

## CHAPTER 1

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# Edges, Fringes, Frontiers

### Cultural and Ecological Complexity

The unifying theme of this study is edges, ecological and cultural. Ecological edges or ecotones, including the meeting point of Amazonian forest and savannah that is the location of the case study in this book, are of particular interest in biological conservation (Spector 2002). Ecotones not only harbour disproportionately high levels of biodiversity relative to their spatial extent, they are also key sites at which evolutionary change generates new biodiversity (Smith et al. 1997; Schilthuizen 2000).

Indigenous populations directly dependent for their survival on the local ecology have long been aware of the biotic richness of ecotones, tending preferentially to inhabit such areas in order to have access to a wide range of biological resources (Crumley 1994a: 11; Turner et al. 2003). Substantial ethnographic evidence indicates that such populations make active contributions to the role of ecotones in harbouring and generating biological diversity: manipulation of ecological edges by their human inhabitants in many cases simultaneously increases their physical complexity, biological richness and production of useful materials (e.g. Posey 1985; Fairhead and Leach 1996; Posey 1998). These processes of cultural enhancement of biodiversity and the spatial locations at which they take place (whether or not the latter are ecotones) I will here term 'fringes'. At a fringe, evolutionary and ecological creativity engage in complementary, mutually enhancing dialogue with the cultural creativity of resident human populations.

Both fringes and ecological edges have important parallels with cultural edges: processes of persistent social interaction involving ongoing material and informational exchange (Turner et al. 2003). Material exchange at a cultural edge provides access to resources from geographically distinct zones and is thus a cultural strategy for reproducing the

advantages of ecotone settlement at non-ecotone sites (Turner et al. 2003). Cultural edges are also sites of informational exchange, and so function as engines of cultural diversity. Transmission of ideas and practices among the groups involved extends the repertoire of environmental knowledge and associated skills available to each. We can conceptually link these common characteristics of ecological and cultural edges in terms of their parallel contributions to enhanced resilience – the capacity to respond creatively in the face of change (Gunderson et al. 2002: 323–25; Walker et al. 2004) – in the ecological, social, and social-ecological systems of which they are a part (Turner et al. 2003).<sup>1</sup>

As a contrast to cultural edges, I here wish to define cultural frontiers as processes of intercultural encounter in which loss of cultural information on one or more sides leads to an overall reduction in cultural diversity. Again, cultural frontiers have their counterpart in ecological frontiers, the opposite of fringes: processes of cultural manipulation of ecological systems leading to their simplification and loss of biodiversity.

Edges, fringes and frontiers are not fixed, discrete categories, but idealized characterizations of extreme situations: analytical fictions employed in this work as guidelines for the examination of real examples of human ecological and intercultural relations. Any real-world example will combine, in complicated ways, features of edges, frontiers and fringes; the use of these terms cannot act as a substitute for detailed description of specific cases. The theme of the present work, to state it more fully, is an examination of the conditions promoting the formation of fringes and cultural edges, rather than ecological and cultural frontiers.

I have chosen the term ‘frontier’ as I believe it to be an accurate characterization of the limits, at any point in time, of expansion of the global project that Scott (1998) has referred to as High Modern Capitalism (HMC). These boundaries are themselves neither clear nor discrete: the economic, sociocultural and ecological effects of capitalist relations of production extend far beyond their area of direct political control, in dynamic and complicated patterns (Wolf 1982). Marxian analyses such as Wolf’s tend to emphasize the material properties of such boundaries, but they also have subjective features. Scott emphasizes as much with his focus on locally situated knowledge, *metis*, as both the crucial missing ingredient in HMC, and its counterweight (Scott 1998: 309–41; cf. Richards 1985). In this and many other ways, HMC is a cultural project whose advance depends on its ability to capture and constrain imaginative possibilities (Guattari 2000; Kidner 2001; Pretty 2002). As these subjective dimensions are crucial to the argument in this book, I adopt a term that gives them equal emphasis: Babylon, which Gerrard Winstanley used to refer to the corrupt government against which he and the Diggers pitted themselves

in seventeenth-century England (e.g. Hill 1973: 306), and whose usage persists in modern radical discourse.

In the context of the present study, I define Babylon as any sociocultural system whose development involves spatial expansion that produces both ecological and cultural frontiers. Subjectively, this involves reducing ecological systems to sources of raw materials or ecological services, and their resident populations to sources of knowledge and skills to be employed in the exploitation of these resources, both narrowly articulated within scientific-rationalist approaches to understanding (Agrawal 1995, 2002; Escobar 1995: 192–211; Miller 1998; Scott 1998). Imbalances of political and material power mean that these subjective simplifications take on objective reality. At its ecological frontiers, Babylon simplifies complex and diverse habitats, diminishing their ecological value (Millennium Ecosystem Assessment 2005). At its cultural frontiers, Babylon tends to assimilate marginal populations, imposing upon them its own norms, values and languages (Wollock 2001). Its expansion is thus a direct cause of linked losses of biological and cultural diversity (Harmon 2001, 2002; Maffi 2001a, 2005).

