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Nigel J. H. Smith. *The Amazon River Forest–A Natural History of Plants, Animals, and People.* New York and Oxford: Oxford University Press, 1999. 208 pp. $29.95 (paper), ISBN 978-0-19-512683-9.

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Land under Water - A Portrait of People and Nature in the AmazonianFloodplains

This is a fine text by Nigel Smith, professor of Geography at the University of Florida, an experienced researcher of the natural and social aspects of the Amazonian basin. It is a most valuable addition to the voluminous literature about natural and social changes in the vast region. In less than 170 well-written, handsomely formatted, easy to read, and profusely illustrated (with original photographs) pages of text, Smith provides a solidly researched and serenely reflected book. He manages to deliver sketches of everyday life of rural and urban Amazonians, while simultaneously providing up-to-date information and analysis about the wider and much more complex issues of nature conservation and social development in the Brazilian Amazon. This is a winning combination, and the execution is flawless.

Three features should be emphasized, as they combine to give the book its quality and distinctiveness. First, Smith sets his focus on the floodplains of the Amazon river and its tributaries, i.e., those stretches of land subject to yearly inundation, in which both natural processes and human uses must conform to the rise and retreat of torrential amounts of waters. These areas correspond to only about eight percent of the Amazon basin inside Brazilian territory, but their use and occupation are much more significant than this small figure would lead to believe. Besides, the floodplains have been less focused than the uplands in the literature, specially those uplands reached by that quintessential agent of social and economic change in Amazonia, the road.

I do not know of a contemporary analytical book that provides such a precise sense of the particulars of the natural and social dimensions the Amazonian floodplains. Smith's tone is reminiscent of Charles Wagley s classic Amazon Town, an in-depth study of a single floodplain community under the fictitious name of Ita. However, the human geographer of the 1990s (Smith) is much more concerned with the patterns of resource use than the cultural anthropologist of the 1930s (Wagley). Smith gives also many illustrations of how the same human populations – and sometimes the same individuals - make distinct and sometimes simultaneous uses of lower, floodable areas and of higher, neighboring bluffs or edges of

upland areas. Smith lets us know exactly where we are in the immense and diverse Amazon basin, not an easy thing to do in a text.

Second, Smith's text is based on extensive fieldwork, which in the floodplains is a time-consuming effort that depends on notoriously sluggish and unreliable boat travel. In this manner, he managed over the years to pull together multitudes of first-hand observations about land and resource uses, in different parts of the basin. He thus recorded both conventional and atypical manners of building a livelihood out of forest and river resources. He found solutions that are both "good" and "bad" for the natural environment, and more or less effective in terms of subsistence and the market. His good use of these illustrations, his effective photographs, and his communication with locals give his text a rich "anthropological" vein – the reader can "get close" to Amazonians, and learn what they eat, what materials they use to build their houses and tools, and how they work with high and low waters. Grand concepts of ecosystem management and sustainable development are thus brought down to the earth – and the mud – of the Amazonian floodplains, in accordance with Smith's stated goal.

Third comes Smith's most precious gem: His non-romanticized view of Amazonian rural and small community dwellers, the caboclos or ribereÃ±os depicted in a "good-savage" manner by so much of the literature. It is indeed stimulating to see a scientist who can deal with Amazonian people the way they are, including the ways by which they have changed and continue to change, instead of simply crying out for their "protection" against "outside" forces that threaten "tradition". In Smith's text, these Amazonians come out as quite resilient folk, who cling on to "tradition" as much as they adhere to "modernity", trying to strike a balance, just like any other group subject to rapid social change. Although Smith recognizes that caboclo life styles help protect and enhance the rich biodiversity, he does not encumber these people with the task of being the "good savages" in charge of protecting nature for the rest of humanity.

This attitude allows Smith to observe and analyze in a very balanced manner the entire set of local behaviors in relation to the natural environment, something required for the adequate understanding of highly dynamic junctures. He is particularly sensitive to a matter that I consider crucial: the adaptations of locals to take advantage of market opportunities for resources. Although he is in favor of "community resource management" projects being set up in the region with the help of several outside actors, Smith states correctly that many of these outside actors have "*tended to assume that communities are anti-capitalist, when in fact there is little evidence of this in the Brazilian Amazon. On the contrary, I have yet to meet a family of farmers or fisherfolk not interested in making money" (p. 159). By not idealizing locals, Smith can see much better and deeper than most contemporary observers of the Amazon scene, who are convinced that a crushed population is being vanquished by the alien forces of capitalism.

