

The Symbiosis of People and Plants
Ecological engagements among the Makushi Amerindians
of Amazonian Guyana

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A thesis submitted for the degree of

Doctor of Philosophy

Trinity Term 2015

Word count: 99,583

This thesis is
dedicated
to the people of
Yupukari and Rewa

Abstract

This ethnoecological study of the Makushi Amerindians of Amazonian Guyana explores the place of plants in the indigenous culture and cosmology. The North Rupununi, the homeland of the Makushi people, is a bioculturally diverse mosaic of neotropical savannahs, forests, and wetlands. As subsistence hunters, fishers, and horticulturalists, the Makushi live in a constant and dynamic interaction with their ecologically rich surroundings. Against the human-faunal bias latent in much Amazonian anthropology, I place plants firmly at the centre of analysis, a positioning that mirrors their centrality in the ethnographic context. Human-plant encounters explored herein include swidden agriculture, the cultivation of bitter cassava, the fermentation of cassava drinks using a domesticated fungus, the use of a category of charm plants, and the consumption of plant substances in shamanic ritual. With the Makushi, I emphasise the status of plants as living selves and agents of semiosis, occupying perspectives on the world in and outside of their interactions with human beings. In order to investigate ethno-theories of life, I attempt to understand the constitution of the person – and associated notions of body and soul – in the indigenous cosmology. Makushi ontology can be characterised as animic – though as I argue, it also incorporates naturalistic and analogic elements. Thus, it is poly-ontological.

This study pursues a dual goal: first, to pay heed to the trans-specific domain of living entities revealed in the Makushi ethnoecology, and second, to rethink conventional symbolic frameworks characteristic of anthropological approaches to culture. I explore the application of a more robust approach to sign-flows in nature – Peircian ecosemiotics – that allows for the analysis of plant communication, birdcalls, insect stings, and leaf patterns, as well as human language. In tracing these interspecific webs of signification, conclusions are drawn about the varied ways in which Makushi people engage with and think about their living environment. At the same time, many Makushi multispecies engagements are based on the physical transfer of substances between bodies of different kinds. In order to better account for this pervasive ‘substance logic’, greater attention must be paid to indigenous notions of corporeality and personhood. In doing so, I propose a dual analytical model that takes both the flows of signs and the flows of substances as its combined objective. This approach enables new conclusions to be drawn about multispecies relationality in indigenous Amazonian cosmologies.

Table of Contents

i.	Abstract	i
ii.	Acknowledgements	viii
iii.	Notes on Orthography	xi
iv.	Maps	xiii
1.	Introduction: Signs of Life	1
1. 1.	The Wild Pansy	1
1. 2.	The Makushi	13
1. 3.	Historical Literature Review	24
1. 4.	Field Sites	31
1. 4. 1.	Yupukari	31
1. 4. 2.	Rewa	39
1. 5.	Living with the Makushi	44
1. 6.	The Original Contribution of the Thesis	51
2.	What kind of People are Plants? Theoretical Perspectives	55
2. 1.	Rudy and the Bush Tai-Tai Flower	55
2. 2.	Ecosemiotics	58
2. 3.	Animism and Other-than-Human Personhood	69
2. 4.	People-making and The Body	75
2. 5.	Substance Logic	81
2. 6.	Ingold's Ecology of Life	89
2. 7.	Multispecies Techniques	97
3.	Makushi Horticulture and the Sociality of Farming	105
3. 1.	The Ecological Ethic	105
3. 1. 1.	The Origin of Cultivated Plants	111
3. 2.	The Personhood of Crops	121
3. 3.	Horticultural Techniques	126
3. 4.	Forest Masters	134
3. 5.	Mastery and Embodiment	141

4. Cassava Spirit and The Seed of History	145
4. 1. The Cultivation of Cassava	145
4. 1. 2. The Mutilated Snake	148
4. 2. <i>Kîse</i> : Life's Staple	152
4. 2. 1. The Toxic Paradox	160
4. 3. Varietal Hyper-Diversity	162
4. 4. <i>Kîsera</i> : The Living Gift	165
4. 5. Cassava Processing	170
4. 5. 1. Cassava Bread (<i>ikei</i>) and Farine (<i>u'wi</i>)	172
4. 6. Cosmos and Commensality	186
5. The Nature of Sweetness and The Ecology of Fermentation	190
5. 1. Symbols of Sweetness	190
5. 2. Honeybee's Mother-in-Law	193
5. 3. <i>Parakari</i> : 'Our Traditional Way'	196
5. 4. The Social Roles of Alcohol	209
5. 4. 1. The <i>Parisara</i> Dance	210
5. 5. Substance Transfer	220
5. 5. 1. Ant Stinging	220
5. 5. 2. Charm Tattoos	223
5. 6. Honeybee, Revisited	229
6. Bina Plants: Plant People, Charms, and Cures	233
6. 1. Bina (<i>muran</i>)	235
6. 1. 1. The Serpentine Bridge	240
6. 2. The Botanical Diversity of Plant Charms	242
6. 3. Types of Bina Charm	250
6. 3. 1. 'Modern' Binas	255
6. 4. Plant Shamans	257
6. 5. What is Life?	261

7. Unseen Spirits and the <i>Pia'san's</i> Eye	267
7. 1. Shamanism: Past, Present, Future	270
7. 2. The Makushi Shaman	274
7. 3. The Beating Leaf Ritual	284
7. 4. Shaman-Plant Alliances	293
7. 4. 1. The Bitter Barks	294
7. 4. 2. Tobacco (<i>kawai</i>)	298
7. 5. <i>Taren</i> Incantations and the Power of Poetic Language	303
7. 6. Cosmoecological Alliances and Multispecies Techniques	310
8. Conclusion: Of Sign and Substance	313
8. 1. Of Sign	317
8. 2. Of Substance	319
8. 3. On Ontological Hybridity	322
8. 4. Epilogue: Anthropology's Daffodil	326
Glossary	328
Ethnonyms	328
Toponyms	332
Appendices	341
1. Cultivated Plants	342
2. Cassava Varieties	350
3. Bina Plants	357
4. Shamanic Plants	364
5. Medicinal Plants	368
6. Fish Poison Plants	376
7. A Taxonomy of Spirits	379
Bibliography	385

List of Maps, Myths, and Tables

List of Maps:

Map 1. South America	xiv
Map 2. Guyana	xv
Map 3. The North Rupununi	xvi
Map 4. Yupukari	xvii
Map 5. Yupukari village centre	xvii
Map 6. Rewa	xviii
Map 7. Rewa village centre	xviii

List of Myths:

m1. <i>Wayaka ye'</i> , or, the origin of cultivated plants	112
m2. The mutilated snake, or, the origin of cassava	149
m3. Duck and owl, or, the origin of wild cassava	153
m4. Honeybee's mother-in-law	193
m5. The serpentine bridge (Walter Roth, 1915)	241

List of Tables:

Table 1. Some important crops	144
Table 2. Total numbers of cassava folk-varieties	162
Table 3. Food and drink products made from bitter cassava	188
Table 4. Items of material culture used in cassava cultivation and processing	189
Table 5. List of fermented beverages	231
Table 6. Some common bina plants	266
Table 7. Some examples of <i>taren</i>	312

List of Figures and Diagrams

1. The Makushi body-soul unit	78
2. Arrow (<i>pîriú</i>) flight and tips	97
3. Operational sequence for scraping cassava	101
4. The seasonal cycle	113
5. The multi-year successional cycle	114
6. The system of shifting cultivation	115
7. Sketch-map of Jose's farm	120
8. Basic operational sequence for clearing a farm	128
9. A cassava bank and a hoe	129
10. The traditional kinship system of matrilineal residence	131
11. A cassava plant, and its leaf, fruits, and root	151
12. Variation in cassava leaf morphology	153
13. Basic operational sequence for cassava cultivation	155
14. A warishi, a sifter, and a grater	158
15. Basic operational sequence for processing cassava	176
16. The cassava squeezer (<i>matapi</i>)	179
17. Weaves: labba tooth and hassar scale	180
18. Fans: horse hoof and marudi chest	183
19. Full operational sequence for processing cassava	186
20. Basic operational sequence for <i>parakari</i> production	200
21. Operational sequence for 'kari mama' powder production	202
22. Full operational sequence for <i>parakari</i> production	209
23. Some Makushi symbolic designs	228
24. Some sketches of bina plants	245
25. The shamanic multiverse	277
26. Sequential phases of beating leaf ritual	287
27. Shamanic paraphernalia: stools, rattle, <i>waawî</i> spirit-dart	291
28. General performative structure of <i>taren</i>	307

All photographs, illustrations, and diagrams are by the author, unless otherwise indicated.

List of Photographs

1. A woman parching farine in the evening	1
2. Cassava Mama leaf	12
3. Makushi parrot-feather headdress, c.1905	23
4. A traditional Makushi house	30
5. Makushi house, Rio Surumú, c.1911	30
6. Yupukari Landing, c.1944	38
7. Yupukari Landing, 2013	38
8. The municipal centre of Rewa village	43
9. A view of the Rewa River	43
10. Yupukari school, c.1944	50
11. A flowering pineapple plant	55
12. A fisherman catching a lukanani	69
13. Makushi boys taming parrots	89
14. Cassava roots	102
15. Uncle Louis among the fish poison plants in his garden	105
16. Aerial view of a forest farm	107
17. A family cutting a new farm plot	125
18. Burning a new farm plot	125
19. Jose ploughing cassava banks in his newly burned farm	133
20. A Makushi farmer in her cassava farm	145
21. A family processing cassava	147
22. A farmer harvesting roots and ploughing new banks	169
23. Koko Madelene scraping cassava roots	172
24. A woman and child with <i>matapi</i>	182
25. Madelene parching farine in the afternoon	191
26. Clarnissia making <i>parakari</i>	198
27. Sun-dried cassava leaves	203
28. Kari mama powder	203
29. Cassava roots soaking in water	207
30. Day 1: Laying the kari bed	208
31. Day 3: Uncovering the kari bed	208
32. Wooden <i>parisara</i> effigies	219
33. Jaguar bone flute, c.1907-1913	219
34. An Akawaio woman with facial tattoos, c.1957	226
35. Makushi symbolic designs, carved into cow bone	227
36. Elsa's <i>emkusma</i> bina plant, her guardian-protector	233
37. Madelene with her <i>wayaya</i> , a language learning bina	240
38. <i>Maripa</i> knowledge bina, bulbs	249
39. Aunty Elizabeth, with various bina plants in her garden	249
40. Deer bina (<i>waikin murani</i>), a hunting charm for red brocket deer	252
41. A <i>pia'san</i> 'beating leaf' during a healing ritual	267
42. Two girls getting ready for church on a Sunday morning	274
43. The <i>pia'san</i> smoking tobacco cigars during the preparatory phase	289
44. Leaf bundles of the <i>sipi</i> tree, for beating leaf	309
45. Intercropped coconut, banana, and papaya trees	313
46. Amerindian Heritage Month celebration, Karasabai	325

Acknowledgements

This thesis is dedicated to the people of Yupukari and Rewa with whom I lived between 2011 and 2013. My deepest gratitude goes out to those countless people who taught me, supported me, mentored me, befriended me, challenged me, and looked after me when ill. In many ways, they are the co-authors of this text. Without those people, this thesis would be nothing more than an unrealised idea. The beauty of the experiences I shared with my hosts changed my life irrevocably.

It goes without saying that I am indebted to my family in more ways than I can comprehend – in particular, to my mother, father, brother, sister, and grandmother. For their emotional, philosophical, and financial support, I am eternally grateful.

I thank the University of Oxford and Wolfson College for supporting my doctoral studies and fostering my intellectual development over a seven-year period. Thanks also to the Economic and Social Research Council (ESRC) for funding the project with a full studentship, without which it simply would not have been possible. Further support was provided by the Royal Anthropological Institute (RAI) and the Association of Social Anthropologists (ASA) in the shape of the Olivia Harris Award. Field research was made possible with the permission of the Government of Guyana, in particular the Ministry of Amerindian Affairs (MoAA) and the Environmental Protection Agency (EPA).

