending economic crisis as well as the growth of Indian business houses, leading to more organized diversification of forest resources in the post-war period. This reorientation was fully supported by the State. It was at this time that the institutional support base of the forest produces was directed to Indian customers too. The alienation of community was further widened and was given a permanent form.

Contested Regime of Resource Use

Wide-ranging works on South Asian environmental movements often highlight the conflict between the agricultural practice and imperial forestry but stop short of looking into how land settlement politics tried

to redefine forest management.¹³ This conflict of interest between the agrarian revenue and forest revenue was not merely confined to ground conflicts but often bureaucrats trained in two discreet branches of colonial administration entered into long drawn-out debates in deciding the priorities as was the case of Assam. Such conflict, between the science of forest conservation, development, and the agrarian frontier, is only representative of a wider phenomenon. It is now well known that practices of conservation are defined by a narrow vision of scientific practice that often counterproductive to local practices of understanding nature.¹⁴ More importantly, such State-sponsored hegemonic practices of conservation not only reject any possibility of alternative programme of conservation but also marginalize the democratic political practices of society or a community's/marginalized community's claim to be a meaningful partner in the well being of nature. The social movement, mostly of the underprivileged, in the developing world has been in critical engagement with the epistemological foundations of the notions of development. These political engagements have predominantly brought in aspects of human and environmental costs into the structural component of development. This is an acceptance of the fact that the communities that are marginal and at the fringe of mainstream political privileges have successfully asserted 'a cultural identity that entails "way of being" in the world'. This has been manifested in several recent environmental movements.

Rethinking Conservation: Forestry vis-à-vis Wildlife

Recent scholarships have demonstrated how the animals inside the Indian jungles were endowed with the new spatial identity.¹⁵ While animals were seen primarily as a threat to the expanding agrarian activities, a regime of annihilation of carnivores became the primary agenda of the Forest Department. In the wake of growing and widely popular practices of hunting and game, the fate of several species became deplorable. The department could influence little in controlling these damages, which had acquired a serious dimension amongst the colonial elites. Hunting and sports came under regimented control since the first few decades of the twentieth century only. This regimented supervision of wild animals laid down the principles of the establishment of game sanctuaries. And by the middle of the century the preservation of wildlife became a distinct programme of the Forest Department. Several recent studies have highlighted the limitation of the existing conservation

programme.¹⁶ With a note of optimism, in the last quarter of the twentieth century, science-based wildlife studies began to play a key role in redefining the wildlife conservation programme but 'the pace at which conservation practitioners absorb new scientific knowledge may be too slow to assist' in attaining the goals of the conservation programme.¹⁷ A shift of ideological paradigm with the science-based paradigm not only challenges the exclusionist policy of the conservation programme but has also brought under increasing scrutiny the primary and essential attention to only big species.¹⁸

Is it possible to clearly demarcate between wildlife and agrarian life? Can we write a history of Indian wildlife without locating its link with the agrarian life? Possibly the answer would be negative. As it is now apparent, the threat to the 'sanctity' of various Indian wildlife habitats has increased manifold. The response of the Indian State, and the Indian forestry programme, to the crisis has not spilled over beyond the straightjacket understanding of poacher or crimes committed by them. Is it possible to go beyond this? Can there be coexistence between humans and wild animals and thus a possible redefinition of the Indian forestry programme? Though beyond the scope of the present book, these are fundamental questions that need to be addressed.

Independence and Political Ecology

After Independence, the priorities of the Indian forestry programme quickly came to be defined by the Indian National Forest Policy of 1952,¹⁹ which envisaged that the forestry programme must be subordinate to the larger national goal of industrialization. These ideas were, over the years, laid out in the Indian planning. Exploitation of forest resources, primarily aimed at industrialization, went on with a highly unsuccessful afforestation programme. On the other hand, the hegemony of these State-scientific regimes of natural resource-management remained a highly contested subject and often led to 'social revolt' that became part of a spectre of intellectual protest.²⁰ Rajan argues that this led to a reconceptualization of the discipline of forestry with new approaches to silviculture, economics, law, and crucially, which also carried the message of modernity.²¹ This disciplinary change 'constitutes nothing short of a cognitive revolution, one that has been brought about by a clearly articulated political perspective on the orientation of the discipline of forestry by its practitioners'. Several State-sponsored programmes, with critical international financial implications, attempted to reduce these