In the present globalized era, international capitalism has taken a new postmodern form, labelled 'Empire' (Hardt and Negri 2000). Hardt and Negri identify all-pervasiveness as the key novel feature distinguishing Empire from the spatially expansive global capitalism of the colonial and postcolonial eras. Importantly, they hold this to be true in subjective terms, and so claim that nowadays there exists no subjective space that has not been colonized by Empire, no view from without on the basis of which to challenge it. If this were true, it would imply an absence of frontiers (and edges). However, while Empire is a theoretically coherent and analytically productive notion, and an accurate description of the transnational form of capitalism that materially links and provides a common ideology underpinning all contemporary Babylonian societies, the assertion that it has assimilated all subjectivities worldwide is factually inaccurate. Global capitalism has not become an all-pervasive, wholly self-referential organization: it retains ecological frontiers at which it continues to simplify biological systems in order to facilitate their appropriation for production, and cultural frontiers at its sites of encounter with many indigenous populations. Dissent against Empire, then, comes not just from within, from the 'Multitude' (Hardt and Negri 2004) seeking to marshal their own subjective creativities in pursuit of practical alternatives (e.g. McKay 1996; Lindquist 1997; Leyshon et al. 2003), but also from indigenous populations worldwide who continue to assert their right to cultural and economic self-determination (Arce and Long 2000; Shiva 2006).

I make this assertion the basis of a definition of indigenous that, whether or not it has any useful application elsewhere, I will employ in the present work. Indigenous populations I thus define as those that remain outside the scope of Empire or, more specifically, free of Empire's exertion of biopower (Hardt and Negri 2000: 22–30): having retained independent control over their biological and social production and reproduction, being therefore economically, culturally and – at least at a local level – politically autonomous, and, crucially, maintaining subjective and intersubjective independence, or in other words continuing to produce characteristic and distinctive structures of meaning, regardless of whether or not these incorporate influences from Empire.

While Empire's relationship with its constituent subjects is one of immanence (Hardt and Negri 2000: 325–32), that with populations outside its productive and symbolic control is in most respects colonial rather than imperial.<sup>2</sup> Analysis of such encounters requires a conceptual framework that retains space for viewpoints disembedded from and external to the system. Empire's relationship to diversity is different from that of Babylon: rather than undermining it, it seeks to put its own service via its control of 'biopolitical production' (Hardt and Negri 2000: 22–41). The consequent inclusion of some indigenous populations in Empire's global political community is to be celebrated (Wilmer 1993), but this hard-won and important victory is nonetheless only partial, being contingent upon an implicit ideological consent to Empire that undermines the notion of indigenous employed in the present work (see also Benjamin and Tiessen 1993).

Particularly in the light of climate change, concern over environmental sustainability has opened up new discursive spaces that are potentially transformative of global politics and economics (Hulme 2009; Jackson 2009) in ways favourable to previously subaltern perspectives. This book seeks to advance the case that these perspectives – including those of indigenous groups directly responsible for the ecological consequences of their own productive activities – represent alternatives to a politically dominant set of subjectivities that are the source of loss of biological and cultural diversity, and the only existing basis for reversing this.

Babylon's evident inability to produce anything but ecological frontiers appears somewhat paradoxical, especially when contrasted with fringe-producing indigenous societies lacking both Babylon's technical means and any emic equivalent for the concern with environmental conservation that has achieved such prominence in recent decades. The term 'conservation' has no recorded parallel in any non-European language (Alcorn 1993) and must, at the very least, be redefined if it is to have any genuine cross-cultural validity (Berkes 2003).<sup>3</sup> However, and documented

examples to the contrary notwithstanding, the majority of areas inhabited and used by such peoples are – or at least were prior to their encounter with Babylon – biodiverse and ecologically healthy (Vickers 1991; Sponsel 1995a, 1997; Barbosa 1996). In many cases, this ecological richness is at least partly anthropogenic (e.g. Posey 1985; Balée 1989, 1993; Fairhead and Leach 1996; Pyne 1998; Yibarbuk et al. 2001). Multiple clear ethnographic demonstrations exist of the ability of traditional resource users, lacking strong centralized organization and using only very simple material technologies, to solve complex ecological management problems so far intractable to Babylonian science (e.g. Johannes 1998a; Berkes 1999: 111–126), despite the huge quantities of financial, technological and intellectual capital the latter nowadays invests in environmental management. Evidence of capacities for ecological manipulation by indigenous populations, along with counterexamples of ecologically destructive behaviour (e.g. Janetski 1997; Penn 2003), allows us to dismiss claims that indigenous maintenance of biodiversity is incidental, resulting from a lack of technical capacity to damage the environment (Alvard 1995, 1998; Esbjörn-Hargens and Zimmerman 2009: 298), as factually incorrect (Berkes 2008).

Why then, if many indigenous populations can produce fringes, can Babylon produce only ecological frontiers? Modern anthropological research on traditional ecological knowledge has provided significant insights, and the present work builds on this in its examination of the parallel factors at work in the production of fringes and cultural edges. This examination is based largely around a case study of Wapishana Amerindians in Guyana.