I am greatly indebted to Laura Rival, a supervisor and friend, who has encouraged and nurtured my love and understanding of indigenous Amazonian cultures and the discipline of anthropology over many years. My progression through the arduous and life-affirming doctoral process is in large part thanks to Laura, and the ideas expressed herein may be regarded as the ‘symbiotic’ products of our correspondence through time.

I also express a deep gratitude for the tutelage and advice of Audrey Butt Colson, who in many ways has acted like a second supervisor. Her encyclopaedic ethnographic expertise and passionate commitment to the indigenous cultures of the Guianas has always humbled me. With her unique political drive and intellectual generosity, Audrey is responsible for inspiring a new generation of anthropologists working in Guyana. Also, to

Robin Colson, for his gracious support, hospitality, and illuminating anecdotes about British Guiana in the 1950s.

At the University of Oxford, I thank Elizabeth Ewart, Tom Thornton, Elisabeth Hsu, and Inge Daniels for their encouragement, advice, and constructive criticism during the development of the thesis. Also, thanks to Peter Rivière, a constant and inspirational presence in Amazonian anthropology at Oxford. I thank all those involved with EWA, the Ethno-ornithology World Archive, at Oxford, including Andy Gosler and John Fanshawe, for supporting my on-going research plans in Guyana. At UCL, I am deeply indebted to Martin Holbraad for sowing the seeds of critical anthropological thinking during my undergraduate days. Also, to Françoise Barbira-Freedman at the University of Cambridge for casting her expert ethnobotanical eye over draft chapters of the thesis.

I am thankful to my Botanical Ontologies colleagues at Oxford – Theresa Miller, Luiseach Nic Eoin, and Katherine French – for providing me with a constant outlet for plant-based dialogue and debate over the last two years.

Thanks to Johan Paulsson for his technical assistance in the creation of the maps contained herein. The Ethnocart map-making software that Johan created in collaboration with this project will no doubt be of use to countless ethnographers in years to come.

I must also pay heed to the various short but inspiring communications that I have had, via email or in person, with anthropologists who have influenced me intellectually throughout the course of my studies. These include Eduardo Viveiros de Castro, Marilyn Strathern, Carlos Fausto, Eduardo Kohn, Bill Balée, Marc Brightman, Vanessa Grotti, and Joana Cabral de Oliveira. For imparting their botanical expertise upon an amateur naturalist, I thank Tinde van Andel and William Milliken. To William Mackay and Brian Fisher for their assistance in the precarious business of entomological identification. Finally, to David Attenborough, for a brief yet deeply inspiring conversation last autumn.

Working papers based on chapters of this thesis were presented at the Hidden History of Things conference at UCL and the Open University, the Amazon Workshop at ISCA, Oxford, and the Oxford Food Forum 2015 at St Anthony's College. My thanks go to all who organised these events, and to those who provided comments on my work.

I must also take this opportunity to thank my friends who have supported me and inspired me in various ways throughout the past five years, including Sophia Malandraki-Miller, Salam Rassi, Sam Grimes, Ray Lal, Rui Barbosa, Shane Mansfield, Janamarie Truesdell, Chihab El Khachab, Grace Egan, James Norrie, Shaum Bhattacharjee, Santhy Balachandran, Loretta Lou, Camila Mella san Martín, Chris Ewert, Miranda White, Alex Hunt and Sam Blickhan aka Umbrellabirds, Charlie Tutt, Alex Langmuir, James Davies, Adam Greves, Luke Ravenscroft, Daniel Newstead, and Jonathan Belton.

In Guyana, my gratitude goes out to all of the invariably generous people I met in Georgetown over the years, too numerous to mention, but including all at the Walter Roth Museum of Anthropology and at Rima Guesthouse. Thanks also to the colleagues, fellow researchers, and friends with whom I have shared the privilege of working in Guyana, including Oda Almás, Dan Cooper, Jeff Slocum, Matt Hallett, and Lesley de Souza.

Finally, to those friends, colleagues, and teachers in the village of Yupukari: Toshao Rudolf Roberts and the Village Council of Yupukari. The crew at Caiman House: Fernando Li, Mike Martin, Ashley Holland, Chris Li, Felix, Russian, Howard, Rambo, Jose, Telford, Brian, Anthony, and the rest of the staff. I am eternally indebted to Isaac Rogers, Joel and Junita Samuel, Koko Madelene Francis, Elsa Daniels, Jose George and family, Flora Francis, and Louis and Alma Thomas for their tutelage and unyielding tolerance of an inquisitive anthropologist. Rest in peace, La Fudge. My deepest gratitude, too, to the kind and cooperative people of Kaicumbay, Quatata, and Fly Hill villages.

And likewise to those in the village of Rewa: Toshao Haynes and the Village Council of Rewa. To the crew at Rewa Ecolodge, including Rudy, Dickey, Rovin, Cain, Dennis, Nelson, Carlson, Maurice, Pearl, and the rest of the staff. Special mention must be made of Nathaniel and John Edwards, Joseph Edwards and family, Matthew Alvin and family, and Lisa and Winston. In loving memory of Koko Ethel Edwards.

Lewis Daly

Oxford, June 2015

Notes on Orthography

Throughout this thesis I roughly adhere to the orthographical conventions delineated by the Makushi Research Unit, a group of Makushi researchers from the North Rupununi, in collaboration with the linguist Miriam Abbott (2009).¹ All Makushi words in the text are italicised, with the exception of proper names. Portuguese, Spanish, and Dutch terms are also italicised, as are those of other indigenous dialects. Creole English words are not italicised, but are highlighted with single inverted commas where appropriate.

The Makushi alphabet contains 16 letters: 7 vowels, 9 consonants, and a glottal stop:

Vowels: a, e, i, î, o, u

Consonants: k, m, n, p, r, s, t, w, y

‘ (glottal)

a pronounced like the ‘a’ in the English word far

e pronounced like the ‘e’ in the English word leg

i pronounced like the ‘e’ in the English word reed

o pronounced like the ‘o’ in the English word long

u pronounced like the ‘u’ in the English word hue

î pronounced like a ‘u’ but with a pronounced smile

p, t, k pronounced as in English; or as b, d, g when following a lengthened syllable

s pronounced as in English, or as ‘sh’ when preceding or following an I or u

y pronounced like ‘th’ in English, or as ‘y’ when preceding or following an I or u

r approximate to an ‘r’ in Portuguese

‘ glottal stop, indicates a stop in the throat

¹ For further information, see Abbott (1991, 2003, 2009). For a Makuxi resource in Portuguese, see the volume *Makusi Maimu: Lingua Makuxi*, edited by Amodio and Pira (1996). On the closely related Pemon language and grammar, see Armellada and Salazar’s dictionary (1981).