social conflicts. These policies claimed to emphasize on a new approach that sought a shift in the existing inequitable distribution of management control by directly involving local people and institutions in forest management. That such claims do not in reality involve the transfer of ownership over forests and attempt instead to restructure the formal system of access, decision-making, and sharing of benefits to account for the needs of local communities has been shown in several studies. While many object to this fundamental limitation, proponents of this approach regard it as a negotiating process, where the objectives of different users would be determined through a transparent and participatory process. The key departure was in the evolution of a new regime of wildlife management, as indicated in the previous section.

This engagement of Indian environmental history cannot, however, trace the major departures of the post-independent forestry. This neglect is not to be merely understood in terms of institutional restriction in accessing archival sources.²² Our marginal interest in locating the critical departures in the ideological shift within post-independent forestry is also important to explain this.²³ Will it not be too early to attach so much significance to post-independent forestry without looking at various levels of interaction with which the Indian State had tried to overcome these challenges?

ASSAM AND MODERN FORESTS: IMPERIAL TO POST-COLONIAL

Can the practices of imperial forestry in Assam offer some insight into the present body of scholarship? Did Assam's case offer any crucial departure from the imperial forestry? How did the colonial state negotiate the various forms of existing resource uses? Did it see the forest resources in the hills and plains from a similar epistemological context? Did the local pressures, like that of the Assamese peasants or that of the powerful tea-planters lobby, reshape the imperial forest policies? Or how were the other natural resources, largely identified as mineral resources, viewed by the managers of the forests? Is there any possibility to bring these natural resources under the ambit of general policy discussions centred on forest-related questions? For instance, did the high intensity of the practice of shifting cultivation, or the savannah grasslands, as a distinct ecological setting, offer any crucial point of departure that required complex handling by the colonial forest officials? These questions hardly find any space in the recent literature relating to this region.²⁴ Some of these questions are addressed in public arena. The latter is primarily a

reaction of the public intelligentsia to various natural calamities where the State failed to provide relief. Public opinion mostly suggests that loss of forest coverage is indicative of the general environmental degradation. In contrast to such a grim view of the 'environment', other writings also draw attention to the rich flora and fauna found in the region.²⁵

While public debates on ecology and environment have already gained momentum the intellectual foundation of several recent studies on the growth of imperial forestry in Assam primarily rests on a non-critical engagement with the praxis of colonial forestry.²⁶ The scope of these histories are limited due to their mere sketch of the emergence of the forest bureaucracy and thus equally suffer from an overemphasis on forest bureaucracy.²⁷ On the other hand, while accepting the idea of a homogenous imperial forestry it could not refrain from explaining the Assam experiment as more than an extension of the Bengal experiment. The practical difficulties faced by the foresters had played a much more important role in the making of the forest. For many of the early foresters, the Assam forest was an extension of the eastern mountain ranges, having a geological connection with the topography of western South-East Asia.

The encounter of the forested landscape of Assam with the imperial rule can be traced back to the period when the East India Company gradually became interested in this region. Once the Company administration was secured, the possibilities of integrating the existing complex range of forest-based trade practices with the imperial economy became clear.²⁸ The initial intervention took place with the discovery of tea plants in Assam when the Company administration began to lease out such lands to the European planters.²⁹ It was since the 1870s that the newly established provincial Forest Department began to affirm its right over the forest resources of the province. Though the Forest Department asserted its sole right over the forested land, the planters also began to reaffirm their distinctive right over it. Gradually, geologists came to be part of the Forest Department to establish a crucial link with the imperial polity. The discovery of mineral resources and its emergence as a key aspect of the management of natural resources still awaits attention in the literature relating to the Indian environmental history. It is important to know to what extent the discovery of mineral resources influenced the Forest Department in reconfiguring its forestry programme. Could the Forest Department negotiate with the speculators of mineral resources in asserting its claims over the forested patches? While these two