Certain features of this case make it an exemplary illustration of the argument of this book, which I summarize as follows. Wapishana people inhabit, use and manipulate ecological edges, interacting with them as fringes thanks to a composite ecological epistemology more complex – in a very specifically defined sense – than a Babylonian ecology that can be meaningfully caricatured as scientific, technocratic and an instantiation of programmatic rationalism. Application of a similarly complex perspective to their engagements to date with colonial, national and international society has allowed them, thus far, to negotiate these engagements predominantly as cultural edges, at which material and informational exchanges enhance cultural diversity, both among the Wapishana themselves and within the system as a whole. Babylon, in contrast, applies to both ecological and intercultural relations a less complex perspective, inadequate for the navigation of complexity in either ecological or socio-cultural systems. The dominance of the Babylonian perspective produces neither edges nor fringes, only frontiers. The theoretical study advanced

in this book is thus an examination of the dynamic interrelationship of mind and nature (Bateson 1979; Guattari 2000), and the links between biocultural diversity (Maffi 2001b, 2005) and social-ecological resilience (Berkes and Folke 2002; Berkes et al. 2003).

The following three sections provide a broad overview of the case study around which I will make this theoretical argument, in terms of cultural ecology ('Wapichan Itaodaza Sannao'), ethnohistory ('Cultural Edges in Wapishana History'), and the accelerating integration with national and international economic systems that Wapishana people in southern Guyana were experiencing at the time of fieldwork ('Cultural Edges in Recent History'). Later chapters expand on all of these. To summarize, Wapishana people, resident across a major ecological edge, manipulate their habitat in a range of ways, both intentional and unintentional. The broad outcome of these manipulations – with some exceptions of detail – is consistent with the model of the fringe at which partial domestication of a habitat contributes to increased levels of ecological complexity. Historically, largely due to geographical remoteness, Wapishana interactions with Babylon have taken the form of a cultural edge, at which cultural interchange has tended to enhance rather than diminish social-ecological resilience, and with it the capacity to maintain a productive ecological fringe. From the 1990s onwards, increased intensity of interactions with the Guyanese state and with international actors mediated by it have begun to threaten the ability of the Wapishana people to maintain control over processes of cultural interchange, which risk assuming more frontier than edge characteristics.

### **Wapichan Itaodaza Sannao: On the Edge of the Forest Zone**

The ethnographic data on which this argument is based are the product of field research in the South Rupununi region of Guyana, South America, during 1998, 1999 and 2000. Of a total of eighteen months in the Rupununi, the majority was spent in the Wapishana village of Maruranau, with small amounts of time in other villages. Biogeographically, the area is part of Greater Amazonia. The Takutu River, which drains the western part of the Rupununi Savannah and forms the southwestern border between Guyana and Brazil, feeds via the Rio Negro into the Amazon itself. Rivers and creeks in most of the area settled and used by Wapishana people in Guyana run north and east, eventually reaching the Essequibo, Guyana's largest river. Although not part of Amazonia proper – the catchment of

the Amazon River itself – they are part of Greater Amazonia, the broader block of continuous forest within which the Amazon basin lies.

Greater Amazonia, despite the depredations it has suffered in recent decades, remains the world's largest intact tropical forest block, and in the misleading terminology employed by Babylonian conservation, one of the planet's major remaining wilderness areas (Mittermeier et al. 2003). Guyana's Wapishana population, somewhere over seven thousand in number in 1998,<sup>4</sup> having increased at a healthy rate throughout the second half of the twentieth century (Forte and Pierre 1994: 11–12; Henfrey 2002: 68), predominantly inhabits the forest's boundary with the southern part of the Rupununi Savannah, an extension of the larger Rio Branco savannah of northern Brazil eastwards into Region Nine of Guyana (Hills 1968: 36, 39; 1973: 351). Wapishana settlement spans a variety of habitat types within this ecotone – edges within edges – while ecological fringes associated with Wapishana resource use in turn generate spatial and temporal edges at finer scales.

Most of the main Wapishana settlements east of the Takutu lie on a broad arc marking the boundary between the savannah and several ecologically distinct types of adjacent forest (see Figure 8.1). To the north, Sand Creek, Rupunau and the mainly Makushi village of Shulinab are located in the southern foothills of the Kanuku Mountains. The Kanukus themselves incorporate a number of ecologically distinct altitudinal zones (Parker et al. 1993), all exploited to some extent by residents of these villages. The 'East End' villages of Shea, Maruranau and Awarewaunau are at the edge of the forests of the Kwitaro River basin, their zone of use extending east into the Rewa and Upper Essequibo basins. To the south, adjacent to the forests of the Kujuwini River, are Aishalton, Karaudanawa and Achiwuib.

Several other villages lie further from the main forest block, but adjacent to forest fragments in the savannah. The transition between forest and savannah is not abrupt, but extends over a broad area, including patches of savannah in the forest, gallery forests along savannah creeks, wooded hillsides and 'bush islands'. Bush islands are patches of forest in the savannah, ranging from tens of metres to several kilometres in breadth. Their origin is obscure, but appears to involve several interconnected factors, quite possibly including anthropic manipulation (Salisbury 1968: 12–13; Hills 1973: 353–356). Several Wapishana settlements, notably Sawariwaunau and Katoonarib (whose name derives from the Wapishana term for these formations, *katoonari*),<sup>5</sup> rely on them for agriculture (Cook 1968). Wapishana settlement, then, straddles the transition zone between savannah and forest, taking advantage of the ecological properties of both habitats and of the ecotone itself (see also

ARU 1992: 4–5; Potter 1993: 2; cf. Butt 1977: 3 on Akawaio people in western Guyana, and Moran 1993: 118 for Amazonia in general).