However, Smith does not go to the other end of the spectrum. He is not "disenchanted" with Amazonian folk. Right on p. 4, Smith says that his "message" is "*that biodiversity is an essential resource for adapting agricultural systems to shifting ecological and economic conditions, and that local knowledge is an often overlooked resource for the better management and conservation of biological resources [in the Amazon region]". Smith's basic proposal is that existing Amazonian biodiversity and knowledge should be used to intensify the use of the already occupied sections of the Amazonian ecosystems, avoiding policies and practices that cause the spread of farmlands. The author argues that the current populations living in the Amazonian floodplains have "learned not only to roll with the seasonal variations in water level, but to adapt to constant changes in the lay of the land." (p. 7). A mix of tradition with more modern adaptations allows these people to effectively extract natural resources and attain fair living standards, both of which can be improved without resource to extensification, or submission to established agronomic knowledge. Smith adds that most of the recent policies and efforts to develop Amazonia have been restricted to uplands, or non-floodable forests and savannas, where swarms of people can move in and out easily by means of roads. This has brought a smaller wave of direct demographic pressure to the floodplains, reachable only by boat. Non-Amazonians have a notoriously harder time adapting to areas not reached by cars and trucks. Smith argues that, despite this inferior demographic pressure, the time has come to look at the development of the floodplain areas, using "a blend of scientific research and indigenous knowledge, to "[boost] agricultural productivity" (p. 9).

In Chapter Two, Smith examines the "ebb and flow of culture" in the Amazon basin, in pre-historical and historical times. He sides with the literature that sees Amazonia as extensively changed by thousands of years of human occupation. He stresses that "[f]ar from being pristine, the forests of Amazonia have been altered for millennia by slash-and-burn farming and deliberate enrich-

ment by indigenous groups" (p. 15). In this point he follows the conclusions of the geographer William Denevan and the archaeologist Anna Roosevelt, and rejects the earlier findings of the archaeologist Betty J Meggers, who argued against the prevalence of larger and more dense societies in Amazonia in pre-contact times. Considering the region to have been fairly densely populated in the past, Smith adopts a serene outlook of contemporary processes of change, which he does not consider to be necessarily disastrous, either for humans or nature.

Smith points out that archaeological evidence shows that the edges of the uplands and isolated bluffs seem to have been prime locations of rather dense pre-contact human settlements that took advantage of the rich array of resources found in these interfaces. This pattern is commonly adopted by the contemporary populations studied by him. One of the traces of these large populations are the so-called "black earth sites" ("terra preta do Ãndio") on or near the floodplains, in which native populations practiced agriculture for large periods of time. Even today they display high fertility and are sought by contemporary Amazonians for their own agricultural plots. With an agriculture of manioc, sweet potatoes, yams, squashes, wild rice, and many species of fish and water mammals, plus game like capybaras, turtles and ducks, besides numerous collected fruit, there was more than enough in the tropical rain forests to support large and stable populations. Thus, the natural history of the Amazon ecosystems has been in part reshaped by the social histories of dozens or even hundreds of human societies, over thousands of years.

Furthermore, Smith shows that there is no evidence to suggest that any major ecological breakdown was caused by such populations and their agricultural activities, despite the changes that they introduced in the landscape. One of these changes may have been the selective introduction and reproduction of useful species from one part of the region to the other, or even from outside the region. The distributions of trees like the cacao, the Brazil-nut, and some palms, for example, suggest that in many places they were artificially introduced and protected, forming unusually dense groves in the vicinity of ancient villages and causeways. Smith speculates, quite reasonably, with a view that confronts any concept of an ecological breakdown of pre-contact societies. The sharp and swift decline of the native populations of many Amazonian sections after the 1500s (by disease, enslavement and displacement) may have even lead to the loss of knowledge about several domesticated or semi-domesticated species, besides allowing the regrowth of forests in settled areas. Therefore, South American rain forests may have yielded more domesticated plants than is currently known.