components of the colonial state struggled for their respective shares over the wastelands and mineral resources, the peasant society also articulated their claim over the wastelands. Throughout the nineteenth century the consistent colonial policy on wastelands was to open it for cultivation. The major beneficiary of such a policy were the tea planters. The local rich peasants also claimed a good amount of these lands, which necessarily helped in the formation of a class of rich absentee landlords. However, since the early twentieth century the government began to appreciate the benefits of wastelands in terms of possibilities of opening of jute cultivation and encouraged peasants from the east Bengal to settle there. Clearly, both the tea plantation and forest conservation programme deprived the indigenous peasants of their access to the natural resources. This had also restricted the widely practised shifting cultivation. Such restrictions, however, were protested by the peasants who contested either their curtailment of traditional rights or enhancement of revenue. Large-scale relinquishment of land-lease took place, indicating the prevalence of peasant dissatisfaction. In the next century, along with the changing nature of the agrarian structure, the nature of peasant resistance changed and was also directed towards the local landlords and other agencies of socio-economic exploitation.³⁰

This brings us to address two important aspects, that is, tea-plantation and land reclamation. What was the role of tea-plantation in the evolution of a distinct forest conservation regime in Assam? That the tea-planters were in the forefront of taking the forestland into their lease and eventually clearing them is adequately discussed in the existing literature. Did the tea-planters lobby have any determining impact on crucial policy formulation of the Imperial Forest Department, such as the selection of trees for plantation or deciding the fate of surveyed forested zone? By the close of the nineteenth century, tea plantation turned out to be one of the important sectors of colonial intervention in Assam. The tea-planters, with effective support from the colonial administration, came to occupy a vast landmass. In the land thus owned, existing jungles or forest cover were cleared off and replaced with tea seedlings and other trees, which were meant to work as shadow trees for the tea saplings. This not only changed the landscape permanently but also transformed forever the pattern of the relationship of man and nature, also leading to extensive landscape fragmentation. However, the effective use of land under the patronage of the colonial system continued, and it is yet to be determined as to who was the ultimate beneficiary. On the other hand, since the early

twentieth century, with the rapid reclamation of agricultural land by the peasants from east Bengal, the pressure on grass land, and also the floodplains of the Brahmaputra valley, had increased manifold. In the late twentieth century, popular opinion was directed against this settlement as having crucial impact on the forest coverage in the state. What critical impact did it have on the forestry policy?

The ideas and the ideological issues involved in forest conservation took a definite shape since the last quarter of the nineteenth century. By that time the colonial state had acquired the much-needed experience in forest administration. The rich experience of the other provinces helped immensely in understanding the forestry question with more depth. In the twentieth century, increased competition for the forest resources gave rise to conflicting ideological moorings along with a wider public participation in the environmental and forest issues. While displaced peasants vied for a place in the Reserved Forest, State vigilance also increased over the forest resources.

It would be unwise to suggest that forests remained a pristine and untouched zone in the pre-imperial period or that there was no trade in forested resources. That Assam and its neighbourhood had a rich and complex trade system dependent on forest resources is well documented.³¹ An instance of this is the political economy of the Ahom–Mughal wars, which was crucially connected with the Mughal rulers' insistence of securing access to the forest resources of the region, including the prized elephants. Contest over natural resources resulted in wars and frequent clashes between the Ahom kings and Mughal rulers. In the pre-colonial time, beyond the Ahom frontier, taxes on a variety of forest produce, which included cotton and birds, contributed to the revenue. The State exchequer also relied heavily on the exploitation of the forest resources, including the elephant. The most commonly used item was timber for constructing boats. The Ahom military system was crucially interested in securing its waterways and hence required sustained investments for naval warfare. Similarly, elephants were usually procured in large numbers not only to strengthen the military system but also for everyday uses of the royal palaces. The Mughal Empire insisted on getting elephants as war indemnity.

