Raffles, Hugh. Anthropogenic Landscape Transformation in the Amazon Estuary.

30th Anniversary Special Issue, 2014, pp. 42–45

(Article Originally Published in 1995, TRI News Vol. 14, No. 1, pp. 20–23)
ANTHROPOGENIC LANDSCAPE TRANSFORMATION IN THE AMAZON ESTUARY

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INTRODUCTION

Local people have radically transformed the landscape of the Amazon estuary over the past thirty years and continue to do so. Preliminary fieldwork shows that major waterways previously thought to be natural are, in fact, anthropogenic, opened by farmers to improve access to agricultural fields and forest products. This report describes ongoing doctoral dissertation fieldwork in the Amazon estuary and addresses data gathered through semi-structured interviews with local farmers. A complementary ecological study to quantify stream increment and distinguish between human and "natural" processes is not described. Instead, I present four examples of landscape management carried out by local farmers who have cut streams (igarapés) from tributaries of the main river channel. It should be emphasized that although these interventions may have initially occurred at what appears to be a fairly small and localized scale, incremental erosion of river banks and diffusion of the techniques within the population have given them a significance such that today's landscape is apparently quite different from that of thirty years ago. Furthermore, although research up to now has focused on those manipulations specifically associated with the community of Ipixuna Miranda and which form the subject of this report, I believe that these interventions are widespread in the estuarine várzea (floodplain).

LOCAL ECONOMIC HISTORY

Ipixuna Miranda is a várzea community of approximately 25 families located on the Rio Ipixuna, near its confluence with the Amazon, about 5-6 hours by motor-launch northeast from Macapá, the state capital of Amapá (fig. 1). As is common throughout the lower Amazon floodplain, people in the community support themselves through hunting and fishing, marketing shrimp and the palm-fruit açaí (Euterpe oleracea), and cultivating and selling bananas and other agricultural produce.

As with other floodplain areas relatively close to the urban markets at Belém and Macapá, modern economic and environmental histories have been closely bound to the rise and fall in demand for extractive products. In the early twentieth century this meant the extraction of timber, particularly muritinga, cedro and virola. By the 1940s, interest had shifted to seed extraction of murumuru, andiroba and pracaxi, animal skins, and to rubber, the latter under multiple stimuli of the US-sponsored battle for rubber during the Second World War. Much of this trade operated under structures derived from the old-style credit-and-supply aviação system originated during the late nineteenth-century rubber period and tied the area to capital in Belém and Macapá, intermediate links in a chain leading across the Atlantic to Europe.

The 1950s saw the increasing importance of commercial fishing, particularly of catfish and shrimp, and the introduction of banana cultivation. By the 1960s, as in much of northeastern Amazon, açaí extraction, both for fruit and palmito, was becoming increasingly important, establishing a pattern which still persists, in which açaí and shrimp are the most significant goods produced locally for exchange.

This period, from 1960 to the present, is of particular interest for a history of landscape change and provides the focus of the present study. With the increasing valorization of minor forest products and the expanding market in bananas, permanent settlement began in the area. The first fazendeiro (large landowner) arrived in the early 1960s, bringing four families from his home district on Marajó Island.

LANDSCAPE TRANSFORMATIONS I:
INTERVENTIONS IN THE 1960s

The landscape local people remember from the 1960s is startlingly different from that visible today. Movement between the two major tributaries, Rio Ipixuna and Rio Pedreira,
for instance, appears not to have been possible. The complex network of streams and broad waterways that now typify the area was not present in the 1950s and early 1960s. The first interventions in the landscape can be documented from this period, when permanent modern settlement took place, along with human activities directed towards the extraction of forest products. Local farmers have described two episodes in detail:

i) Igarapé Coleira

This stream today extends for somewhat more than 3 kilometers, and is close to 100 m across at its widest point. It enables collectors of forest products to pass from the Rio Ipixuna into an area from which timber and palmito have been extensively harvested over the past thirty years (figs. 2 and 3, below).

Construction of Igarapé Coleira was organized by the local fazendeiro in the early 1960s.

ii) Igarapé Pracaxi

Igarapé Pracaxi is a smaller channel than Igarapé Coleira. However, it is of interest to the present study for two reasons. First, although it was constructed by caboclos (smallholders) during modern settlement, it was opened independently from the fazendeiros. This is significant for a period in which local caboclos were compelled to sell their produce exclusively through the large landowner. Second, it is the site of current resource conflict, indicating ways in which disputes over access to resources are tied to control over the landscape.

This igarapé, which now extends approximately 500 m, was constructed from a narrow, seasonal channel by one caboco family over several months. Again, the purpose was to improve access to forest products. In this case, people were particularly interested in extracting large timber species.