Roughly speaking, and emphasizing the most important feature of this pattern, people reside on the savannah and farm in the forest. Almost all families have their main residence on the savannah, which is considered both healthier to live in than the forest and to provide better views. The homestead is the site of some cultivation, usually minor, notably of fruit trees, of which every house has at least one or two, and some several dozen. Some people plant medicinal and other useful plants in small homegardens. Vegetable cultivation in these homegardens has in recent years become an increasingly common activity, a result of coastal influences and agricultural extension work by foreign non-governmental organizations (NGOs). Some Wapishana people are actively investigating possibilities for increasing the scope of savannah agriculture. However, the need to fence gardens against domestic livestock and the low fertility of savannah soils, long since identified as the major barrier to agricultural productivity on the savannah (Rutherford 1956; Salisbury et al. 1968), continue to limit its importance. For production of cassava and other staple plant foods, Wapishana cultivators predominantly rely on long fallow swidden agriculture based in the forest. The typical daily routine consequently involves a walk of several kilometres between house and farm, across the boundary of forest and savannah. The regular crossing of this boundary and its designation as *itaodaza* ('bush mouth' in Creolese), one of a fairly small number of terms for ecological zones in the Wapishana language, symbolize and reflect the importance of the ecotone in Wapishana life. Most families keep a second house in the forest near the farm, a base for extended stays during busy periods in the agricultural calendar and school holidays. Many also have hunting and fishing camps deeper in the forest. These secondary forest dwellings, especially those at the farms, are the sites of much of daily life. Wapishana settlement thus encompasses not just the main village sites on the savannah, but is a constant traversal of the forest-savannah ecotone (cf. Ellen 1978: 26).

While the house/farm distinction is fundamental, it by no means exhausts the ways in which Wapishana people take advantage of the ecological differences between forest and savannah. Some activities predominantly take place in one or the other. Domestic animals roam free in savannah areas in and around the village. Its greater range of undomesticated species makes the forest more important for gathering both plant and animal products, but the savannah harbours some key resources. Most important among these is the palm referred to in Creolese as *etai*, *Mauritia flexuosa*, scarce in the forest but abundant along savannah creeks,



the source of raw materials for roof thatch and many craft products in addition to an edible fruit. Bush islands and gallery forests provide shade for animals as well as materials such as firewood for savannah homesteads, and many other useful species occur predominantly or solely in these habitats or the open savannah (see also Salisbury 1968: 13).

Wapishana people often speak figuratively of going to the forest to hunt and the savannah to fish. In truth, each habitat supports both activities, although the potential of each is different. The forest supports game animals in greater diversity and number, and is the site of most hunting, whether opportunistic in the course of other activities such as travel to and from the farm, or on extended trips to the forest undertaken mainly for that purpose. The savannah includes game species rare or absent in the forest, including the white-tailed deer (*Odocoileus virginianus*). Others are found in both habitats, but differentially available in each. Agouti (*Dasyprocta agouti*), laba (*Agouti paca*) and naked-tailed armadillos (*Cabossous unicinctus*) inhabit gallery forests along savannah creeks, but are forced onto higher ground on the open savannah by rainy season floods, making them easy targets for hunters. Laba also occupy riverbanks in the forest, but in that habitat are easier to locate during the dry season, when hunters walk the beds of shallow creeks by night, using battery-operated torches to reflect their eye-shine.

Hunters also exploit the movement of animals across the forest–savannah boundary, most dramatically that of white-jawed peccaries (*Tayassu pecari*), favoured prey of the Wapishana hunter. During the rainy season, peccary herds emerge from the forest in search of etai fruits. Herds are commonly over one hundred in number and anyone spotting the animals or their tracks on the savannah immediately rushes to spread the word, leading to the participation of the entire village. These group hunts can be spectacular events, and some have become part of local legend, still talked about years or even decades later.

Riparian habitat is another major ecotone, used not only for fishing but also for hunting aquatic and semi-aquatic animals, including various species of caiman and river turtles, iguana (*Iguana iguana*) and capybara (*Hydrochaeris hydrochaeris*). Like the savannah, large rivers are open areas that can provide hunters with opportunities to spot and shoot animals on the banks or while crossing. Animal foods gathered at the riverside include crabs and the eggs of turtles and iguanas, which dig nests in sandy riverbanks. Fishing takes place in lakes, ponds, major rivers and smaller creeks in both the forest and the savannah.

The location of rivers and creeks is another important factor in Wapishana settlement. Sand Creek and Rupunau are both at the confluences of major rivers. Sawariwau and Katoonarib are close to the

Rupununi River and Sawariwau creek. Apart from the upper reaches of the Rupununi, where Karaudanawa is located, there are fewer major rivers in the Deep South. The most important fisheries for these villages are in deep forest, on the Kwitaro and Kujuwini Rivers or their major tributaries, where many residents maintain hunting and fishing camps as secondary or tertiary residences.