However, this does not explain the pressure of the peasant communities on the forested zone and consequent forest clearances. That the pre-colonial forests were integrally connected with the expanding agrarian frontier has been shown in several works. For instance, Amalendu Guha

argues that though the Ahom kingdom had complete control over the forest resources it also encouraged the peasants to clear forest land into agrarian land.³² The peasants, who had opened these new lands, had to provide the normal revenue as fixed by the State. The most widely practised form of forest clearance was the shifting cultivation, which was practised both in the plains and hills. Normally such clearance was restricted to grasslands, which were easier to clear either by putting them on fire or by using simple agricultural tools. On the other hand, away from the direct control of the Ahom kingdom, the relatively independent feudal chiefs and the tribal monarchies retained their hold over large forested areas. Clearly, the idea of forest as reserved territory, except some areas that were specially demarcated for hunting by the royal family, did not exist. The forest management during the pre-colonial times had little to do with a market economy.

While there was a spectre of change in the colonial era in the way natural resources were seen and understood these changes had left behind a legacy of social conflicts that were paramount to the political landscape of the late twentieth century Assam. Over the years, as the peasants lost their cultural right over land, the State further pushed them away from these resources for their inability to become cash-crop producers. A series of ethnic movements wanted a reconfiguration of the relationship of communities with natural resources, particularly their access to the forest lands. Here, we attempt to link the present day conflicts in Assam, many of which are land and resource-based, to their root in the colonial era. The science and practice of conservation, driven by concerns of ecology and environment, remained a distant dream for the forest conservationist. Much of the natural histories of wildlife, spanning several decades, has overlooked the complex relation of wildlife to the imperial forestry programme.³³ At the same time, despite popular claims of success of the conservation programme in Assam, science-based conservation studies have shown the limitation of this programme. Such a conservation programme is also lacking in the region. Not only is the forest bureaucracy generally reluctant to allow epistemological shift but even the institutional foundations of a science-based research programme hardly finds systematic state support. That often the forestry programme has emerged as a threat to the wildlife habitat is generally known.³⁴ In contrast, the growing depletion of wildlife habitat is being projected by recent popular interventions as often directly to due non-Assamese incursions or even demographic pressures.

OVERVIEW

This volume is about the historical transformation of Assam's nature over the last 200 years. It begins with an enquiry of how, since the early nineteenth century, the forest resources in Assam were mapped and became integrated with merchant capitalism. Gradually an imperial forestry framework helped to systematically explore the widely distributed forest resources. These resources were catalogued according to their economic value. The colonial state began to define its relationship with the forest resources by regulating timber trade and experimenting with excluding forested tracts from any general consumption. Chapter 1 discusses how this early management became part of a larger ideological paradigm of the continental forestry and, eventually, the road was cleared for the establishment of the Forest Department in Assam to complete the task of bringing 'order' to the jungles of Assam. Chapter 2 narrates the political economy of the new spatial order. Assertion of rights over this space required manifold negotiations and entailed a complex process. The complex evolution of institutions and the methods of governance of this new landscape are examined in Chapter 3. The governance required that claims of the colonial state be founded on legal premises and thus followed a series of forest legislations. The idea of governance could be put into practice by a team of ideologically motivated people, known as foresters. Chapter 3 also discusses how, as governance of forest acquired a strong foothold, the imperial forestry programme needed to redefine its parameters. The best example of such a situation was the case of tea-plantation economy and agrarian practices. The ideological paradigm of the forestry programme witnessed little changes after Independence.