Maps

Map 1 | South America

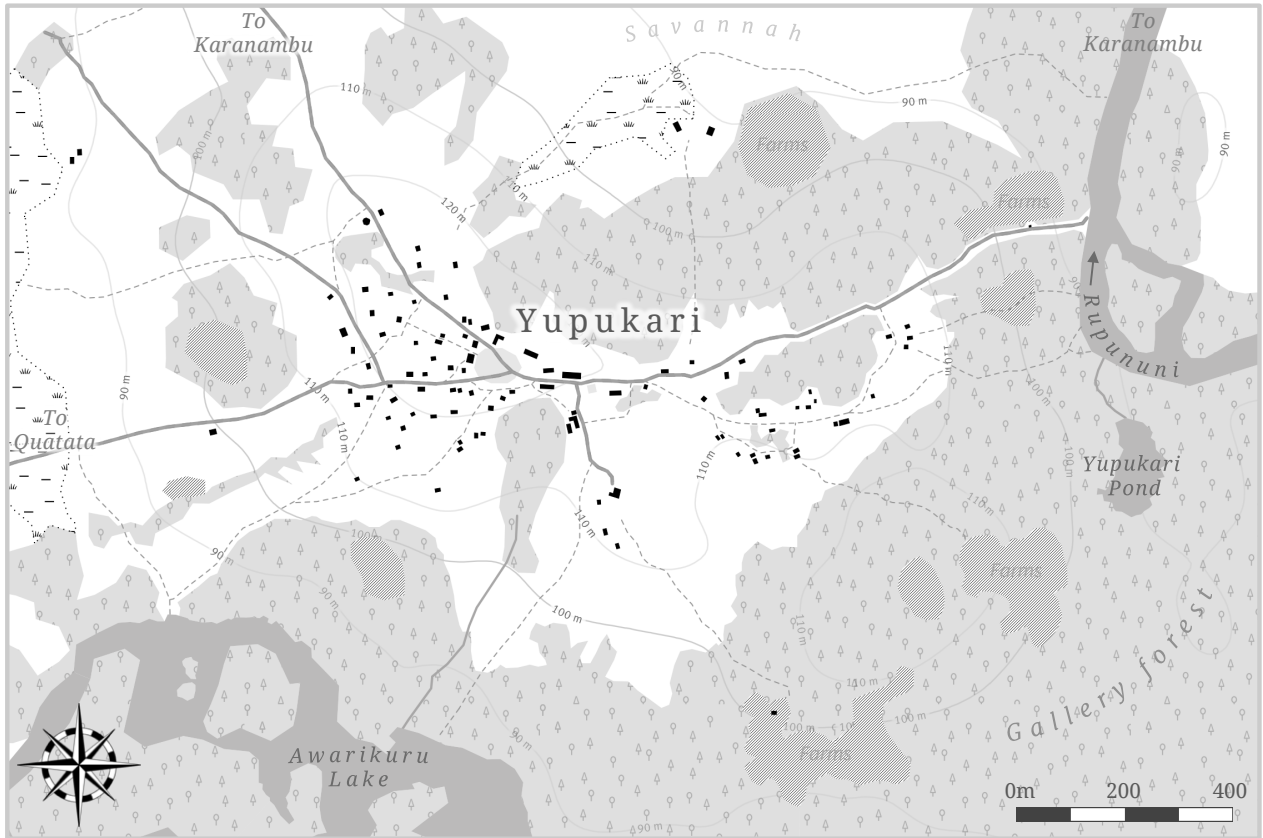




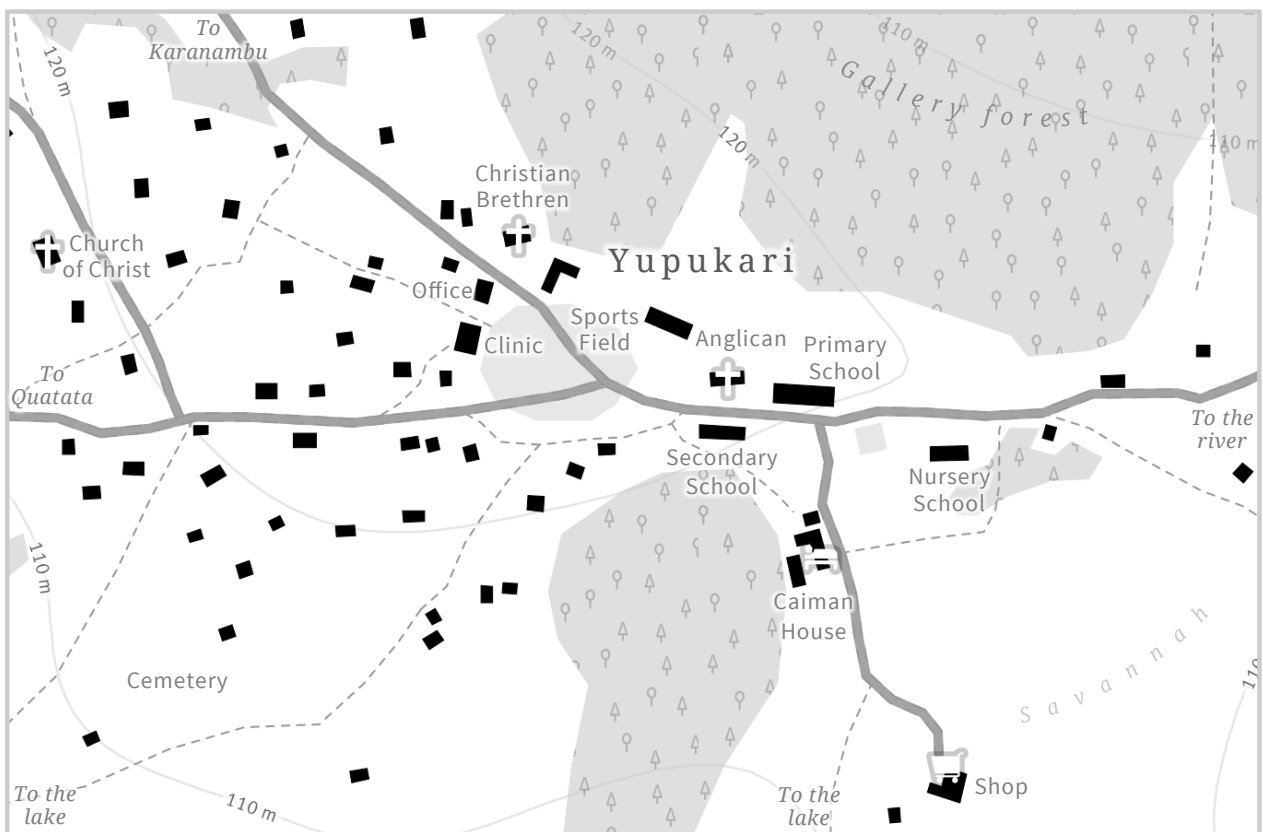
Map 3 | The North Rupununi region



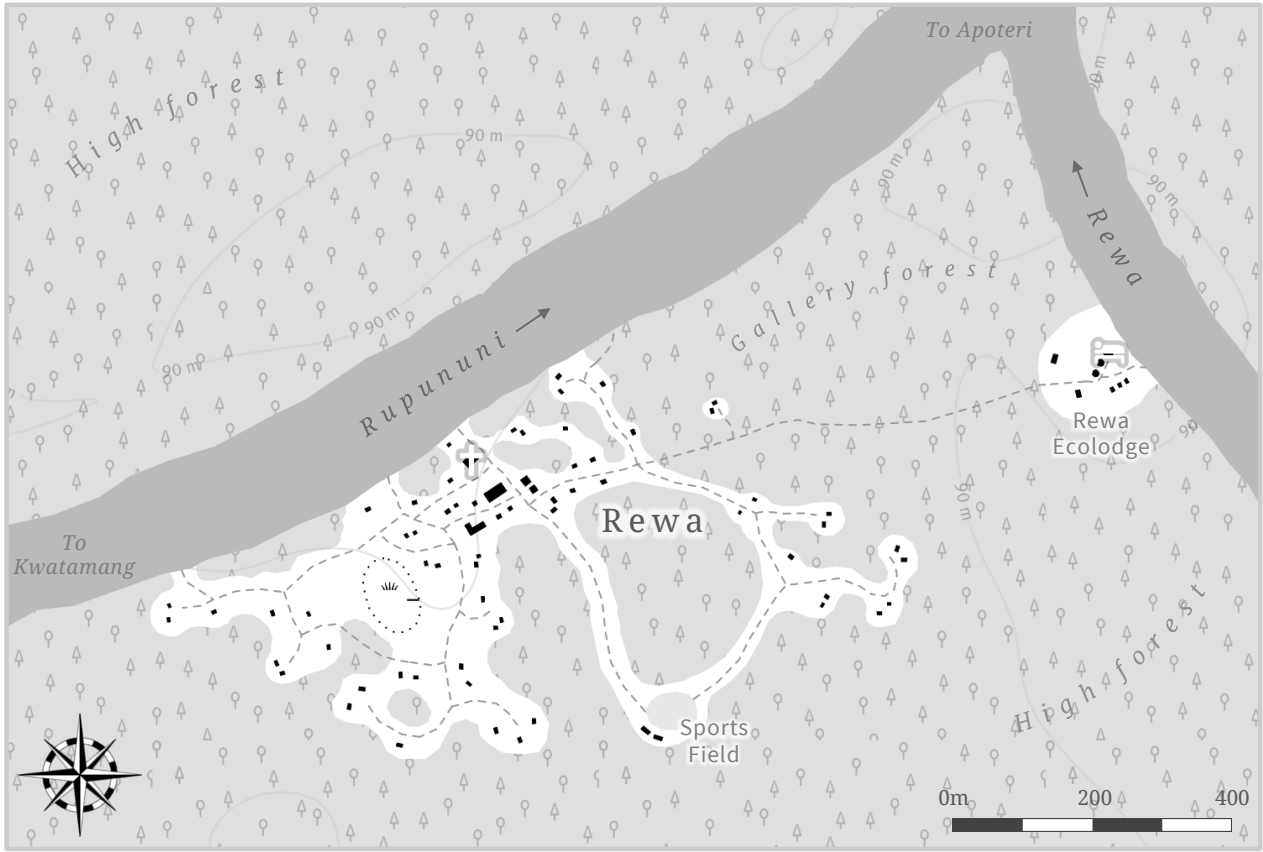
Map 4 | Yupukari



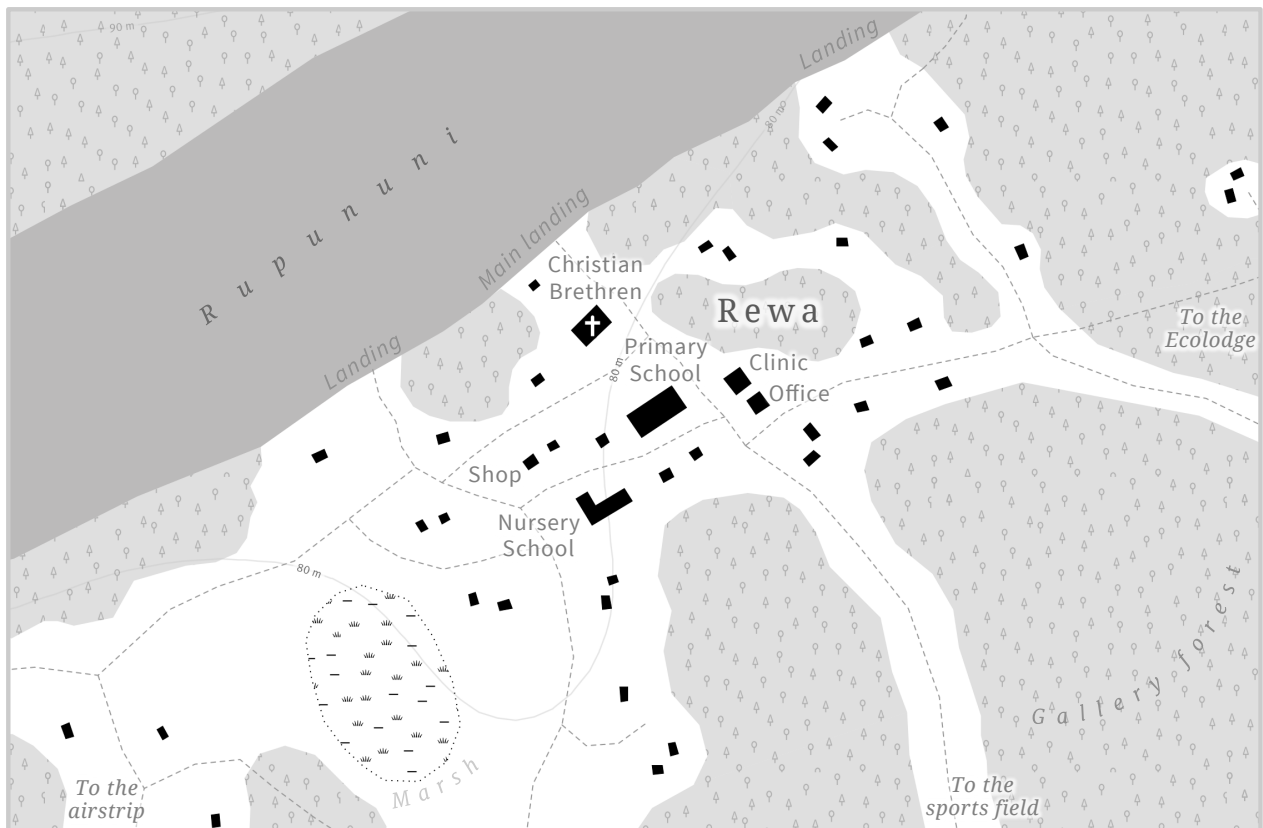
Map 5 | Yupukari village centre



Map 6 | Rewa



Map 7 | Rewa village centre



The wisdom of the plants: even when they have roots, there is always an outside where they form a rhizome with something else—with the wind, an animal, human beings.

Gilles Deleuze and Felix Guattari 1988 [1980]: 11.

1. INTRODUCTION

Signs of Life



A woman parching farine (*u'wi*) in the evening | Yupukari, 2013

1.1 The Wild Pansy

The purple and yellow wild pansy that adorns the cover of the original French edition of *La Pensée Sauvage* (1962) has become something of a botanical icon in anthropology. The French title famously plays on the double entendre of “wild thought” and “wild pansy”. The pun itself is a playful reference to Ophelia’s hysterical herbarium in *Hamlet*, “And there are pansies, they’re for thoughts” (Shakespeare 2005: Act 4 Scene 5, p9). The pansy here serves as a symbol for the structuralist project as a whole: it represents the propensity of the savage mind to scour the world for symbols. Wild pansies, like the infinitude of other potential thought-adornments, form the raw materials of bricolage. For

Lévi-Strauss, then, living kinds are “good to think” with. They are symbols: no more, no less. For a new generation of anthropologists, however, animals, plants, and fungi are “good to live with” (Kirksey and Helmreich 2013: 552). Over half a century after the publication of Lévi-Strauss’s structuralist manifesto, “multispecies” thinkers inspired by, amongst others, Charles Peirce (1940), Jakob von Uexküll (1940), and Gregory Bateson (1972) are beginning to ask questions about the varied forms of communication that occur between humans and nonhumans. Not only that, these ‘posthumanist’ anthropologists are beginning to explore how other species represent their worlds, and how this relates to us. As Eduardo Kohn has recently written, “encounters with other kinds of beings force us to recognise the fact that seeing, representing, and perhaps knowing, even thinking, are not exclusively human affairs” (2013: 1). By tracing flows of cross-species semiosis, it has been proposed, we can begin to glimpse what “an anthropology beyond the human” looks like. Might we then be in a position to contemplate what it means for the pansy to say, “And there are humans, they are for thoughts”? Plants, clearly, are not merely instruments of thought for human bricoleurs (or structuralists): they are dynamic life-forms that exist in complex relationships with other kinds of beings, things, and forces. How, then, might humans and plants be symbiotically and semiotically entangled? In this thesis, I attempt to show how plants and humans are cohabitants of shared life-worlds; as co-evolutionary actors entwined in deep historical partnerships, they create and constitute one another.

This thesis is an ethnoecological study of human-vegetal engagements among the Makushi Amerindians of Amazonian Guyana. The Makushi people live in the rainforests and savannahs of northern Amazonia, a region rich in neotropical flora and fauna and in which people and other kinds of organisms perpetually come together in the multispecies encounters that constitute everyday life. In order to investigate these diverse ecological engagements, I explore a set of culturally-pivotal ethnobotanical interactions, including the management of swidden farms, the cultivation of the staple crop bitter cassava, the

fermentation of cassava beverages using a domesticated species of fungus, the application of magical plant charms in hunting and fishing, and the consumption of plant substances in shamanic ritual. By approaching these encounters from a multispecies perspective, I aim to reflect something of the ecological ethic that lies at the heart of Makushi ontology. As I shall portray, the trans-specific relations that constitute human-botanical life-worlds are multilateral, intersubjective, and communicative.