While there is little evidence for intentional or active Wapishana management of the forest–savannah boundary, it is manipulated during subsistence in various ways, many of which create edges on smaller spatial scales. The net effect seems to be ecologically beneficial. At least some bush islands appear to have their origins in human activities (Salisbury 1968: 12–13). A study of satellite images over several decades showed the forest not to be receding in any area settled by the Wapishana, and advancing into the savannah at one site north of Shea (Eden 1986). Residents of Maruranau showed me areas where forest cover has extended within living memory and appears – to their view – still to be doing so. On the other hand, one of the few non-Amerindian long-term residents of the South Rupununi reported localized loss of tree cover on many low savannah hills over the past few decades, attributing this to the common practice of setting fires in the savannah.

Wapishana people commonly light fires in the savannah during the dry season. Previous research concluded that this was done to prevent dry season wildfires (ARU 1992: 3; cf. Pyne 1998; Sponsel 1998: 384–385; Berkes and Folke 2002: 130–133; Scheffer et al. 2002: 207). Wapishana informants in the present study reported other practical advantages, notably reducing cover for poisonous snakes and promoting growth of young shoots palatable to grazing livestock. On the other hand, some expressed concern about possible negative consequences, including lower etai recruitment resulting from fire damage to seeds and young trees, with secondary effects on the hydrology of creeks whose lining of palm groves has been depleted in this way.

Fire is set in a more controlled fashion as part of the agricultural cycle, in the annual burning of swiddens. This creates spatial edges around farms, as do clearings maintained on a longer-term basis around secondary dwellings in the forest, many of which are planted with fruit trees. Succession in abandoned farms creates temporal ecotones (Posey 1998) whose composite effect is to increase the physical heterogeneity, structural complexity and biological diversity of the broader zone of transition between forest and savannah. Deeper in the forest, Wapishana hunters occasionally practise a form of trail agriculture (Chapter 6, section ‘Overview of Wapishana Agriculture’; cf. Posey 1985), burning dry fallen trees along trails or at hunting camps to create a small space for planting.

Gap and early succession microhabitats in these trail farms, swiddens and fallows attract many species of game animals, including crop predators such as peccaries, laba and agouti, and browsers on herbs and shrubs characteristic of secondary growth, such as tapir (*Tapirus terrestris*) and red brocket deer (*Mazama americana*). Wapishana resource users thus effectively manage the forest-savannah ecotone as a fringe, exploiting, manipulating and enhancing its heterogeneity in a variety of ways.

The area inhabited by Wapishana people in Guyana is also an edge in the important sense of being the furthest extent of persistent human occupation. Heading east into the forest from the South Rupununi, the only permanent human presence is a very small number of isolated Wapishana hamlets. This edge provides further ecological possibilities exploited by Wapishana resource users: the rarely visited Rewa and Upper Essequibo Rivers hold large fish stocks (cf. Berkes 1999: 120–21), and their surrounding forests abundant game, much of it naïve about the dangers posed by human hunters. Preparation for special occasions such as birthdays, weddings or Christmas often involve hunting and fishing trips to these areas to obtain provisions in suitable quantities for a celebratory feast.

Despite their marginal geographical location, which itself appears to be a consequence of missionary activity during the early period of Portuguese occupation in Brazil (Rivière 1963; Chernela 1998), the Wapishana have not been isolated from broader society. Contemporary influences of global political and economic systems, which provide the major context for the present study, are unprecedented in their intensity. However, the activities of politically dominant non-Amerindian populations have affected the Wapishana for the past several centuries and particularly since the onset of continuous, though sparse, European residence in the South Rupununi from the early 1900s. The importance of this in Wapishana history is the subject of the next section.

### **Cultural Edges in Wapishana History: The Early Colonial Period**

It appears that conflict was more prominent than productive interchange in early Wapishana experiences of the frontiers produced by various European colonial powers as they penetrated the interior of South America. Both historical and linguistic<sup>6</sup> evidence suggest that the original Wapishana homeland was along the Uapes River, a tributary of the Rio Negro in what is now the northwest of the Brazilian state of Roraima (Rivière 1963: 115–16). If that is the case, it is likely that they were among the Amerindian peoples affected by the forced resettlement imposed

by Jesuit missionaries in the area (Rivière 1963: 64–65; Hills 1968: 55; Chernela 1998). Historical records indicate substantial eastward migration of Wapishana people from the Rio Negro region during the eighteenth and nineteenth centuries (Rivière 1966). It thus appears that the original Wapishana migration into what is now Guyana was a flight from activities connected with Portuguese colonialism.

Ethnographic and ethnohistorical evidence gathered by several previous researchers contradicts the claim of archaeologists Meggers and Evans (1965: 23) that the Guianas were a previously uninhabited refuge zone for people displaced by European and intertribal aggression. Crossing the Takutu brought the first wave of Wapishana migrants into a Rupununi region already populated by various Carib peoples, notably the Makushi, whose main present-day territory in the North Rupununi borders that of the Wapishana and who are the numerically dominant group in the South Rupununi village of Shulinab. An early colonial despatch from the eighteenth century reports the Makushi and Wapishana to have been at war, but later reports indicate that they had settled peacefully in mixed villages through the North Rupununi, with intermarriage being common. South of the Kanukus, Wapishana immigrants encountered and intermarried with prior residents of several groups, notably the Atorad, Taruma and Paravilhana (Im Thurn 1883: 170–71; Harris and de Villiers 1911: 616–19; Farabee 1916: 428, 1918: 131–36; Rivière 1963: 260–61; Butt Colson and Morton 1982: 221); genetic studies confirm genetic exchange with Makushi and other groups, as well as low levels of gene flow with non-Amerindian populations (Neel et al. 1977; Salzano et al. 1980). By the middle of the twentieth century, the Atorad, Taruma and Paravilhana had either vanished or were disappearing as distinct groups (Roth 1929: IX; Peberdy 1948: 18), remnant populations in many cases being incorporated into the now-dominant Wapishana, among which tiny numbers of Atorad and Taruma speakers survive today.