The evolution of forest as imperial economy is addressed in Chapter 4. The chapter discusses how after the forests was codified into various marketable resources they were categorized into two main domains; that is, major forest produce and minor forest produce. Minor forest produce, as it came to be known, took care of the heterogeneous market. Arrangements were made so that these resources could find their way efficiently into the distant markets. Working plans were prepared to arrange for the planned extraction of forest produce from the forest areas. Chapter 4 further details the growth of institutional customers for the forest products. Chapter 5 examines how science worked as the significant instrument of economic transformation of the forested landscape of Assam. The management, conservation, and effective regeneration of the

forest could be only possible through the intervention of the science of forestry, primarily identified in the practices of silviculture. Chapter 6 explains the position of fauna in the imperial forestry programme. As imperial forestry and agriculture progressed, animals were seen primarily as a threat to mankind and to the expanding agrarian frontier. A regime of hunting and annihilation of carnivores became the prime agenda of the Forest Department. However, since the early twentieth century, attention shifted from guns to cameras. Hunting and sports came under regimented control. This regimented supervision of wild animals laid down the principles of the twentieth-century history of game sanctuaries. Chapter 7 addresses the livelihood practices and how the forestry programme had worked out the great strategy of encroaching into these practices. The concluding chapter takes the argument of the book into a comparative perspective with both South and South-East Asia and tries to foresee the future of the political forests. What has changed since then is that though the imperial interest subsided, the new political parameters have led to nowhere. Compared to the history of colonial forestry, the making of forest policy in the post-colonial period was defined more by the complexities of the political matrix. This does not mean that in the colonial times, the forestry was free from political negotiation. While this book suggests that the working of the Forest Department in Assam was located in the larger regional ecological setting, still it could not escape the ambit of the imperial forestry paradigm. The study also examines how present day ecological conflicts are intricately located in the colonial era when forests, land, and resource-based conflicts began to take new shape.

NOTES

1. The best reference with clear indication of appreciation of nature would be charya-pada literature. See P. Deka, 2001, *Charya-Geet Aru Bauddha-Tantra*, Guwahati: Chadra Prakash. Shankardev, the medieval Assamese poet and social reformer graphically portrays the various outward forms of nature and its endowments. M. Neog, 1986, *Asomiya Sahityar Ruprekha*, Guwahati: Bani Mandir; S. Barman, 1997, *Asomiya Sahityar Buranji*, Guwahati: Abilac; K. Ayyappanicker, *Medieval Indian Literature: An Anthology*, Delhi: Sahitya Akademi, 1997.

2. A handful of literature deals the question of Indian imperial forestry. A historiography of these literatures may be found in R. D'Souza, 2003, 'Nature, Conservation and the Writing of Environmental History', *Conservation and Society*, vol. 1, no. 2, pp. 317–32; K. Sivaramakrishnan, 2003, 'Nationalism and

Environmental History', *Seminar*, vol. 522, pp. 25–30; Ramachandra Guha, 1989, 2009 (revised edition), *The Unquiet Woods*, New Delhi: Oxford University Press; R. Grove, 1998, 'Introduction' in *Green Imperialism: Colonial Expansion, Tropical Island Edens and the Origins of Environmentalism, 1600–1860*, New Delhi: Oxford University Press; D. Worster, 1996, 'The Two Cultures Revisited: Environmental History and the Environmental Sciences', *Environment and History*, vol. 2, pp. 3–14; David Arnold and Ramachandra Guha (eds), 1995, *Nature, Culture, and Imperialism: Essays on the Environmental History of South Asia*, New Delhi: Oxford University Press; A. Agrawal and K. Sivaramakrishnan (eds), 2000, *Social Nature, Resources, Representations and Rule in India*, New Delhi: Oxford University Press; G. Cederlof and K. Sivaramakrishnan (eds), 2006, *Ecological Nationalisms*, Delhi: Permanent Black; R. Grove, V. Damodaran, and S. Sangwan (eds), 1998, *Nature and the Orient: The Environmental History of South and Southeast Asia*, New Delhi: Oxford University Press; Ramachandra Guha and Madhav Gadgil, 1992, *This Fissured Land: An Ecological History of India*, New Delhi: Oxford University Press; Ramachandra Guha and Madhav Gadgil, 2000, *Ecology and Equity: The Use and Abuse of Nature*, New Delhi: Oxford University Press; S. Guha, 1999, *Environment and Ethnicity in India, 1200–1991*, Cambridge: Cambridge University Press; Mahesh Rangarajan (ed.), 2007, *Environmental Issues in India*, Delhi: Pearson Longman; Mahesh Rangarajan, 2001, *India's Wildlife History, An Introduction*, Delhi: Permanent Black; V.K. Saberwal et al. (ed.), 2003, *Battles Over Nature*, Delhi: Permanent Black.