Smith also recalls that the great in-migration of rubber-tappers, who in the late 1800s went in great number to Amazonia from Brazil's Northeast, lead to very little deforestation, despite the many cultural and economic changes that it caused. This important detail is not grasped by many analyses of the rubber cycle. After the rubber boom was over, around 1915, there was actually a new decline in the regional population, that only in the last few years seems to be nearing pre-1500 levels. Smith thus shows that the region withstood population ebbs and flows and still harbors one of the richest biodiversities on the planet.

Chapter Three, "A Forest Cornucopia", is the one that makes the book unique. In it Smith shares with his readers the wealth of information about specific resources and practices which he collected among riverine peoples all over the basin. It is captivating both for beginners and for those who have a lot of mileage reading about and/or travelling through the region. In this chapter his text is almost a classical "ethnography" of "material culture", a tool or genre unfortunately less and less adopted by anthropologists. Smith shows details of dozens of useful products collected and/or cultivated in the floodplains - fruits, nuts, seeds, roots, barks, wood, fibers, latexes, animals - and highlights the context of biological and genetic diversity in which they occur. The aÃ§aÃ palm and its several by-products are followed from their collection in water-logged terrain to urban cottage shops and stores that process and sell popular drinks and desserts, passing through one or more wholesalers. Smith does the same with the products of other palm trees (buriti, caranÃ¡, tucumÃ£, bacurÃ, etc.), tree legumes, wild rice, several trees and shrub species that yield seeds (used as bait for fish and fodder for farm animals). Also studied are trees that provide building and weaving materials, and fuel for domestic kitchens and cottage industries. Numerous plants used for medicinal purposes are studied. For each, Smith provides information about origin, uses, area of occurrence, cultivation techniques, and deliberate protection from fires, grazing animals or cutting.

Smith also deals with Amazonia's most prominent issue: deforestation. He writes against the ideal of treeless floodplains, defended by many agronomists, planners and land owners (and existent in many stretches along the main body of the Amazon). Although roads have allowed extensive clear-cutting in uplands during recent

decades, floodplain forests were susceptible to much earlier logging operations based on the extensive network of navigable rivers. Smith shows that the combination of temporary and permanent cultures with native stands of trees on the floodplains, including small pasture areas, is a highly effective adaptation of Amazonians to the use of these seasonally disturbed lands. He admits (p. 81-82) that "[t]he bottom line is that it pays in the short term to log the [floodplain] forest in an unsustainable way", but he also records that both upland and floodplain farms are increasingly resorting to some form of agroforestry management. This allows that even small properties combine native stands of trees, planted trees and shrubs, pastures, corrals, seasonal agricultural plots, and backyard gardens.

Smith's examination of the "impact of livestock raising" (Chapter Four) is another outstanding feature of his book, as it is focused on the introduction of grazing animals in the floodplains, and not on the farms located next to the roads on the uplands. Pastures are shown to be a decidedly new addition to the landscape, as indigenous populations of Amazonia apparently never had domesticated grazing animals. Small numbers of cattle introduced in Amazonia since the 1500s were confined mostly to natural pastures of Amazonian savannas, but more recently fairly extensive pastures started to dot deforested stretches of the floodplains, specially next to larger cities. This growth was much enhanced since the 1960s, particularly with the introduction of the water-buffalo, an animal that adapted well to the environment. Smith shows how cattle raisers must move their cattle between lowland and upland pastures as the floods rise, always a burdensome task, and how water-buffaloes have the advantage of grazing in the flooded areas longer than the popular breeds of Zebu or Indian cattle.

Smith is realistic about the attractiveness of cattle to even the poorer floodplain dwellers: they represent "liquid assets", provide social prestige, serve as savings in a inflationary economy, and require little labor. (p. 97) Also, the caboclos, notorious for their intake of fish, appreciate beef once in a while, and some of them make money also with milk and cheese. Therefore, cattle should not be expected to disappear from the region. Smith concludes that "[w]ater buffalo and cattle can continue to make a valuable contribution to the regional economy of Amazonia, but management practices will have to change to reduce crop damage and environmental damage." (p. 99) Smith makes the case in favor of adding "forest-friendly small livestock" (p. 101), such as sheep and goats, pigs, turkey, guineafowl and chicken, and a few native game animals, such as the capybara, black-bellied duck and river turtles, to diversify sources of protein and ease pressures on forests.