While both Wapishana and Atorad, which according to contemporary Wapishana speakers familiar with both languages are mutually intelligible, are languages of the Arawakan family, many of the other groups encountered by Wapishana immigrants into the Rupununi, including the Paravilhana and Makushi, are or were speakers of Carib languages (Gillin 1948: 802–10). Patterns of settlement and social organization I documented in modern Guyanese Wapishana are consistent with those reported in general surveys of the Carib peoples (Butt Colson 1984). Wapishana contact with these groups having been as much assimilative as confrontational, it is almost certain that their adaptation to their new environment was both social and ecological, strategies for life in the ecotone being learnt from these prior residents. Certainly, Wapishana cultural ecology is well

adapted to the ecotone habitat, a marked contrast to the situation of many Amazonian populations suffering postcontact displacement from their native forests into the central Brazilian savannahs (Moran 1993: 125–26). It also shows marked variation – practical and linguistic – from place to place, reflecting the variety of distinct ecological conditions encompassed by present-day Wapishana settlement in Guyana.

From the fragmentary historical and ethnohistorical information available, intercultural contact resulting from Wapishana immigration into the South Rupununi appears to have had elements of frontier as well as edge. Several languages have disappeared, or are on the verge of doing so, and have been replaced by Wapishana as a single dominant language. The Wapishana language itself has changed in the process and exhibits substantial dialectical variation across its range.

The Wapishana have not only exploited the political boundaries established by the colonial powers, they actively and creatively participated in their definition. Evidence of Wapishana and Atorad witnesses was crucial to the resolution of a dispute between Britain and Brazil over the location of their border in the savannahs, and to its eventually being located at the Takutu River rather than the Rupununi (Rivière 1995: 37–38, 67, 174). Movement and links across the Brazil–Guyana border, which divides the homelands of the present-day Wapishana, have thus been a persistent feature of Wapishana life throughout postcontact history. The border remains significant up to the present day.

The major current trend is labour migration to Brazil, a result of dissatisfaction among many young Guyanese Wapishana with the limited options, largely based around more or less traditional subsistence lifestyles, available within their own villages and the scarcity within southern Guyana of the opportunities for wage labour most crave as an alternative. The high volume of emigration among young adults reported in previous research (ARU 1992: 52–53) had, if anything, increased by the time of this study a decade later, young adults being entirely absent in some villages. Some move seasonally or return after several years' absence to settle down and raise families in their home villages. Others leave young children in the care of grandparents, send remittances and visit during holidays.

Many older Wapishana are greatly concerned about the effects of labour emigration, whether to Brazil, Georgetown or the mining areas of western Guyana. Most emigrants find only menial work as labourers or domestic assistants; some become involved in crime and gang violence. Separation from family, loss of local knowledge, and isolation from the systems of social and material exchange underlying subsistence production are among the most serious reported consequences. Through human

mobility and lifestyle choice, the frontier with Brazil's cash economy extends far beyond the country's direct territorial reach. Similarly, emigration of young adults to mining areas elsewhere in Guyana extends the social impact of the internal frontier far beyond its physical boundaries, whose presence in the South Rupununi was until fairly recent times only weakly felt.

Although British colonial despatches from the mid 1700s occasionally mention the Wapishana, sustained contact began only towards the end of the nineteenth century with the first settlement in the South Rupununi of cattle ranchers of European descent (Baldwin 1946: 36–39). Cattle ranching remained the major external influence on Wapishana life throughout the twentieth century, most notably in the form of the Rupununi Development Company (RDC) (Brock 1972; Turner 1972). The RDC's grazing lease dominates the central part of the savannahs, while the main ranch house at Dadanawa and various outstations scattered around its periphery remain key focal points for travel and the provision of limited infrastructure.

The other major non-Amerindian influence on Wapishana life in the twentieth century was the church. Sustained missionary activity in the Rupununi began in the 1920s with the tireless efforts of Jesuit priest Father Cary-Elwes (Bridges 1985). Mainly as a result of his influence, most professed Christians among the present-day Wapishana self-identify as Roman Catholics. There are some exceptions: one village is dominated by Seventh-Day Adventists, and several minor Christian sects, mostly North American evangelical missions, also have small followings. All villages have churches, most of them served by a Wapishana Jesuit preacher stationed in Maruranau. The closest permanent outpost for the Catholic Church is otherwise the mission station founded by Cary-Elwes at St Ignatius, near Lethem. Priests from the main mission in Georgetown normally visit the villages once a year around Christmas time.

Another key missionary activity was the founding of mission schools, which have now become state-run primary schools teaching the standard Caribbean curriculum. Although attendances are in many cases erratic, most children thus experience several years of Western-style education. As a result, English is universally spoken, usually as a second language, among all but the very old and very young. While schools were originally staffed exclusively by Lokono Arawak teachers from the Moruca River area in northwestern Guyana, the majority of teachers are nowadays native Wapishana speakers living and working in their home villages. Along with community health workers, the other state employees in the region, and those involved in the cattle trade as either employees or stockholders, teachers are among very few people with reliable access

to a monetary income and hence an important site of connection with the national economy.