3. See, for instance, M. Williams, 2006, *Deforesting the Earth: From Prehistory to Global Crisis*, Chicago: Chicago University Press; B. McKibben, 1989, *The End of Nature*, New York: Doubleday; J.R. McNeill, 2001, *Something New Under the Sun*, Norton; J.D. Hughes, 2002, *An Environmental History of the World: Humankind's Changing Role in the Community of Life*, London: Routledge; J. Radkau, 2008, *Nature and Power: A Global History of the Environment*, Cambridge: Cambridge University Press.

4. Grove, *Green Imperialism*; R. Grove, 1998, *Ecology, Climate and Empire: The Indian Legacy in Global Environmental History, 1400–1940*, New Delhi: Oxford University Press.

5. Grove, Damodaran, and Sangwan (eds), *Nature and the Orient*; Guha and Gadgil, *This Fissured Land*; Guha and Gadgil, *Ecology and Equity*.

6. E.P. Stebbing, 1923–6, *The Forests of India*, London: The Bodley Head, vols 2–3.

7. Guha, *The Unquiet Woods*, pp. 38–59.

8. Williams, *Deforesting the Earth*, pp. 276–333.

9. D. Arnold, 2006, *The Tropics and the Traveling Gaze: India, Landscape, and Science, 1800–1856*, Delhi: Permanent Black; D. Kumar, 1990, 'The Evolution of Colonial Science in India: Natural History and the East India Company', in John Mackenzie (ed.), *Imperialism and the Natural World*, Manchester: Manchester University Press, pp. 51–66; R.S. Rajan, 2006, *Modernizing Nature: Forestry and Imperial Eco-Development 1800–1950*, London: Oxford University Press; V.K.

Saberwal, 1997, 'Bureaucratic Agendas and Conservation Policy in Himachal Pradesh 1865–1994', *IESHR*, vol. 34, pp. 465–98; H. Noltie, 2002, *The Dapuri Drawings, Alexander Gibson and the Bombay Botanical Gardens*, Bombay: Mapin; M. Lewis, 2003, *Inventing Global Ecology, Tracking the Biodiversity Ideal in India*, Delhi: Orient Longman.

10. See, A. Skaria, 1998, 'Timber Conservancy, Desiccationism and Scientific Forestry: The Dangs 1840s–1920s', in Grove, Damodaran, and Sangwan (eds), *Nature and the Orient*.

11. V.K. Saberwal, 1998, *Pastoral Politics: Shepherds, Bureaucrats, and Conservation in the Western Himalaya*, New Delhi: Oxford University Press; K. Sivaramakrishnan, 1999, *Modern Forests: Statemaking and Environmental Change in Colonial Eastern India*, New Delhi: Oxford University Press; S. Vasan, 2006, *Living with Diversity: Forestry Institutions in the Western Himalaya*, Shimla: Indian Institute of Advanced Study.

12. Rajan, *Modernizing Nature*.

13. I. Agnihotri, 1996, 'Ecology, Land Use and Colonization, The Canal Colonies of Punjab', *IESHR*, vol. 33, pp. 37–58; D. Ludden, 2003, 'Investing in Nature around Sylhet: An Excursion into Geographical History', *Economic and Political Weekly*, November, pp. 5080–8; M. Williams, *Deforesting the Earth*; D. Arnold, 2002, 'Disease, Resistance and India's Ecological Frontier, 1770–1947', in J. Scott and N. Bhatt (eds), *Agrarian Studies, Synthetic Studies at the Cutting Edge*, New Delhi: Oxford University Press, pp. 186–205; V. Sarvanan, 2007, 'Environmental History of Tamil Nadu State, Law and Decline of Forest and Tribals, 1950–2000', *Modern Asian Studies*, vol. 41, no. 4, pp. 723–67; J.F. Richards, J.R. Hagen, and E.S. Haynes, 1985, 'Changing Land use in Bihar, Punjab, and Haryana, 1850–1970', *Modern Asian Studies*, vol. 19, pp. 699–732; A. Saikia, 2008, 'Forest Land and Peasant Struggles in Assam, 2002–2007', *Journal of Peasant Studies*, vol. 38, no. 1, pp. 39–60; R. Brara, 2006, *Shifting Landscapes: The Making and Remaking of Village Commons in India*, New Delhi: Oxford University Press; V. Sarvanan, 2006, 'Colonial Agrarian Policies in the Tribal Areas of Madras Presidency: 1872–1947', *South Asia Research*, vol. 26, no. 1, pp. 63–85.