Chapter Five examines several forms of agriculture, even though "[f]or the most part crop production is not a significant force in deforesting the floodplains." (p. 112) Smith looks at the not so famous boom-and-bust cycle of introduced jute plantations, initiated in 1931, peaking in the 1960s, and just about wiped out in 1980s by the competition of synthetic fibers for making bags for foodstuff. This cycle left abandoned jute processing plants in several cities, a type of industrial junkyard blemishing the supposedly tropical paradise of Amazonia. Gardening for the market (tomatoes, melons, watermelons, cucumbers, onions, etc.) has become an alternative for many a ruined jute farmer, and for other Amazonian who wish to make fast money, with the frequent ecological cost of inadequately used agrochemicals. Smith looks at these and other crops (such as maize, rice, squashes and manioc) as a valuable reservoir of genetic diversity and cultivating techniques that should be recorded and replicated or adapted by scientists, with the help of locals. For example, Smith personally recorded 79 varieties of the basic staple bitter manioc, but in the entire basin there may well be up to one thousand varieties of bitter and sweet manioc under cultivation.

In Chapter Six Smith records amazing rates of biodiversity in simple home gardens tended by single families, usually only by the females of the household. Many gardens include native trees ("protodomesticates", p. 143) that yield fruit, seed and gourds. He records the potential of fish farming, bee keeping, and turtle raising. On p. 149, Smith appeals for more research in agroforestry, stating that "[n]o single model or agroforestry configuration is appropriate for the entire stretch of the [Amazon] river. Environmental heterogeneity and differing market and cultural conditions preclude any one blueprint for development." Here and elsewhere Smith is keenly aware that the floodplain, despite being a specific type of Amazonian ecosystem, has natural and social variations that require quite specific solutions and uses, even for a development that purports to be sustainable.

Chapter Seven provides a brief and sharp connection between the "piecemeal" observations of previous chapters and the dimensions of regional policy and development. Smith maintains his distance from the mainstream literature when he keenly proposes that "* a major emphasis should be placed on working with the private sector to achieve the goal of conserving and better utilizing

the region's biodiversity." (p. 158), together with "community resource management" programs. On p. 159, he states correctly that "[a] command and control effort from central government to enforce environmental legislation has been largely ineffective, at least in rural areas of Amazonia. Rather than punish individuals and corporations for cutting down forests on their properties, incentives should be offered to encourage them to maintain forests." Smith therefore rejects the most common approach of Brazilian and non-Brazilian environmentalists and researchers - "praise the community and bash the land owners" - a formula that accomplishes very little, if anything.

Other controversial components of Smith's proposals are applied research in biodiversity and its conservation, the intensification of floodplain agriculture, the introduction of crops, varieties and livestock breeds from other regions (because "[r]esilient systems tend to be open to incorporating novel information." - p. 162), the assurance of rights to locals over resource development, and the democratization of credit. The book concludes with several appendixes containing the scientific and common names of plants cited in the text, the common names of cultivated varieties of bitter and sweet manioc and their respective sites of cultivation, and the names of 93 plant species recorded in 22 home gardens. There are also good suggestions for further readings.

In all, this is a very effective text. It is based on solid and original research, it is well written, and provides a "sense of place" that is missing in good part of the literature about Amazonia. It can be used as an introduction to Amazonian or tropical resource and development issues, but it is such a mature text that it can be also used in advanced classes, in policy discussions and in workshops or short courses. Above all, Smith is not afraid to describe at length, he is sober in its outlook of the local population, and he is very careful with statements about environmental destruction or social disruption in the region. It is a relief to read Smith's text in the context of so many texts that purport Amazonians either as "good savages" (community) or "defilers of the land" (business people), and that try to make us believe that the vast forested ecosystems of Amazonia are on the brink of destruction.

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