For much of the twentieth century, the major point of access to the cash economy for the people of the South Rupununi was the collection of balata, the dried latex of the bulletwood tree (*Manilkara bidentata*). Life history data shows that at its height, the balata trade employed the vast majority of Wapishana men, either directly as bleeders or in associated services such as transportation or provision of goods. Over periods of up to several months per year in the forest in these capacities, many men accumulated knowledge of forest ecology and bushcraft beyond that acquired through subsistence activities alone. Many also worked with non-Wapishana Guyanese, making the balata industry an important site of intercultural exchange of forest knowledge. For example, former balata bleeders reported that Afro-Guyanese colleagues had taught them to make tea from the bark of the locust tree (*Hymenaea coubaril*). I also documented this usage among Lokono Arawaks, whose proximity to Afro-Guyanese and Indo-Guyanese settlement and long history of economic integration and intercultural exchange have led much of their forest knowledge to be transferred to coastal populations (see also Forte 1995). Accounts of Wapishana bleeders suggest that at the height of the balata trade, virtually the entire Guyanese interior functioned as a de facto forest reserve dedicated to its collection. Although its ecological and social consequences have not been thoroughly documented, its cessation in the 1980s, by which time balata had been largely superseded by cheaper petrochemical alternatives, lost the Wapishana an important source of cash income, which has not been substituted and remains sorely missed. Many Wapishana people have also worked as trappers, capturing live animals for the international pet trade (Edwards 1992). This remains an important seasonal source of income in some villages, but lack of demand meant that by the late 1990s, the trade had in many places largely or entirely ceased.

Although it would be inaccurate to suggest that external influences upon the South Rupununi have all been entirely beneficial – some modern Wapishana, for example, lament declines in traditional mysticism and other esoteric practices among their Christianized people – their relatively benign nature is demonstrated by the favourable experiences and current situation of Guyanese Wapishana populations compared with those of many other Amerindian groups. Populations have increased steadily throughout the twentieth century, the native language remains the mother tongue for the vast majority of people, and traditional lifestyles and culture remain well established. Until recently, there was little threat of outside encroachment onto their land, a geographically marginal location and lack of interest in natural resources relatively inaccessible to

large-scale exploitation keeping the presence and influence of outsiders to a minimum, allowing Wapishana people to negotiate the cultural encounter largely on their own terms (Chapter 12, sections 'Cultural Edges in Wapishana History' and 'Locally Determined Development as a Cultural Edge').

## **Cultural Edges in Recent History**

The last decade of the twentieth century brought the Guyanese Wapishana into a turbulent and fast-changing political context. Following the death of post-independence President Forbes Burnham in 1985, the radically insular command economy he had created collapsed (Thomas 1993: 135). Burnham's successor, Desmond Hoyte, called for international assistance to resolve the crisis, leading to implementation of an International Monetary Fund structural adjustment package focused predominantly on attracting foreign investment based on exploitation of the natural resources of Guyana's forested interior, notably timber and minerals. Amerindian communities who had for the most part been fairly isolated under the Burnham regime now found the areas they lived in subject to the attention of commercial interests, leading to unprecedented threats to their security of person, livelihood, society and culture (Colchester 1997).

Guyana did not open its borders only to extractive industries, but a range of other groups with interests in one way or another relevant to its indigenous populations. Particularly importantly for our present purposes, the conservation of Guyana's biotic resources became an issue for the first time. Having largely avoided the loss of forest cover that many other countries had suffered during the 1980s, Guyana's large tracts of undisturbed forest came to the attention of the international conservation community, various elements of which have since started to work in the country.

Negotiating this new encounter with global society, unprecedented in scale and nature, has since been the biggest single challenge currently facing Wapishana people in Guyana, one as full of opportunities as of dangers. As an edge, it offers intellectual and material prospects with the promise of fulfilling local aspirations to enhance quality of life, material standards of living, and the range of socially and culturally sustainable life choices available to young Wapishana people. The potential advantages of being able to share the vast material, technological, intellectual and cultural resources available within the global mainstream are obvious to many. This and previous studies of development needs among the Wapishana clearly indicate a desire to partake of these, to achieve



higher material standards of living generally and, in particular, to improve standards of transportation, medical care, education and economic opportunity (Tang 1995; see also Chapter 10). As a frontier, it may entail threats as severe as disappearance as a people culturally distinct in any meaningful way.

## **Overview and Summary of Book**

The case study on which this book is based is an analysis of the growing encounter between Guyana's Wapishana population and broader (national and international) political-economic systems during the final few years of the twentieth century. The book's main concern is to examine the prospects for this ongoing encounter to take the form of an edge rather than a frontier. By extension of the argument derived from this case study, it seeks to postulate general conditions under which environmental management and intercultural encounter can maintain and enhance, rather than diminish, ecological and cultural diversity.