14. A. Chhatre and V. Saberwal, 2006, 'Democracy, Development and (Re-) Visions of Nature: Rural Conflict in the Western Himalayas', *Journal of Peasant Studies*, vol. 33, no. 4, pp. 678–706.

15. V. Saberwal and M. Rangarajan (eds), 2003, *Battles Over Nature: Science and Politics of Conservation*, New Delhi: Oxford University Press; P. Greenough, 2003, 'Pathogens, Pugmarks and Political "Emergency": The 1970s South Asian Debate on Nature', in Paul Greenough and Anna L. Tsing (eds), *Nature in the Global South: Environmental Projects in South and Southeast Asia*, Durham and London: Duke University Press/Delhi: Orient Longman, pp. 201–30; A.G. Gold and B. Gujar, 1997, 'Wild Pigs and Kings, Remembered Landscapes in Rajasthan', *American Anthropologist*, vol. 99, no. 1, pp. 70–84; Mahesh Rangarajan, 1998, 'The Raj and the Natural World, the Campaign Against "Dangerous Beasts" in Colonial India, 1875–1925', *Studies in History*, vol. 14, no. 2, pp. 167–99;

Divyabhanusinh, 2006, 'Junagadh State and its Lions: Conservation in Princely India, 1879–1947', *Conservation and Society*, vol. 4, pp. 522–40; J. Radhika, 2007, 'Of Paper Tigers and Invisible People: The Cultural Politics of Nature in Sariska', in Ghazala Shahabuddin and Mahesh Rangarajan (eds), *Making Conservation Work: Securing Biodiversity in this New Century*, Delhi: Permanent Black, pp. 48–80; R. Sukumar, 2003, *The Living Elephants*, Delhi: Oxford University Press.

16. Ghazala Shahabuddin and Mahesh Rangarajan (eds), *Making Conservation Work: Securing Biodiversity in this New Century*, Delhi: Permanent Black, 2007; Ghazala Shahabuddin, 2010, *Conservation at the Crossroads: Science, Society and the Future of India's Wildlife*, Delhi: Permanent Black and New India Foundation.

17. K. Ullas Karanth, James D. Nichols, John Seidenstricker, Eric Dinerstein, James L. David Smith, Charles McDougal, A.J.T. Johnsingh, Raghunandan S. Chundawat, Valmik Thapar, 2003, 'Science Deficiency in Conservation Practice: The Monitoring of Tiger Populations in India', *Animal Conservation*, vol. 6, p. 141. See, the special number on reconciling the needs of man and wildlife, *Seminar*, no. 466, June 1998.

18. See, the special number on reconciling the needs of man and wildlife, *Seminar*, no. 466, June 1998.

19. Ramachandra Guha, 1983, 'Forestry in British and Post-British India: A Historical Analysis', *Economic and Political Weekly*, vol. 18, no. 44, pp. 1882–96.