LANDSCAPE TRANSFORMATIONS II: RECENT INTERVENTIONS

Techniques involved in landscape management have been adapted to changes in local social relations. A critical moment in the environmental history of this area was the introduction by fazendeiros of large numbers of water buffalo in the 1970s; heightened local tension can be correlated with the appearance of these animals. Water buffalo are difficult to control: they swim across rivers and often enter fields and destroy crops. Caboclos also complain of the buffalos' negative impact on water quality and fish harvests. The exacerbation of lateral erosion due to persistent grazing by buffalo on aninga is highly probable.

i) Igarapé Ipixuna

Despite the negative effects of buffalo on caboco livelihood and the unremitting antagonism expressed towards them by local people, caboclos have been able to generate some compensatory effects from the animals through creative management. Specifically, channel opening since the 1970s has involved caboclos' utilization of buffalo belonging to fazendeiros, in what appears to have been a semi-clandestine fashion. The igarapé which connects Rio Ipixuna and Rio Pedreira, and which therefore now links communities on the Ipixuna and Macacoari rivers with a recently-completed road to Macapá, was opened by a team of caboclos in an effort to improve transportation routes in the area. They first cut a 2 m wide channel through campo lagado and then repeatedly drove buffalo through the opening. Informants have suggested that all igarapés formed in recent years have been opened in this way.
ii) Igarapé Abacate

In 1974, a team of 30 caboclos, organized under their own management, spent a total of 30 working days clearing a 5 m channel approximately 2 kilometers through a dense covering of aninga and taboa to facilitate a family’s access to their banana field. As with Igarapé Pracaxi, this route had previously been passable only in a small canoe, with great difficulty, and then only in the rainy season. In August, for instance, it was impassable. The rest of the year it was possible to travel a certain distance on foot, continue a little further by small canoe, before finally switching to a larger vessel. In 1984, in response to higher prices for bananas and to valuable harvests spoiling in inaccessible fields, the same channel was extended a kilometer further, providing access to several more farms.

POLITICAL ECONOMY AND RESOURCE CONFLICT

The specificities of how and by whom stream management is carried out have varied across time and space. The different forms of labor mobilization apparent during the history of landscape management in Ipixuna can be linked to the local and regional political economy. Shifts in landholding structure and accompanying changes in the relations of production established the conditions for different forms of labor organization, at times either cooperative or quasi-coercive. Notwithstanding these differences, both large and small farmers have built channels as a way to benefit from the increase in market value of particular agricultural and extractive commodities. In turn, the markets in forest and agricultural products have been influenced by the shape of the landscape, which increases the flow of goods and may accelerate the depletion of extractive products. Moreover, changes in the landscape have complicated the local landholding structure by disturbing property boundaries and affecting the value of individual holdings.

With the recognition that local economic history is dialectically related to the shape of the landscape, it also becomes apparent that stream manipulations are an important factor in local resource conflict. For example, the resolution of ongoing conflict over açaí in Ipixuna will depend on the capacity of people in the area to exercise control over the landscape. Açaí has a central symbolic and nutritional place in the peasant diet and importance as a subsistence and cash crop (Anderson and Jardim 1989). However, for more highly-capitalized landowners the value of the tree lies in the destructive harvesting of the palm-heart for export. Current conflicts therefore center on the increasing scarcity of the palm. Igarapé Pracaxi, described above, is an example of a disputed channel which, if extended, would provide access to remaining wild stands of açaí. Despite pressure from local landowners, caboclos have prevented the landscape from being changed in this way, and, at present, the stream ends in an impassable thicket of aninga (fig. 3).

ECOLOGICAL CONSIDERATIONS

The fluvial landscape in this area is subject to three types of “unnatural” disturbance: large-scale human stream construction through manual labor, stream opening in which both humans and buffalo are involved in the initial clearing process, and erosion induced by the physical impact of buffalo and their repeated predation on aninga.

In the undisturbed system, erosion is limited by dense stands of aninga and taboa, present either monospecifically or in association. When these are subject to continuous disturbance, degraded areas are initially colonized by an unidentified vine, and then by a dense covering of the thorny shrub aturí. This second plant is aggressive and highly competitive and makes land unsuitable for either pasture or cultivation. An alternative pathway after the loss of aninga is a landscape denuded of all vegetation except close-cropped grasses and subject to rapid erosion. It is assumed that this latter system develops in locations with higher densities of buffalo in which aturí cannot become established.

The ecology of stream management in Ipixuna is therefore complicated by two inter-related processes: the widespread, destructive activities of the buffalo herds, and the powerful erosive forces of the rivers themselves. In this context, it is important to re-emphasize that human interventions are concerned with the location of streams as modes of access to resources, rather than with the rate at which streams open and the landscape changes. Nevertheless, farmers do exert control over the rate and scale of stream-opening and development by their selection of location in relation to tidal flows of varying strengths. The relatively rapid growth of Igarapé Ipixuna, for instance, appears to be the result of its position as a link between the two major tributaries.

IMPLICATIONS

An important aspect of this study lies in its assertion of local human agency in relation to the Amazonian landscape. The elaboration of an anthropogenic Amazon allows us to question the familiar reading of the Amazonian landscape as a natural space and to emphasize the identity of the landscape as a cultural product of its population, one with a history of human management like any other. By documenting the extensive and transformative human
impacts on what has previously been considered a landscape subject only to natural ecological processes, we can begin to undermine the popular, academic and policy construction of the Amazon as a pristine domain. In this way, the present research builds on a body of Amazonianist literature which has emerged in the last decade and has documented the wide-ranging effects of traditional forest management (e.g., Posey 1985, Denevan and Padoch 1987, Balée 1989, Denevan 1992).

ACKNOWLEDGEMENTS

This research was carried out with the generous assistance of the Yale Center for International and Area Studies, the Yale Tropical Resources Institute, and the Program in Agrarian Studies at Yale University. Thanks to everyone in Ipixuna for putting up with me, and to Miguel Pinedo-Vasquez, Christine Padoch, Valdir Perreira, Jaime Robelo and Marcirene Machado and family, and Trish Shandley for advice and support.

LITERATURE CITED