The starting point of the argument made in this book is Wapishana ecology, which, in common with those of many other indigenous peoples, engages with nature as a fringe: a mutually enhancing interface of cultural and biological complexity analogous to an ecological or cultural edge. Building upon previous research on the ecological knowledge of traditional resource users and extending it by incorporation into a holistic framework for ecological analysis, it identifies the specific competences, both individual and collective, that allow this interaction to take the form of a fringe rather than frontier. It then shows how Wapishana people have used the same set of basic competences to negotiate previous contact with the national and, previously, colonial societies. As a result, this contact has to date largely enriched rather than diminished cultural complexity or, in the terms used in this book, has tended to have the features of an edge rather than a frontier. This has been possible because a low intensity of interaction has allowed Wapishana populations to negotiate their encounter with Babylon largely on their own terms. Whether this continues to be the case in changing contemporary contexts will be the most important factor determining the outcome of their unfolding encounter with global society.

The implications for conservation and development practice are two-fold. First, it strengthens the case for basing initiatives on the existing practices and expressed needs of local populations dependent on biodiversity use for subsistence. The Wapishana have become a particularly pertinent case in point, having over the decade or so since this research was undertaken developed their own plan for the collective management

of their lands as a forest reserve. Second, it describes a minimum set of conditions necessary for conservation and development interventions to have edge rather than frontier characteristics, or in other words actually to enhance biological and cultural diversity. This depends not on them mimicking indigenous strategies for environmental management, which have developed in narrower and in most respects less complicated contexts than the current global environmental and social crises. Instead, it requires applying existing scientific and technical capacities within contexts designed to emulate the basic structural features, as identified in the analysis undertaken here, upon which the edge characteristics of indigenous environmental and social relations depend.

The chapters that follow are organized into three parts. Part I lays out the theoretical framework on which the analysis of resource use in Part II and that of intercultural contact in Part III are both based. Chapter 2 introduces Integral Theory, a wide-ranging, highly inclusive metatheory drawn from the edges of academia, which provides the starting point and basic architecture for the more focused approach employed here, and Integral Ecology, the specific application of Integral Theory to ecological phenomena. Chapter 3 critically examines the relationship between Integral Ecology and various theoretical currents within Ecological Anthropology that also provide scope for holistic analysis. Chapter 4 builds upon this constructive engagement of Integral Ecology and Ecological Anthropology in outlining a holistic analytical framework specific to the issues with which the present work is concerned. Chapter 5 begins the application of this framework, in the form of a preliminary account of general differences between Babylonian science and indigenous ecological knowledge. Its key point is that the latter is based upon what I refer to as a multilevel environmental epistemology, which articulates several distinct forms of information-processing and decision-making about the environment; this epistemological complexity is essential to the successful navigation of organizationally complex social-ecological systems.

Part II describes this composite environmental epistemology in practice, making the empirical case for the book's central argument that it is the key basis for ecological sustainability in Wapishana resource use and, by extension, in indigenous or traditional resource use in general. Chapter 6 sets out the context in the form of a general, nontheoretical overview of Wapishana settlement and subsistence, particularly agriculture. The following two chapters begin to put this in theoretical context. Chapter 7 introduces the idea of a composite epistemology as a framework for analysis of ethnographic material, describing its manifestations in Wapishana life. Chapter 8 uses the Panarchy metaphor for social-ecological systems as interacting adaptive cycles of growth, stability, release

and reorganization at multiple spatial and temporal scales as a starting point for identifying the factors promoting resilience in Wapishana resource use. Chapter 9 integrates and develops the findings of Chapters 7 and 8, showing how Wapishana resource users apply distinct modes of information processing and decision-making in the course of their activities. Chapter 10 explores the ecological consequences, reaching the conclusion that the composite environmental epistemology is the key feature that permits the anthropic enrichment of ecological diversity characteristic of an ecological fringe.

Part III moves on to consider the implications for intercultural contact. Chapter 11 examines interrelationships between indigenous and Babylon ecologies in more detail, demonstrating that encounters between the two will exhibit frontier characteristics if dominated by Babylon, production of edges being far more likely when the indigenous partner is able to engage on a self-determined basis. Finally, Chapter 12 substantiates this with reference to several contrasting cases from the histories of the Guyanese Wapishana and nearby indigenous groups whose encounters with Babylon have taken different forms.

## Notes

1. This is not to be confused with what ecologists term the 'edge effect': the loss of species richness in highly fragmented habitats. As this is the result of ecologically unproductive interchange with surrounding areas, in the terminology employed in this book it would be better referred to as a 'frontier effect'.
2. For example, see Hardt and Negri (2000: 169–70) on the contradiction between the treatment of native populations in North America and the constitutional notion of 'open frontiers'.
3. Also relevant, the apparent common interests of indigenous populations and conservation biologists are at best partial, and continually contested, although emphasizing them in the face of habitat destruction has had crucial pragmatic value (Redford and Stearman 1993; Conklin and Graham 1995).
4. The 1998 population figures are those recorded in censuses carried out by the regional council of Region 9, Guyana, and kindly made available by Mr Vincent Henry. The mobility of Wapishana populations, both among villages within Guyana and, especially, across the border with Brazil, makes precise figures impossible to determine.
5. Throughout the book, Wapishana words will be underlined to distinguish them from other languages.
6. The suffix -san in Wapishana denotes belonging, so an English translation of the term Uapes-san would be 'from the Uapes'.