In Amerindian cosmologies, ecological actors, relationally-situated, are typically thought of as subjects occupying points of views on the world; here, other kinds of life-forms may be conceived as thinking, feeling, knowing selves (cf. Kohn 2002: 107). As I hope to convey, this characterisation applies equally to Makushi eco-cosmology, in which humanity is not alienated from and elevated above a domain of ‘nature’.¹ Here, to quote Marilyn Strathern (1980), there is “no nature, no culture”. Rather, for Makushi people, all living entities inhabit the same integrated sphere of action. In this interactive “ecology of selves” (Kohn 2013: 78), all or any life-forms can occupy an ‘emic’ (subject) perspective. The ways in which nonhuman subjects perceive and experience their life-worlds are of great practical and philosophical interest to Makushi people. Herein, I investigate human-vegetal relations from a subject-oriented perspective (cf. Uexküll 1940, Bateson 1979).

Ultimately, this study is driven by the Aristotelian question, *what is life?* In order to address this question, I must ask probing questions about plant animism, ethno-theories of life, and the cosmological dynamics of native Amazonian ontologies. At the same time, I pay attention to the technical processes that underpin productive activities, for it is in these activities that multispecies interactions most explicitly come to the fore. This is thus an ontologically-informed ethnobotanical study with a techniques-oriented focus.

The first outstanding question is this: why is this study concerned primarily with human-floral relationships? Why is the domain of plant-life of particular relevance?

¹ Following Kaj Århem, in this thesis I adopt the integrative concept of eco-cosmology “to refer to such integral models of human-nature relatedness” (1996: 187).

The first qualification is an ethnographic one. In short, plants hold a central place in the Makushi culture and cosmology. The Makushi are expert horticulturalists, and a great deal of their time is devoted to cultivating, tending to, processing, and consuming plants. Plants are variously used as foodstuffs, medicines, building and craft materials, magical charms, and shamanic drugs. Makushi people cultivate over seventy species of food crop, and hundreds of varieties of the staple crop bitter cassava. But plants are not merely resources cultivated for their utilitarian value: as Uncle Joel Samuel, a friend and teacher from Yupukari, emphatically related to me, “plants? They is people, man!” This succinct statement is anything but simple – rather, it penetrates the heart of ontological debates concerning animism and perspectivism. It is well established that personhood is a cross-species phenomenon in Amerindian eco-cosmologies (cf. Hallowell 1960, Descola 1994, Viveiros de Castro 1998, Fausto 2007, Kohn 2013) – but what kind of people, exactly, are plants, and how do they relate to human and animal people? These are the kind of questions with which I engage in this thesis.

It must be asserted from the outset that multiple ways of thinking about plant-life can emerge and co-exist in any one context (cf. Miller 2015: 18). There are close to 7,000 known species of plant in the neotropical forests and savannahs of Guyana. The ways in which they are utilised, conceptualised, and engaged with by human beings are equally as diverse. Thus, I work with the tenet that there is no unified mode of conceiving of plant-life for the Makushi people. Indeed, in the Makushi ethno-classification, there is no single word for ‘plant’ at all, a point that is indicative of the innate diversity of plant-life in the ethnoecological system.² The same goes for the relational modes by which humans relate to plants. Human-vegetal engagements may take on dimensions typically associated with human kinship, including nurture, reciprocity, love, and trust, as well as those associated with cosmological alterity, such as control, seduction, mastery, and predation. Thus, as

² Rather, as with animals, there are many words for specific categories of plants (tree, grass, liana, fern, and so on), and distinct plant habitats (high forest, gallery forest, bush island, savannah, palm swamp).

with socio-ecological relations more broadly, human-plant engagements are characterised by diversity of form and cannot be easily generalised. In this thesis, I outline some of the multiform relational modes revealed in Makushi ethnoecology.

The second qualification is an academic one. The complex ways in which plants are conceptualised in native Amazonian cosmologies have often been overlooked in light of the ideological centrality of human-animal relations in hunting societies. Even where attention has been redirected to cross-species relationality, there appears to be a latent human-faunal bias (e.g. Århem 1996, Lima 1999, Fausto 2007, Kohn 2013). Put bluntly, “there has been a paucity of work on plant symbolism” (Rival 2012a: 69).³ As Eduardo Viveiros de Castro put forth in his landmark paper on ‘Amerindian perspectivism’, “the spiritualisation of plants, meteorological phenomena, or artefacts seems to be secondary or derivative in comparison with the spiritualisation of animals” (1998: 472). As I argue, in the Makushi context, this is certifiably not the case. For Makushi farmers, human-plant relations are equally as fundamental to the constitution of the native cosmology. Outside of the strictly ethnobotanical, only a limited number of anthropologists have put human-vegetal engagements at the forefront of their enquiries into Amerindian social life (e.g. Luna 1984a, Balée 1994, Descola 1994, Rival 2001). This lack of focus is emblematic of a broader tendency towards “human exceptionalism” in the social sciences (cf. Haraway 2008, Tsing 2014). This study aims to contribute, if only in a modest sense, to redirecting ethnographic attention to this anthropological blind spot.

Throughout the thesis, I explore Makushi ethnoecological categories and notions in relation to deeper ethno-metaphysical and ontological logics and postulates. The term ‘ethno-metaphysics’ was coined by Alfred Irving Hallowell in 1960. He defined the term, with reference to the Ojibwa, as “the philosophical implications of their thought, the nature of the world of being as they conceive it” (1960: 20). In this thesis, I use the term

³ Indeed, even in the realm of biology, the “semiotic comportment” of plants and fungi has been understudied, relative to that of animals (Sebeok 1994: 29). See also Tsing (2014: 31).

in this general sense – to refer to the ontological logics and axioms of Makushi thought and action, in relation to the world, its inhabitants, and the encompassing universe. This includes existential questions regarding the very nature of being, the constitution of life, personhood and the attribution of soul, and the structure of the cosmos. In my usage, then, ontology is precisely the study of ethno-metaphysical systems, which in turn relates to the fundamental logics of cosmologies.

This thesis is an attempt to understand how Makushi people think *about* and think *with* the plant-beings with which they engage in the processes of everyday life. However, it should be asserted from the outset that this is not an ethnobotanical study in the orthodox sense. In this thesis, I am concerned less with the systems of classification by which Makushi people categorise and name living entities, although these are naturally of relevance. Rather, I am interested in the “ontological” roles of plants in the context of a multispecies anthropology. In the following chapters, I assess the trans-specific relations of human-botanical life-worlds in Makushi eco-cosmology. Nevertheless, being centred on the relationships between people and plants, the ethnobotanical paradigm is clearly of relevance to the present study.

The discipline of ethnobotany developed as a subfield of ethnobiology dedicated to studying the culturally specific relationships that exist between people and plants (e.g. Ford 1978, Balée 1994, Martin 1995, Cotton 1996, Minnis 2000).⁴ Since Harold Conklin, pioneer of the field of ethnoecology, wrote his doctoral dissertation on the relationship of the Hanunóo of the Philippines to the “plant world” (1954), ethnobotany has primarily been concerned with native systems of plant classification. Conklin was predominantly interested in ‘emic’ perspectives on botanical life. However, as Roy Ellen has recently pointed out, “much of ethnobotany is concerned in the first instance with mapping local folk classifications on to botanical taxa” (2016: 17). The Linnaean binomial system of

⁴ For overviews of the discipline of ethnobiology, see Ellen (2006) and Anderson *et al.* (2011). On the historical foundations of the field, see Clement (1998) and Hunn (2007).

nomenclature is here taken as the universal standard against which non-Western ethnoscience classifications are to be measured (cf. Anderson *et al.* 2011).

For one school of ethnobiologists, all human beings share a universal cognitive apparatus which determines that we innately perceive and categorise the living world in the same basic ways. According to ethnobiologists of this persuasion, who include Scott Atran (1990) and Brent Berlin (1992: xi), “there is a universal bio-taxonomic model that underpins both biology and folk biology” (Ellen 2016: 14). This view posits that, as Atran and Medin have written, “in every society people think about plants and animals in the same special ways” (2008: 19). In its more scientific guises, then, ethnobiology explicitly harbours universalist ambitions and as such takes on a rather ‘etic’ character. As a result of its “taxonomic mania”, the ethnoscientific paradigm has attempted to pass indigenous ecological knowledge in all its specificity through a “naturalist sieve” (Descola 2013: 82). This procedure reifies domains of indigenous knowledge in the image of Western science, serving merely to reproduce “the illusion that the objectification of reality is everywhere organized following a similar natural tendency, the progress of which is blocked here and there by big blocks of magical thinking” (Ibid: 83).

These underlying naturalistic tendencies arguably make ethnobotany ill-prepared to cope with the so-called “ontological” concerns that have risen to prominence in recent anthropological debates (Henare *et al.* 2007, Carrithers *et al.* 2010, Pedersen 2012).⁵ Nor do ethnoscientific approaches sit easily with the by now well-established literature on the cultural construction of nature (Strathern 1980, Latour 1993, Ingold 2000, Descola 2013). Of course, one must avoid generalising the field – for, as Richard Ford (1978) famously asserted, although ethnobotany is a common discourse, it lacks any unifying theory (cf. Ellen 2016: 10).⁶ However, it is fair to say that, traditionally, ethnobotany has been more

⁵ On the relationship – or lack of – between ethnobotany and ontological anthropology, see the recent article by Roy Ellen (2016) and the overview by Daly *et al.* (2016).

⁶ A number of recent contributions emphasise the inherent value of indigenous cosmologies, and their sustainable environmental philosophies and practices (e.g. N. Turner 2005, Hunn 2006, Nazarea 2006).

concerned with cognitive universals than cultural differences, and consequently the more religious or cosmological aspects of non-Western ontologies have been obfuscated from analysis. Another possible reason for this lack of focus is that ethnobiology is principally concerned with systems of ecological knowledge, and thus questions of epistemology. Indeed, the primary currency of ethnobiology is Traditional Ecological Knowledge (TEK) (cf. Hunn 2006). It is my opinion, however, that any enquiry into cosmological dynamics and ethno-theories of life is categorically *ontological*, in that it must necessarily ask pre-epistemological questions about the very nature of being. When Makushi people speak of the origin of species in the “beginning times”, they are not only – or primarily – referring to a system of knowledge; rather, they are referring to the very constitution and dynamics of their sphere of existence, including its most fundamental ontological postulates and axioms. Put another way, this is not knowledge *about* the world; *it is a world*.

In order to investigate human-floral relations, I adopt an ecological approach that places cross-species relationality at the forefront of analysis. I work with the tenet that we must pay greater attention to indigenous understandings of the living processes of plants (e.g. reproduction, growth, metabolism, adaptation, environmental sensitivity), and to situate them meaningfully within their encompassing cosmological frameworks. How do plants grow and reproduce? Why do different plants have different kinds of flowers? Why do some reproduce from cuttings, and others only from seed? What are the similarities between a tiny seedling and a towering canopy giant? And what kind of “souls” do plants have – if they have them at all? We must also ask important questions about symbiotic interdependence: how, for instance, are plants entangled in the life-paths of humans, animals, fungi, and spirit-beings? In the labyrinthine world of the neotropical rainforest, these trans-specific interactions are at the very forefront of life.

Makushi people show a great deal of interest in the ecological relations that obtain between living beings of different kinds. Farmers, hunters, and fishers emphasise the

complex interweaving of different kinds of living entities in relational fields, along with the shared transformations that ensue within. These varied multispecies engagements may usefully be conceived of as “symbiotic entanglements”. I start with the axiom that life is constitutively symbiotic. As Donna Haraway poetically puts it, “species interdependence is the name of the worlding game on earth” (2008: 19). Lichens, corals, trees, forests – all of these are symbiotic assemblages, formed of multispecies interrelationships that conjoin animal, plant, fungal, bacterial, and viral agents. From this vantage point, the “individual” organism itself appears not as a single species but, rather, as an ecological system (Ibid: 31; Tsing 2015a: 2). This idea, as shall be seen, resonates strongly with Makushi theories of life. From the bacteria inside a jaguar’s intestine to the fungal networks that facilitate communicate between trees, all living organisms are trans-specific knots. Humans, too, are enmeshed in these symbiotic webs; we are symbiotically-made beings. This sentiment – too often ignored by anthropologists – is a mere platitude to Makushi people, for whom cross-species relations are the fabric of everyday life and the currency of their livelihoods.

