

Forest Guardians, Forest Destroyers: The Politics of Environmental Knowledge in Northern Thailand, by Tim Forsyth and Andrew Walker. University of Washington Press, 2008; Southeast Asian Edition published by Silkworm Books, Chiang Mai, Thailand, 2008, paper. 302 pp.

Forest Guardians, Forest Destroyers is not just another book on environmental degradation in northern Thailand. Even though it deals with widely debated issues such as the impact of swidden (or shifting) cultivation of ethnic minorities on upland forest cover, the effects of deforestation on soil condition and water supply, and the effects of agrochemicals used in modern intensive land use on water quality and health, the focus of this book is not on the environmental problems of northern Thailand *per se* but on how these problems are defined and why. One of the main arguments of Tim Forsyth and Andrew Walker is that environmental knowledge and, especially, environmental sciences which produce it are not politically neutral. Facts can be interpreted for a political purpose, and concerns can be transformed into facts. A powerful and widely used tool for the misuse of scientific knowledge is what the authors refer to as the “environmental narrative”. Environmental narratives are “... simplified explanations of environmental cause and effect . . . which are based on highly selective participation in problem definition and knowledge production” (p. 17), and which can be used to legitimize certain policies. A famous example of such a narrative is the so-called Theory of Himalayan Environmental Degradation, which has been developed to explain deforestation and land degradation in the Himalayas through simple cause and effect relations emanating from population growth as the root cause. Tim Forsyth has elaborated on this particular myth and on environmental myths and orthodoxies in general in some of his earlier works, especially in his book *Critical Political Ecology: the Politics of Environmental Science* (2003). *Forest Guardians, Forest Destroyers* provides a case study from Southeast Asia.

The book title indicates that narratives can be framed to support diametrically opposed positions. In northern Thailand, upland farmers are seen as forest destroyers by “nature-oriented” conservationists, as forest guardians by “people-oriented” advocates. Tim Forsyth and Andrew Walker do not adhere to either one of these positions but criticize both as expressing only parts of the truth. They have chosen northern Thailand, which is the most intensively researched part of mainland Southeast Asia, because the polarization of the environmental debate is particularly well developed here, but also because of their own extensive research experience in this region which shows up in this book. Tim Forsyth’s research in the early 1990s on measurement and farmer’s perception of soil erosion in Chiang Rai province has been incorporated into Chapter 6 on erosion; Chapter 5 on water demand is based mainly on a survey in Mae Uam district carried out in 1998 by the team of Andrew Walker. Other environmental issues dealt with in this book are the interrelations between forest cover and water supply (Chapter 4), the use and effects of agrochemicals (Chapter 7), and the linkages between land use and biodiversity (Chapter 8).

In each of these chapters, narratives on environmental linkages are critically examined and duly exposed as ignoring the true complexity of these linkages, and as lacking a solid scientific foundation. One such narrative, explored in Chapter 4, is the belief that forests help to create rainfall and regulate water flow, and that the removal of upland forests causes both floods and water shortages. This particular narrative has in northern Thailand provided the justification for denying people access to critical watersheds or even for relocating communities. The authors go to great lengths to explain that the biophysical linkages

between forest and water are much more complex than this, that there is still a great deal of uncertainty surrounding this issue, and that on the whole the influence of forests on regional hydrology has been overrated. They show in the following chapter that the bias on water shortage due to deforestation detracts from water scarcity caused by an increase in irrigated paddy and other water-intensive land uses especially in downstream areas. In this as in other cases one does not need to necessarily agree with each one of the arguments presented or with the selection of publications supporting the authors' claims. In the case of forest-water linkages, their claim that the local effect of forests on precipitation is negligible in the face of regional patterns and long-term rainfall trends may not hold true for those parts of the tropics where indigenous evapotranspiration is a greater source of atmospheric moisture than is the case in northern Thailand. One can sense in this the danger that some of the authors' arguments could provide the breeding ground for contrary and oversimplified environmental narratives developed by less discerning readers.

The discussion of forest-water relations in Chapter 4 illustrates the complexity and uncertainty of the underlying scientific issues. The effects of forests on rainfall, water runoff and dry season stream flow depend on many ecological conditions. Although transpiration from trees in the uplands puts moisture into the atmosphere, it is likely to return as rainfall well down-wind in a distant watershed. Cutting down trees reduces transpiration of water and increases surface runoff. Tree leaves and branches also intercept rainfall and allow some of it to return to the atmosphere through simple evaporation. Hence, forest cover tends to reduce, not increase, streamflow. The effect of forests in promoting water storage and increasing dry season flow is even less predictable, and depends on a balance between soil compaction, infiltration into the soil and transpiration of water absorbed by roots, as well as the presence of bedrock and underground aquifers. The effects of deforestation on dry season flow may actually be negligible, and will largely depend on the character of vegetation and soil that replace the original forest. The best way to investigate these complex effects is through experimental watershed research, of which there is very little in Thailand.

An additional beneficial effect of forests on mountains is extraction of water vapor from the atmosphere through the "cloud forest effect", or the condensation of water on cool surfaces of leaves and branches. It is unclear how important this effect is in northern Thailand, but one of us (WYB) has noted that on some mountains near the seacoast, this appears to be the only source of stream flow during very dry and rainless periods. The role of the cloud forest effect as well as dew in all upland forests needs further investigation.

Another part of this narrative, but not discussed by the authors, concerns lowland forest conversion. The Thai Forest Department has converted virtually all intact upland forest areas into national parks and wildlife sanctuaries, but has left virtually all lowland forests out of the protected area system to avoid conflict with lowland ethnic Thai agriculturalists (not all of them poor). Conservationists have pointed out that the lowland forests once had higher biodiversity than upland forests, and that relegating all lowland areas to economic development, however important, has come at a high cost to endangered species conservation. Ironically, it is also the lowland forests that probably contributed most to rainfall production, as water transpired in the warm lowlands would rise and condense at higher elevations within the watershed.

To point out ways of avoiding oversimplified narratives is the purpose of Chapter 9 on "Rethinking environmental knowledge". The authors conclude that the issues explored in their book have sufficiently illustrated how environmental politics has become dominated by environmental beliefs, which claim to have a scientific basis, but which are simplistic and

highly selective. They emphasize that the point of writing this book was not to downplay a particular environmental crisis, but to create a sense of awareness of how environmental knowledge is being formed, deformed, and put to political use. “Putting narratives in their place” (p. 237) through critical analysis is one important concern of the authors, the other is to point out ways of better production and use of environmental knowledge. In the case of northern Thailand, these would include attempts to diversify the definition of problems in order to avoid “problem closure”, i.e. the focus on certain cause-effect linkages such as the deforestation–water shortage linkage to the exclusion of others such as the contribution of water demand to water shortage, to be more critical of environmental knowledge (including indigenous knowledge!), and to diversify expertise through participation.

This is an excellent book, which combines solid theoretical reasoning with a thorough knowledge of the region. It can thus be read as an exceptionally well-informed guide through the literature on the environmental problems of northern Thailand, but also as a case study illustrating insights into the significance of environmental knowledge and science first put forth by Tim Forsyth in his book *Critical Political Ecology*. As such it is a healthy reminder for readers, especially for those from academia, to always remain mindful of complexity and not give in to the temptations of simplification. Moreover, for anyone who has been involved in the debate on environmental degradation in northern Thailand, the lucid analysis of this narrative about narratives, and of the protagonists participating in this debate and their agenda, is an eye-opener. The book is written in a concise and highly readable style, and is supported by an extensive bibliography.

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