20. Rajan, 2006, *Modernizing Nature*, pp. 108–53.

21. From the blurb of Rajan, *Modernizing Nature*.

22. Guha, 'Forestry in British and Post-British India: A Historical Analysis'.

23. Michael Lewis, *Inventing Global Ecology*.

24. B. Malik, 2003, 'The "Problem" of Shifting Cultivation in the Garo Hills of North-East India, 1860–1970', *Conservation and Society*, vol. 1, no. 2, pp. 287–315; Ludden, 'Investing in Nature around Sylhet', pp. 5080–8; Arupjyoti Saikia, 2008, 'State, Peasants and Land Reclamation: The Predicament of Forest Conservation in Assam, 1850s–1980s', *IESHR*, vol. 45, no. 1, pp. 77–114; A. Saikia, 2008, 'Forest Land and Peasant Struggles in Assam, 2002–2007', pp. 39–60; R.P. Tucker, 'The Depletion of India's Forests Under British Imperialism: Planters, Foresters and Peasants in Assam and Kerala', in D. Worster (ed.), 1988, *The Ends of the Earth*, Cambridge: Cambridge University Press; R.P. Tucker, 'The British Empire and India's Forest Resources: The Timberlands of Assam and Kumaon, 1914–1950', in J.F. Richards and R.P. Tucker (eds), 1987, *World Deforestation in the Twentieth Century*, Durham: Duke University Press, pp. 91–111; D. Singh, 1996, *The Last Frontier People and Forest in Mizoram*, New Delhi: TERI; B.G. Karlsson, 1999, 'Indigenous Nature, Forest and Community Dynamics in Meghalaya, North East India', in G. Cederlöf and K. Sivaramkrishnan (eds), *Ecological Nationalisms: Nature, Livelihoods, and Identities in South Asia*; Delhi: Permanent Black; S. Nag, 1999, 'Bamboo, Rats and Famine: Famine Relief and Perceptions of British Paternalism in the Mizo Hills', *Environment and History*, vol. 5, pp. 245–52.

25. H.P. Smith and C.P. Purkayastha, 1946, *A Short History of the Assam Forest Service 1850–1945*, Shillong: Assam Government Press.

26. See, S. Goswami, 1987, *Aspects of Revenue Administration in Assam, 1826-1874*, Delhi: Mittal; R. Saikia, 2000, *Social and Economic History of Assam*, Delhi: Manohar.

27. R. Handique, 2004, *British Forest Policy in Assam*, Delhi: Mittal; P. Deori, 2005, *Environmental History of Naga Hills 1881-1947: Land and Forest: The Colonial Policy*, Delhi: Anshah.

28. H.K. Barpujari, 1963, *Assam in the Days of the Company, 1826-1858*, Guwahati: LBS.

29. H. Antrobus, 1957, *A History of the Assam Company, 1839-1953*, Edinburgh: T.A Constable.

30. For a detailed study of this period and the peasant movement see, A. Saikia, 'Agrarian Society, Economy and Peasant Unrest: A Study of the Brahmaputra Valley 1945-52'; unpublished doctoral dissertation, University of Delhi, 2002.

31. The best known historical sources for understanding the dynamics of agrarian society and forested space are Assamese *buranjis*. Several buranjis and inscriptions could possibly throw extensive light on the idea of forest and forest trade in pre-colonial Assam.

32. A. Guha, 'The Medieval Economy of Assam', in Tapan Raychaudhuri and Irfan Habib (eds), 1982, *The Cambridge Economic History of India c. 1200-c. 1750*, Volume 1, Delhi: Cambridge University Press.

33. Representative of such literature are E.P. Gee, 1964, *The Wild Life of India*, London: Fontana; R. Barthakur and B. Sahgal, 2006, *The Kaziranga Inheritance*, Mumbai: Sanctuary Asia; P.D. Stracey, 1963, *Elephant Gold*, London: Weidenfeld and Nicolson.

34. W.L.R. Oliver, 1991, 'A Review of the Status of the Sanctuaries for the Pygmy Hog: A Report on a Visit to N.W. Assam, 1990', *The Dodo: Journal of the Jersey Wildlife Preservation Trust*, vol. 27, pp. 62-70; J.J.C. Mallinson, 1971, 'The Pygmy Hog *Sus Salvanius* (Hodgson) in Northern Assam', *Journal of Bombay Natural History Society*, vol. 68, no. 2, pp. 424-33.