Symbiosis, therefore, is the very of essence life. Nevertheless, a formal definition of the concept itself has never been agreed upon in biology, and it is thus coloured with a certain ambiguity. In the most general sense, symbiosis involves the intimate interactions of different kinds of biotic organisms over prolonged periods of time (Wilson 1975: 353). Today, ecologists have largely abandoned the traditional view of symbioses as mutually beneficial relationships (cf. Douglas 1994). Symbiosis can involve ecological relations of various types: it can refer to a context in which both parties benefit, known as mutualism, or a situation in which one party benefits at the expense of the other, known as parasitism. A third form, commensalism, occurs when one party benefits, but not to the detriment of the other (cf. Dimijian 2000: 217). In short, symbiosis can involve relationships of both an antagonistic and cooperative nature; it is characterised by relational multiformity.

Possibilities therefore open up for different definitions of symbiosis. In my usage, symbiosis refers to both a mode of relationality and a necessary condition of being. The Greek root of the term hints toward the meaning that I intend to encapsulate: *sumbiosis*, ‘a living together’, from *sumbios*, ‘companion’.⁷ As I argue herein, this notion of “living together” is a constitutive feature of Makushi social, moral, and ecological philosophy, wherein the life-world is viewed as a tangled web of kaleidoscopic interactions. However, we must be careful not to uncritically equate symbiosis with an arcadian sort of species mutualism. There is also a darker flip-side to species interdependence; it can also involve predation, parasitism, disease, and death. In this regard, a malarial infection or possession by an evil spirit is equally as ‘symbiotic’ as the mutualistic relation between the fire ant and the Cecropia tree or the human being and the cassava plant. In light of this, I explore the multiplex ways in which ecological relations are conceptualised by the Makushi. As I contend, there is a need to elucidate indigenous theories of symbiosis, an area of enquiry which might tentatively be termed “ethno-symbiosis”.

In recent years, a number of posthumanist anthropologists have adopted the notion of species interdependence as the axiomatic principle of a “multispecies anthropology” (cf. Haraway 2008, 2015; Kirksey and Helmreich 2010; Kohn 2013; Tsing 2014, 2015a). Anna Tsing, for example, has ruminated on the prospect of a “symbiotic anthropology” (2015a: 2). Looking further back, the concept was appropriated by Deleuze and Guattari in *A Thousand Plateaus* (1988). Symbiosis is the central structuring relation underlying those assemblages of things that Deleuze and Guattari refer to as ‘multiplicities’. As they state, “each multiplicity is symbiotic; its becoming ties together animals, plants, micro-organisms, mad particles, a whole galaxy” (1988: 250). Living entities thus necessarily form symbiotic alliances – here conceived not as relations between fixed, static nodes, but as “lines of becoming” that continually redefine the very forms engaged in those relations

⁷ From the Greek συμβίωση, syn (together; plus) and bios (life) = symbiosis.

(Ibid: 10). Symbioses, then, necessarily modify the life-forms ensnared therein, insofar as they cease to exist as fixed, isolated entities at all. They undergo “shared transformations” (Hayden 2008: 31). These shared transformations are what this thesis is all about.

The study of sign-flows between living entities has recently been reimagined as ecosemiotics (Sebeok 1994, Deacon 1997, Hoffmeyer 2008a, Kohn 2013). Ecosemiotics takes as its point of departure the sign-based transactions that occur within and across species boundaries. Herein, I explore the application of the ecosemiotic methodology to human-plant engagements, a set of interspecific relations that have often been overlooked by ethnographers of native Amazonia. Like human beings and other animals, plants, too, transmit signs and may be considered agents of semiosis. These trans-specific sign-flows unite all living beings in a semiotic field. As Thomas Sebeok portrays, “a variety of non-verbal and verbal messages conjoin organisms into a network of relations with each other as well as with the rest of their environment” (1994: 28-29). The Makushi employ natural signs as a currency for interacting with other kinds of beings: the nocturnal whistle of a charm plant, the booming chorus of howler monkeys, the roar of a jaguar in the forest, the chants of a shaman communicating with forest spirits. However, whilst human speech, a jaguar’s roar, or the songs of a mocking bird constitute explicit sonic signals that can be easily observed – if not so easily interpreted – by the anthropologist, the ways in which plants transmit signs seem more elusive, often appearing to occupy a different temporal plane entirely. Clearly, plants do not transmit verbal signs; their “message traffic” takes on different forms (Sebeok 1994: 29). Still, as will be conveyed in the following chapters, examples of floral semiosis abound in the world of the forest and savannah.

However, as I aim to demonstrate, also of prominence in Makushi cross-species engagements are flows of substances within and between bodies. Examples include the rubbing of charm plants into abrasions in the flesh, the application of ant stings as ritual charms, the insertion of plant ashes into the body via tattoos, the bathing of babies with

plant decoctions, and the ingestion of bitter tree barks by shamans. These are substance-based transfers, in which the qualities, capacities, and “knowledge” of nonhuman beings can be acquired by humans via bodily incorporation. Bodies, in this frame, are constituted of the myriad substances and subjectivities of a host of human and nonhuman beings (cf. Santos-Granero 2012). As I shall argue, this “substance logic” is a fundamental aspect of Makushi ethno-theories of life. It bears pointing out, flows of signs and substances are not mutually exclusive; substances *are* signs, in many respects, and thus the line between the two is blurred. These are complementary analytical perspectives. However, an exclusive focus on the former at the expense of the latter blinds us to some of the most meaningful facets of Makushi notions of personhood and life. Thus, I aim to trace the combined knots of sign-flows and substance-flows that permeate Makushi multispecies engagements. The focus of a symbiotic anthropology, I contend, should be at once semiotic and somatic.



‘Cassava Mama’ leaf (*Manihot glaziovii*) | Yupukari, 2013

1. 2. The Makushi

The Makushi people live in the North Rupununi region of southwestern Guyana, an area administratively known as Region 9 (Upper Takutu-Upper Essequibo).⁸ Makushi territory is situated in the savannah lowlands between the Pakaraima Mountains to the northwest and the Kanuku range to the south.⁹ This Mesozoic rift valley lies in the centre of the pre-Cambrian Guiana Shield, an ancient geological formation of wide open valleys and tepui peaks, culminating in the iconic plateau of Mount Roraima, situated at the convergence point of Guyana, Brazil, and Venezuela. The North Rupununi forms a seasonally variable mosaic of savannah, rainforest, and wetland. From an elevated viewpoint, one observes a vast patchwork of innumerable shades of green intersected by a shimmering network of waterways. The composition of the landscape is highly variable depending on season, with the long wet season (May until August) bringing extreme rainfall, and the dry season (September until May) drought.¹⁰ The short ‘Cashew Rains’ arrive in late December and January, bringing much-needed relief from the aridity of the long dry season.¹¹

The North Rupununi savannah lies on the watershed of two great river basins: the Essequibo to the east and the Amazon to the southwest. On one side of the watershed, the Rupununi River meanders northeast to its confluence with the Essequibo, which in turn flows north into the Atlantic. On the other, the River Takutu flows south to meet the Rio Branco, the Rio Negro, and finally the mighty Amazon at Manaus. During the long rainy season, the low-lying forests and savannahs flood, forming a dense network of wetlands

⁸ In the literature, the Makushi are variously referred to as the Macushi, Macusi, Makusi, Makuchi, and Makuxi (in Brazil), and Southern Pemon. Throughout this thesis, the indigenous Guyanese spelling of ‘Makushi’ is used, in the tradition of the Makushi people themselves (e.g. Forte 1996b). The Brazilian Portuguese spelling of ‘Makuxi’ is used when referring to the Brazilian literature (e.g. Santilli 1994).

⁹ Between latitudes 3-5° North and longitudes 58-60° West (Wilson *et al.* 2006: 314).

¹⁰ The Rupununi receives annual rainfall of between 1500-2000mm y⁻¹, of which 70-80% falls during the wet season. The mean annual daily temperature is 27.5°C (Jansen-Jacobs and Steege 2000: 147).

¹¹ See Chapter 3 on the seasonal and successional cycles.

in which the waters of the Amazon and Essequibo coalesce.¹² As the rivers continue to rise throughout July and August, dry land becomes an increasingly scarce commodity. During this time of flooding, hunting takes over from fishing as the primary subsistence activity to compliment agriculture.¹³ Hunting (*wo'na'pi*) is primarily a sylvan activity, taking place in forested areas and bush islands.¹⁴ For most of the seasonal cycle, however, fishing (*kono'i'pi*) is the primary mode of procuring protein from the environment.

The heavily forested country of Guyana is roughly equivalent in size to the island of Great Britain but with a population smaller than that of Fiji.¹⁵ The current national population is 747,884 (2012 census),¹⁶ of which roughly 80,000 people (10.7 per cent) self-identify as Amerindian (APA 2014: 7). The population of Region 9, which is almost exclusively Amerindian, is currently 24,000. The region is the least densely populated in Guyana;¹⁷ however, it has the fastest growing population, which has roughly doubled since 1980 (Ibid: 20). This increase can be partly attributed to the influx of biomedical healthcare into the region in recent decades. Reflecting the wider Amazonian trend, the mortality rate has significantly decreased while the fertility rate has remained stable and high. There is, consequently, a burgeoning youth population (cf. Forte 1999: 63).

There are approximately 40,000 Makushi people scattered across the borderlands of Guyana and Brazil, with around 10,000 in the North Rupununi and the remainder in the *gran cerrado* in Roraima, Brazil.¹⁸ This continuous scrubby grassland is bifurcated by the national border, which over time has created a degree of political and cultural division between the Guyanese Makushi and Brazilian Makuxi (Santilli 1997; Farage 2003: 107).

¹² The low-lying flooded savannah and forest fosters an incredibly diverse fish fauna, owing to the hydrological merging and faunal exchange that occurs between the two river systems. This biogeographic area has been termed the 'Rupununi Portal' (Souza *et al.* 2012: 31).

¹³ On fishing practice among the Makushi, see the study by Mistry *et al.* (2004).

¹⁴ One recent study found that the Makushi hunt 107 species of animal, the majority of which are predominantly forest-dwelling (Read *et al.* 2010: 224).

¹⁵ The land area of Guyana is 83,000 square miles. As of 2015, neotropical rainforest covers 77% of Guyana's land area, with 62% being classified as primary forest (Mongabay, online).

¹⁶ Population figures taken from Bureau of Statistics, Guyana (2012).

¹⁷ With a population density of 0.4 people per km squared (Bureau of Statistics, Guyana 2012: 26).

¹⁸ Up to date population figures from Santilli (2015): Brazil, 29,931; Guyana, ~10,000; Venezuela, 83.

Nevertheless, there is considerable fluidity to the population, with people moving to and fro across the border with regularity. It is common today for young Makushi people to migrate to the city of Boa Vista in Roraima for temporary periods, seeking work in the retail, service, agricultural, and ranching industries. People are more willing to make the 130km trip to Boa Vista than the 550km journey by unpaved road to Georgetown on the coast.¹⁹ Owing to this geographical proximity, the Brazilian influence is more pervasive than the Guyanese on Makushi culture in the Rupununi, with, for instance, Brazilian *forró* being the most popular style of music and football (*futebol*) the favoured sport.

The Makushi language belongs to the Carib family (Abbott 1991: 23), and has been placed in the East-West Guiana subdivision of the Northern Carib classification (see Durbin 1977).²⁰ According to Miriam Abbott (1991), a linguist who has worked closely with Makushi experts, the basic word order in Makushi is object-verb-subject (OVS) for transitives and subject-verb (SV) for non-transitives (1991: 24).²¹ Clauses are coordinated primarily by juxtaposition, with, for instance, *moropai* acting as the closest approximation of the English ‘and’. There are two main suffixes to indicate plurality in nouns: *-yamî* and *-kon*. There are three verb tenses: past, proximate, and universal. Past refers to the previous day or earlier; proximate indicates the immediate present; universal points to the present or future (Abbott 1991: 113). The final syllable of the verb word almost always bears the stress (Gildea 1995: 74). Phonologically, Abbott distinguishes ten consonants in the language – obstruents p, t, k; fricatives s, ‘(h); sonorants m, n, r; and semi-vowels w, y – and numerous vowel sounds, based on i, e, a, î, o, and u, all of which may be lengthened

¹⁹ Since the completion of a road bridge across the Takutu River, marking the border of Guyana and Brazil, travel to Boa Vista has become a much easier and more frequent affair (Smock 2011: 277).

²⁰ The Cariban family is one of the largest in indigenous South America, both in terms of number of speakers and number of related languages (Carson 1982: 1). In the late 1970s, there were estimated to be between 50 and 55 distinct Carib languages spoken in South America (Durbin 1977: 28). By 1995, another linguist had revised this estimate down to 40 (Gildea 1995: 62). The majority of these are spoken in the Guianas, although pockets of Carib-speaking groups also exist in the Xingu basin in Brazil, in parts of Colombia, and in eastern and northern Brazil. Of all the Cariban languages, Makushi has the most speakers by a considerable margin. See also Meira (2006).

²¹ See Hawkins (1950), Hodsdon (1976), Carson (1982), and Cunha (2004) on the Makushi language.

(1991: 140-43). The Makushi language displays intensive lexical borrowing from Creole, European, and other Amerindian languages (Carson 1982: 187).²²

The Makushi culture and language are closely related to those of a number of neighbouring Amerindian groups – namely, the Patamona, Akawaio, Taurepan, Arekuna, and Pemon peoples of the Pakaraima Highlands and the Venezuelan *Gran Sabana* to the northwest. Butt Colson (1985) has described these groups as “very closely interrelated, to the degree where it may be argued that they form an overall structural and cultural unity” (1985: 105).²³ The languages of these groups are, to a greater or lesser degree, mutually intelligible; as such, some commentators refer to them as dialects of a common language (e.g. Derbyshire and Pullum 1991: 9).²⁴ The Makushi generally say they can understand the rudiments of Arekuna reasonably well, Patamona to a lesser degree, and Akawaio less still. However, despite their close linguistic association, the groups themselves emphasise linguistic difference as “a major identifying emblem” (Thomas 1982: 19). The Makushi unhesitatingly say that they are different from the Patamona and Akawaio “because they speak a different language from us”. Furthermore, considerable phonetic variation exists within each tribal language. This is certainly the case in Makushi, to the extent that many northern Makushi state that they cannot understand the “deep” Makushi spoken in Nappi in the southern savannahs or Karasabai in the South Pakaraimas. The Makushi language, then, might best be conceptualised as a variegated field of degrees of intelligibility.

The closely affiliated Wapishana people, who live in the South Rupununi region, speak a linguistically distant language of the Arawak family (Farage 1998).²⁵ However, there has been a degree of pan-linguistic Creolisation between Carib and Arawak dialects, linked in part to inter-tribal marriage and trade. Many Makushi villages are also home to a

²² This is particularly apparent in the domain of religious language, as demonstrated, for instance, by the words *soosi* (shu-shi), ‘church’, and *karimosi*, ‘Christmas’ (Abbott 1991: 23).

²³ Also noted by Santilli (1997: 98). According to Edwards, the minimal differences between Akawaio (Kapon) and Arekuna (Pemon) are primarily phonetic rather than grammatical (1977: 34-36).

²⁴ In 1908, Koch-Grünberg noted that the ‘Makuschi’ and ‘Arekúna’ languages “to a certain extent form a family because their idioms show only minor dialectical differences” (1908: 5—my translation).

²⁵ On the Carib-speaking Waiwai tribe of the deep south, see Yde (1965) and Mentore (2005).

number of Wapishana people – usually, men who married into Makushi families in the uxori-local system of postmarital residence. Most of these Wapishana men migrated north to Makushi territory searching for work during the ‘balata boom’ of the 1950-70s. Some Makushi villages, such as Rewa, also host a number of Patamona denizens.²⁶

As a consequence of nearly 300 years of contact with various outside forces and populations, most Makushi people today are bilingual, or even trilingual in settlements close to the Brazilian border. Since the first days of European contact in the early 1700s,²⁷ the Amerindians of the Rupununi have interacted with Brazilian traders and slave raiders, Dutch and British imperialists, cattle ranchers, balata bleeders, orthodox and evangelical Christian missionaries, and, in recent years, scientific researchers and conservationists. Creole English is an increasingly common form of communication between the Guyanese Makushi today, with Portuguese playing the same role across the border in Brazil. Save for the eldest generations, all Makushi people speak Creole English as a second language. Guyanese Creole is part of a wider pan-Caribbean linguistic formation that developed in the colonial interaction of European, West African, South Asian, and Amerindian cultures (Stipriaan 2002). Young people often express a social preference for speaking Creolese, especially when communicating with “outsiders” (*ratiko*). Nevertheless, the indigenous Makushi language is still the primary form of communication among people of all ages in the daily life, and church services and village meetings are largely conducted in Makushi.

The five Carib-speaking groups of the circum-Roraima region are the Makushi, Arekuna, Taurepan, Patamona, and Akawaio.²⁸ Of these, only the Makushi inhabit the

²⁶ See also Santilli on the ethnically heterogeneous composition of Makushi villages (1994: 105).

²⁷ According to Farabee (1924), the first visitors to Makushi country were Dutch traders in the early 1700s, followed by the German surgeon Nicholas Hortsman in 1738, who was sent by the Dutch West India Company to navigate a passage from the Essequibo to the Amazon (1924: 13-14). The earliest reference to the Makushi in print appears to be a testimony given by the Brazilian captain Francisco Xavier de Andrade in 1740. Reporting as witness to a slave-obtaining trip to the Rio Branco region, he writes of “the Uapixana and Macuxy tribes whose settlements are close to the mountain ranges which here trend towards the centre of the plains” (quoted in Williams 1932: 13-14). See also Santilli on the Portuguese colonial occupation of the Rio Branco valley in the mid-eighteenth century (1997: 102).

²⁸ These groups have been collectively referred to as “the circum-Roraima peoples” (Butt Colson and Armellada 1990: 63). Officially, they form four of the nine Amerindian tribes of Guyana (Taurepan

lowland savannahs; the remainder live in the Pakaraima Highlands and Venezuelan *Gran Sabana* to the north. According to Butt Colson, the names of these ethnic groups were not originally autodenominations, but, rather, “they are nicknames, applied by the members of Amerindian regional groups... to each other, thereby expressing a particular level of structural difference. Being applied to “others”, these nicknames are often derogatory in their inherent meanings” (1998: 5-6).²⁹ The self-designations of these groups were Pemon (Makushi, Arekuna, Taurepan) and Kapon (Patamona, Akawaio). ‘Pemon’ means people; ‘Kapon’ means “those of the sky”, *ka-* indicating sky and *-pon* a collective of people.³⁰

The Makushi have been labelled the “southern Pemon” by some commentators (Thomas 1982; Butt Colson 2009b). However, this is not a designation that the Makushi recognise today. When I would ask about the ethnonym ‘Pemon’, my collaborators would usually reply, “it just means people”.³¹ The name ‘Makushi’ has outright dominion as a self-designation. There is no local theory regarding the etymology of the term, although some suggest that it may derive from the Makushi name for the ginip tree, *maku ye*, a fruit tree native to their savannah homeland.³² Butt Colson has suggested that *maku* may be a word of Arawak origin referring to servants or younger brothers; thus, *maku-chi* may have been a pejorative nickname attributed by the Arawak-speaking Wapishana (2009b: 81). Whatever the etymology, the important point is that, historically speaking, all of the related groups of the region have multiple denominations, some auto- and some attributed by others, and that most of these have faded into obscurity in the twenty-first century. In common parlance and in national discourse, the Makushi identify as ‘Makushi’, a term which today has significant political cachet regardless of its etymology.

being subsumed within Arekuna), along with Arawak, Carib (Karinya), Wai Wai, Wapishana, and Warrau (Ministry of Amerindian Affairs, online). See Glossary: Ethnonyms for further information.

²⁹ The tribes of southwest Guyana have a history of warring. According to Farabee, prior to the twentieth century the Makushi engaged in warfare with the slave-raiding Caribs (Karinya), the Patamona, and the Wapishana (1924: 14). Inscribed in oral history as the ‘tribal wars’, these frictions are still latent in inter-tribal attitudes, relations, and hostilities today.

³⁰ For an overview of the system of naming in the circum-Roraima region, see Butt Colson (2009b).

³¹ *Pemon* meaning person; *pemonkon* meaning people.

³² Ginip tree (*Melicoccus bijugatus*).

The historical intervention of organised religion in the North Rupununi played a significant role in shaping the constitution of the region, as it exists today. Most Makushi people today are Christians, yet Christianity as an organised religion exists in a complex interaction with indigenous belief systems based on shamanism and the proliferation of spirits in the living environment (see Chapter 7).³³ The Rupununi today hosts multiple denominations, from the historically dominant Anglican and Roman Catholic churches to the evangelical Christian Brethren and Church of Christ congregations. The present day proliferation of denominations in Guyana can be seen as a product of the complex and varied history of organised religion in the Guianas, a history which is itself inseparable from the history of colonial exploration and expansion in northern South America.

By the time that Columbus sailed into the Gulf of Paria in 1498 and first sighted the coast of modern day Guyana, European interest had been piqued by exotic tales of the indigenous peoples of the New World (Rivière 1998: 65). Early European presence in the region was in large part motivated by the search for material wealth (predominantly gold) and geopolitically motivated land-grabbing. Sixteenth century intervention in the Guianas was largely Hispanic, with Spanish expeditions following in 1504 and 1531 (Schomburgk 1840: 81).³⁴ A century after Columbus, in 1595, Sir Walter Raleigh's fleet ascended the Orinoco River on his second voyage to the Americas, reaching the inland savannahs west of the Pakaraima range in modern-day Venezuela (Burnett 1997: 13).³⁵ Raleigh's exotic descriptions of unimaginable material wealth and fecundity paved the way for a sustained colonial presence in the region – inspired, in part, by the search for El Dorado, the fabled city of gold (Raleigh 1997: 14). During these early expeditions, Raleigh's men, like those

³³ This interaction is expressed most clearly in the syncretic 'Alleluya' cult which sprang up among the Makushi, Patamona, Arekuna, and Akawaio peoples toward the end of the nineteenth century (see Butt 1960; Staats 1996; Butt Colson 1998; and Santilli 1994: 82-83). The Akawaio are the only Amerindian group known to practice Alleluya in the twenty-first century (Caesar-Fox 2003: 57).

³⁴ For reviews of the early history of the exploration and colonisation of the Guianas, see Rodway and Watt's *Chronological history of the discovery and settlement of Guiana* (1888), which covers the period 1493-1668. See also Robert Schomburgk (1840: 81-87).

³⁵ According to Humboldt, Raleigh sighted the Pakaraimas in 1596, calling them 'Wacarima' (1841: 4).

of Columbus a century before him, traded with the Arawak and Carib coastlanders of the region for supplies (Whitehead 1988: 1-3; Rivière 1998: 67).

The Dutch colonial project in modern-day Guyana began in 1616, and was largely fuelled by mercantile interests (Forte 1999: 67).³⁶ The Dutch West India Company set up highly profitable sugarcane plantations in the territories of Demerara and Berbice in the 1670s (Whitehead 1988: 151). The French arrived in the region in 1640, laying claim to Paramaribo (Suriname), before settling in Cayenne (French Guiana) (Robert Schomburgk 1840: 82-83).³⁷ In the late eighteenth century, the British repeatedly seized and ceded control of the three Dutch colonies – Essequibo, Demerara, and Berbice – before finally establishing full control in 1804. The territories were formally handed over to the British, via the Treaty of London, in 1814. The colony became officially known as British Guiana in 1831, whereupon the three territories were united into one colony (Burnett 1997: 15). This political union marked the beginning of large-scale British expansion in the region – and the start of sustained missionary activity in the colony.

The evangelical presence in the interior of Guyana began as early as the 1820s, when the first Anglican missionaries arrived from Great Britain.³⁸ In 1831, the Church Missionary Society established a mission at Bartica Grove, upstream from Georgetown on the Essequibo (Brett 1853). The Bartica site functioned as the headquarters for future missions into the Amerindian-inhabited hinterlands. The first English missionary to visit the Makushi was the Anglican priest John Armstrong in 1833 (see Rivière 1995). Shortly afterwards in 1838, his colleague Reverend Thomas Youd attempted to set up a mission

³⁶ For the early Dutch settlers, “Guiana had become a synonym for gold” (Forte 1999: 67).

³⁷ See Coudreau (1887) for an example of French colonial exploration in the Guianas.

³⁸ A comprehensive overview of the evangelisation of the Amerindians of the hinterlands of British Guiana in the period 1831-1921 can be found in Butt Colson (1998: 9-23). For appraisals of missionary activity among the Brazilian Makuxi of the Rio Branco basin, Roraima, see the work of Araújo (2006a, 2006b, 2009), Aramis and Araújo (2007), Amodio (1983, 1989, 1999), and Santilli (2014).

at the Makushi village of Pirara, close to present-day Yupukari (see Veness 1869).³⁹ Like other early attempts, however, Youd's Pirara mission eventually failed. It was not until the turn of the twentieth century that permanent missions began to appear in the North Rupununi. The first Anglican missionary in the Rupununi was Reverend James Williams, who was stationed at Yupukari from 1907-20 (see Williams 1932).⁴⁰ During this time, the village became the primary base for the Church of England in the hinterlands of British Guiana. Throughout this era of evangelisation, the South Rupununi was dominated by the Catholic Church, under the leadership of Father Cary-Elwes and Bishop Galton. In 1909, Cary-Elwes established the headquarters of the Catholic Church at St Ignatius, adjacent to the present-day border town of Lethem (Butt Colson 1998: 1).⁴¹ As a consequence of this ecclesiastical partitioning of land for proselytising, the Wapishana in the south remain predominantly Catholic and the Makushi in the north Anglican (Forte *et al.* 1992: 27).

In the second half of the twentieth century, a new wave of American Protestant denominations began to spread across the Rupununi. The evangelical Christian Brethren Church started operating out of Lethem in 1969, led by Brother Joseph Dainty (Forte *et al.* 1992: 27).⁴² In the decades that followed, the Church established a presence across the North Rupununi, including in Rewa and Yupukari. The Alabama-based Church of Christ initiated its presence in Guyana circa 1980, and started sending medical missions to the interior in 1992 (Church of Christ 2010). At the turn of the century, they began sending annual missions to Yupukari, before building a church and establishing a congregation in 2008. At the present juncture, these evangelical missions exist in a complex and often-fractious dynamic with established Anglican churches in Makushi villages, with profound repercussions regarding the social-structural constitution of those communities.

³⁹ Rivière (1995) has described the establishment of the Pirara mission and the relationship between Youd and the Makushi in detail. See also Robert Schomburgk (1840: 56-57) and Richard Schomburgk (1922: 245-46, 304-6), the latter of whom accompanied Youd on his return to Pirara in 1840.

⁴⁰ Roth passed through Yupukari Mission c.1925, where he was greeted by a Rev Hansford (1929: vi).

⁴¹ See Bridges (1985) for an overview of Cary-Elwes' work in British Guiana in the period 1909-23.

⁴² The same year as the infamous Rupununi Uprising, an ill-fated local rebellion against the federal government, led by insurgent white landowners and based around Lethem in 1969 (see Farage 2003).

The North Rupununi is home to sixteen Makushi communities, which form the constituent members of a regional representative body called the North Rupununi District Development Board (NRDDB), established in 1996. The indigenous-run Board acts as an autonomous umbrella organisation for the communities of the region. Each village within the NRDDB has an appointed Village Council, which is responsible for the administrative running of the community and its title (see Allicock 2003). The chairman of the Council, and political leader of the community, is known as the Toshao, or “village captain”.⁴³ The Village Council is composed of the Toshao, a Deputy Toshao, and a number of elected Councillors.⁴⁴ Village elections are held every three years (Amerindian Act 2006: 26).

Villages of the North Rupununi.⁴⁵

Apoteri	Kwatamang	Yakarinta	Kwaimatta
Fair View	Surama	Katoka	Toka
Rewa	Rupertee	Yupukari	Moco Moco
Crash Water	Annai	Nappi	
Wowetta	Aranaputa	Massara	

Prior to British colonial intervention in the hinterlands, the indigenous Makushi political system was based on chieftainship, with one senior member of each community acting as the chief (*epuru*).⁴⁶ The chief was an important political figure both within the community and across the region, a status emphasised by a series of symbolic bodily adornments including, notably, a headdress made of parrot, macaw, or toucan feathers. Feathers, for the Makushi, symbolise knowledge and power. Traditionally, the chief and

⁴³ The term ‘toshao’ (*tusawa*) seemingly being a word of Arawak origin (cf. Caesar-Fox 2003: 49). See also Paulo Santilli on “*tuxauas*” in Roraima state, Brazil (1994: 73-77).

⁴⁴ Satellite villages lying within a parent village’s land title elect a Senior Councillor, who acts as the de facto leader for the day-to-day running of their community, but defers to the Toshao of the parent village on matters concerning the land title as a whole. For instance, each of the satellite villages of Quatata, Fly Hill, and Kaicumbay has a Senior Councillor who sits on Yupukari’s Village Council.

⁴⁵ Geographically located from east to west, in columns, top left to bottom right.

⁴⁶ Also, *potori*, a term used to designate chief, master, leader, father, and so on (Abbott 2009: 47).

his extended kinsfolk would live in a large thatched roundhouse (*tukusipan*), conical in shape and located in the centre of the village (Farabee 1924: 16).⁴⁷ It has been estimated that Makushi communal houses of the pre-Christian era could accommodate around thirty to sixty people (Santilli 1997: 99). By all accounts, the chief was less an autocratic leader exerting authority over society, and more an embodiment of the society as a whole. The chief, in other words, was an amalgam of societal relations (see Thomas 1982).⁴⁸



Makushi parrot-feather headdress | Collected by Miss E. C. Bell, 1905.⁴⁹

⁴⁷ See also Barrington-Brown (1876: 99), and Roth (1924: plates 59 and 60).

⁴⁸ James Williams states that during the period 1907-1913 the chief of Yupukari was *Chimarupàn*, known in English as ‘John Bull’ (1932: 13). During the early 1840s, Richard Schomburgk met the chief ‘Basico’ at Pirara, describing him as “an old one-eyed man” (1922: 303). Karl Appun also met a ‘Paschiko’ during his travels through the region during the 1860s (1871: 391), as did Barrington-Brown, who writes of meeting ‘Passico’ at Yupukari in the early 1870s (1876: 107).

⁴⁹ Ceremonial headdress made from the wing and tail feathers of the orange-winged Amazon parrot (*Amazon amazonica*). The base is probably plaited out of the basket palm ‘mukuru’ (*Ischnosiphon* sp.). Photograph courtesy of the Pitt Rivers Museum, Oxford.

1. 3. Historical Literature Review

In the following paragraphs, I give a brief overview of the most important historical and ethnological accounts of the native cultures of the Guianas in the literature. The following accounts, listed in roughly chronological order, are of contextual relevance to the current study and are referenced throughout the text. It should be noted that, as the current point, no comprehensive ethnographic monograph on the Guyanese Makushi exists.

One of the earliest substantive accounts of the Guianas was given by the explorer Sir Walter Raleigh, who navigated the coastline of modern-day Venezuela before sailing up the Orinoco River in 1595. Raleigh's description of his first voyage, published as *The Discoverie of the Large, Rich and Bewtiful Empire of Guiana* in 1596, inspired several of the major literary minds of the day with its tales of exotic fecundity.⁵⁰ Shakespeare wrote of "a region of Guiana, all good and bounty" in *The Merry Wives of Windsor* (1602). In his epic poem *Paradise Lost* (1667), John Milton mentioned an "unspoilt Guiana".⁵¹

It was not until over two centuries later, with the advent of early colonisation, that ethnographically reliable reports from the region began to appear with any regularity. The majority of such accounts to make mention of the native peoples of Guiana were supplied by explorers, geographers, and missionaries. During the 1830s and '40s, the German-born brothers Robert and Richard Schomburgk travelled across the interior of British Guiana on behalf of Great Britain. Robert, the elder brother, conducted a number of important geographical surveys during the period 1835-39 (published in 1841, translated by Roth). Richard, a botanist, travelled to British Guiana between 1840 and 1844, producing a two-volume account of his journey (1847; translated by Roth, 1922).⁵² Combined, the writings of the Schomburgks are of importance as early accounts of the interior of Guiana.⁵³

⁵⁰ Also of note is the account of Raleigh's companion on the 1595 voyage, Laurence Keymis (1890).

⁵¹ John Gimlette, personal communication, April 2014.

⁵² Of particular interest here are Chapters 7-9, on Schomburgk's journey up the Rupununi River.

⁵³ For a thorough commentary on the work of Robert Schomburgk, see Rivière (2006a, 2006b).

Other early accounts of relevance were supplied by the eccentric British naturalist and explorer Charles Waterton (1825), and the geologist and explorer Charles Barrington-Brown (1876).⁵⁴ Waterton undertook a series of expeditions to the unexplored hinterlands of Guyana between 1812 and 1824, passing through Makushi country and commenting on the indigenous peoples there. During the 1870s, Barrington-Brown – the first European to sight the majestic 750-foot high Kaieteur Falls – travelled to the North Rupununi, visiting Makushi villages in the vicinity of Pirara. He provided some illuminating descriptions of indigenous life in his travelogue *Canoe and Camp Life in British Guiana* (1876).

The German naturalist Carl F. Appun was the first to enter and explore the Upper Mazaruni in the 1850-60s. On behalf of the British Government, he visited Roraima and travelled south to the Rupununi savannahs. A popular account of his journey – *Unter den Tropen*, or ‘Under the Tropics’ – was published in 1871.⁵⁵ Around the same time, the French geographer Henri Coudreau undertook an expedition up the Rio Branco, during which he encountered the Makuxi of Roraima (1886).⁵⁶

The Oxford-based intellectual Sir Everard im Thurn wrote an early ethnographic account of the Indians of Guiana (1883), which, although firmly rooted in the evolutionist tradition of his colleague Edward B. Tylor, serves as a useful and detailed anthropological account nonetheless. Im Thurn was one of the first anthropologically minded explorers to visit the Makushi of the North Rupununi, later publishing on their religious beliefs, with a particular focus on animism in the Tylorian sense (1882). He travelled through the North Rupununi in 1877-78, visiting several Makushi villages. In 1884, im Thurn famously led the first successful expedition to summit of Mount Roraima in the Pakaraima range, at the convergence point of Brazil, Venezuela, and British Guiana.⁵⁷

⁵⁴ See also John Hancock’s early prospectus of the colony, *Observations on the Climate, Soil, and Production of British Guiana* (1835).

⁵⁵ See in particular Chapter 11, on his travels on the Demerara and Pomeroon in Guiana, circa 1859.

⁵⁶ See also Koch-Grünberg (1923, III: 286).

⁵⁷ This flat-topped mountain providing the inspiration for Conan Doyle’s *The Lost World* (1912).

The Brazilian botanist João Barbosa Rodrigues travelled up the Rio Jauaperi into Roraima during the 1880s (see 1885). He later published a compendium on the folklore of the tribes of Amazonia (1890), in which he details a number of Makushi legends. Koch-Grünberg (1917) made use of Barbosa Rodrigues's work in identifying a number of stars and constellations in the indigenous system of astronomy (1917, volume II: 273-4). Lévi-Strauss also analysed his material in *Mythologiques* (1964-71).

The most comprehensive early ethnographic accounts of the indigenous cultures of the circum-Roraima region were supplied by the British anthropologist Walter E. Roth (1915-1924) and the early German anthropologist and explorer Theodor Koch-Grünberg (1916-1923). Roth was stationed in British Guiana as Protector of the Indians from 1906 until 1928, and went on to publish two encyclopaedic records of their folklore (1915) and arts, crafts, and material culture (1924). Koch-Grünberg travelled extensively throughout the Rio Branco savannahs of Brazil and the Gran Sabana of Venezuela between 1911 and 1915, producing a compendious five-volume account of the culture and mythology of the Arekuna, Taurepan, and Makushi peoples (1916-1923).⁵⁸

William Curtis Farabee's study of the Central Carib groups is also of great value for historical-ethnographic context (1924). Farabee, an anthropologist from Philadelphia, visited the Makushi in the period 1913-16, and wrote a detailed account of their language and material culture. Along with the works of Roth and Koch-Grünberg, Farabee's study is the most useful publication on the Makushi culture from the early twentieth century. Farabee's earlier volume *The Central Arawaks* (1918) includes important information on the Arawak-speaking Wapishana, Atorai, and Taruma peoples of the south savannahs.

⁵⁸ Three volumes of Koch-Grünberg's account were translated into English by Walter E. Roth, but never published. They have, however, been published in Spanish (Koch-Grünberg 1923).

John Gillin's classic volume *The Barama River Caribs of British Guiana* (1936), an account of the Harvard expedition to the Northwest District of the country, is of import as a source of ethnographic data on the Carib (Karinya) people of the coast.⁵⁹

Missionary accounts also provide a fertile source of ethnographic data. The early English missionary William Brett travelled in the interior of Guiana in the 1830s, writing several volumes on the culture and mythology of the Indians he encountered there (1853, 1880, 1881). Also of interest is Veness's (1869) memoir of the life of Reverend Thomas Youd, the first English missionary stationed in the North Rupununi, during the 1830-40s. Later, the Anglican missionary James Williams started the Mission at Yupukari in 1907, remaining there until 1913. His dictionary of Makushi grammar and vocabulary (1932) is thus of particular historical and ethnographic importance to the present study.⁶⁰

Padre Cesáreo de Armellada (1908-1996) was a Capuchin Missionary from Spain who lived among the Pemon of the Venezuelan Gran Sabana from 1933-1943. Armellada published several valuable accounts of Pemon mythology (1964-1973), and an important study of their ritual incantations and abstract spiritual concepts (1972). He also compiled the first dictionary of the Pemon language, with Mariano Gutiérrez Salazar (1981).⁶¹

The work of Audrey Butt Colson (née Butt) on the Akawaio people is of foremost importance in the anthropology the region (see Butt 1960, 1961; Butt Colson 1976, 1977, 1989, 2009a). Butt Colson, who conducted fieldwork among the Akawaio (Kapon) during the 1950s, has written extensively on, amongst other things, the Kapon conceptual system and the syncretic Alleluya church.⁶² She has published a number of collaborative articles with Cesáreo de Armellada, based on a lengthy correspondence, covering such subjects as shamanism (1990) and the indigenous system of astronomy (2001). Dr Colson's work on ritual symbolism (e.g. 1976) and shamanism (1977) is of particular import for this study.

⁵⁹ See also Gillin (1933) on crime and punishment among the Barama River Caribs.

⁶⁰ See also Rev Gough (1912), and, later, Rev White (1944), who both spent time with the Makushi.

⁶¹ See Butt Colson and Armellada (2001: 46) for a succinct biography of the Spanish missionary.

⁶² On the latter, see also the work of Susan K. Staats (1996) and Daniel Cooper (2015).

Likewise, the anthropological contribution of Peter Rivière on the Carib-speaking groups of the Guiana region is of instrumental importance herein (1984). The influence of his classic study of social organisation amongst the Trio cannot be overestimated (1969). Rivière's historical analysis of imperialism in British Guiana is of particular relevance to this thesis (1995), as is his study of ranching culture in Roraima, Brazil (1972).

Iris Myers, resident of the Rupununi between 1933 and 1950, wrote a noteworthy account of the state of Makushi culture circa 1944 (reprinted in 1993, with annotations by Butt Colson). Myer's extended piece is particularly valuable as a commentary on societal and cultural change among the Makushi during the mid-twentieth century.

The British naturalists David Attenborough and Gerald Durrell both visited the Rupununi during the 1950 and '60s, the former collecting specimens for London Zoo and the latter for Jersey Zoo. During his visit, Attenborough stayed with the McTurk family at Karanambu, a ranch located downriver from Yupukari village. Both Attenborough (1956) and Durrell (1969) wrote interesting and often amusing accounts of their expeditions.

The work of the Guyanese anthropologist Janette Bulkan (formerly, Forte) among the Makushi and Wapishana peoples is also of importance here (Forte 1996a, Forte *et al.* 1992, Bulkan 2013). In particular, the volume *Makusipe komanto iseru* (1996b), edited by Forte, represents a unique insight into Makushi culture. This study was conducted by the Makushi Research Unit, a group of indigenous researchers from the North Rupununi. The MRU have also produced a number of language resources with the American SIL linguist Miriam Abbott (1999, 2003), including a prototype Makushi dictionary (2009).

Anthropological analyses of the Brazilian Makuxi of Roraima state have almost exclusively been conducted by Brazilian anthropologists and have thus been published in Portuguese. Important works include those by Paulo Santilli (1994, 1997, 2001), Nádia Farage (1991, 2003), and Melvina Araújo (2006a, 2009). Santilli, in particular, has made a substantial contribution to the ethnography of the Makuxi of Roraima. Farage's (1993)

work with the Brazilian Wapishana is also of import. The Brazilian anthropologist Edson Soares Diniz (1967, 1971) provided a number of earlier accounts of both the Makuxi and Wapishana cultures, including a short but useful study of Makuxi shamanism (1972).

The Italian anthropologist Emanuele Amodio has written on the Brazilian Makuxi of Roraima, including on the relation between indigenous medicine and Christian religion (1986a), syncretism and acculturation (1986b, 1999), and animals in mythology (1989).⁶³ With Vivente Pira, Amodio also compiled the first Makuxi-Portuguese dictionary (1996).

Ethnographic studies of neighbouring Amerindian groups of the Makushi are also of interest. Contributions from David Thomas (1982) on the Venezuelan Pemon and Neil Whitehead (2002) on the Patamona of Guyana are of relevance – the latter, particularly, in relation to the phenomenon of *kanaimà* sorcery.⁶⁴ The indigenous linguist Desrey Fox conducted a comprehensive doctoral study of the Akawaio language (Caesar-Fox 2003), which is of anthropological interest. Ethnographic studies of the Wapishana of the South Rupununi have been rather limited, but include those by Foster (1990), Forte *et al.* (1992) and Henfrey (2002). Of particular importance is the report published by the South Central and South Rupununi Districts Toshaos Council in 2012, which serves as a unique account of the Wapishana culture and cosmology, written and compiled by indigenous experts.

The writings of George Mentore (1987, 2005) and Laura Mentore (2012) on the Waiwai people of southern Guyana are of relevance. Their research was foreshadowed by important work conducted by the Danish ethnographers Jens Yde and Niels Fock, based on their joint expedition to the Waiwai in the early 1960s. Yde (1965) published primarily on Waiwai material culture and Fock (1963) on their religion and social organisation.⁶⁵ Of lesser significance is the botanist-cum-explorer Nicholas Guppy's rather exotic and primitivising account of his 1952 expedition to the Waiwai, published in 1958.

⁶³ See also Amodio (1983, 1989, 1999).

⁶⁴ See also Butt Colson (2001) on the same phenomenon among the Akawaio of the Pakaraimas.

⁶⁵ Roth (1929) also provides a detailed description of Waiwai, Atorai, and Wapishana material culture.



A traditional Makushi house (*witti*) | Yupukari, 2013



Makushi house, Rio Surumú, circa 1911 | From Koch-Grünberg (1924, III: plate 50)

1. 4. Field Sites

This study was conducted in two main villages: Yupukari and Rewa. Yupukari formed the primary field site, and Rewa the secondary site. Interviews were also conducted in the satellite villages of Kaicumbay, Fly Hill, and Quatata, in the vicinity of Yupukari.

1. 4. 1. Yupukari

The village of Yupukari lies on the western bank of the Rupununi River, in the central district of the North Rupununi.⁶⁶ Reaching an elevation of 140m, the hilltop village rises gently above the surrounding patchwork of savannah and gallery forest that adorns the banks of the river to the east and the serpentine Awarikuru Lake to the south.⁶⁷ The elevated vantage point allows the viewer to situate himself within the grand panorama of the North Rupununi. Looking northwest across the savannahs, one sees the foothills of the Pakaraima Mountains, a distinctive mosaic of forested and grass-covered peaks.⁶⁸ The Pakaraima Range, the highest in Guyana, presents a natural geological barrier to Brazil and Venezuela, which lie behind. To the south, one observes the Kanuku Mountains,⁶⁹ a largely uninhabited mountain range that stretches from the Rewa River in the east to the Brazilian border in the west. The mountains are almost entirely covered in pristine forest, with just the occasional outcrop of silvery prehistoric rock breaking the cloak of dense vegetation. The Kanuku Mountains act as a grand geological separator, dividing the two

⁶⁶ N 3° 39.731 W 59° 21.254.

⁶⁷ The name of the Awarikuru Lake means “slippery lake”, and refers to a type of slimy clay found on the lakebed. The toponym is a distortion of *erekuru*, meaning “slippery”.

⁶⁸ According to Richard Schomburgk (1847), the name Pakaraima refers to “the peculiar shapes of certain rocky heights of the Range that have much resemblance to the Indian baskets which are called Pacara” (1922: 303). Upon questioning, my collaborators told me that the basket in question is the *pakaru'ma*, a fish basket made of ité palm leaves (*Mauritia flexuosa*).

⁶⁹ In Makushi, *kanukuru'ta*. *Kanukuru* means “overgrown forest”, and the postfix *-ta* indicates place.

savannahs, north and south, that constitute the Rupununi.⁷⁰ These mountain ranges, ever-present in myth, give one a sense that they are hemmed in by the horizon in an expansive crucible filled with a patchwork of trees and grasslands.

The population of Yupukari currently stands at 548.⁷¹ Most Yupukarians identify as Makushi by tribal affiliation; however, a number of Wapishana people also live in the village, most of whom are married into Makushi families. By all accounts, the village has become increasingly cosmopolitan over the last twenty-five years, entertaining occasional inhabitants from the coastland and a small but steady stream of volunteers and researchers from further afield. There are also three satellite villages within Yupukari's land title: Quatata, Fly Hill, and Kaicumbay. Although each constitutes an independent village in its own right, they are gathered together administratively, forming an aggregate population of around one thousand. The savannah community of Quatata lies on a ridge overlooking the seasonally flooded Lake Amuku, below to the north. This ridge marks the point where two vast river drainage basins, the Amazon and the Essequibo, meet (Robert Schomburgk 1840b: 6). During the long wet season, the two rising bodies of water coalesce, forming a vast lake known locally as El Dorado (see Farabee 1924: 11).⁷² Surrounded by clusters of stately ité palms with their fan-like fronds, this drainage plain was once believed to be the site of the legendary lakeside city of gold that, as long ago as 1596, inspired Sir Walter Raleigh's exploratory voyages to the Guianas (Raleigh 1997).⁷³ Watching the sun setting behind the lake in late July when the waters are highest, it is not difficult to imagine how the metallic shimmer of the flooded savannah below the deep-red glow of the sky would have fuelled those early visitors with hyperbolic stories of gold and exotic beauty.⁷⁴

⁷⁰ Collectively, a land area of over 5,000 square miles.

⁷¹ 2012 national census, preliminary data.

⁷² Depicted in Robert Schomburgk's *Twelve Views of the Interior of Guiana* (1840a).

⁷³ The legendary city of El Dorado was said to lie on the shores of Lake Parime, also known as Manoa, 'Parime' and 'Manoa' being the respective Carib and Arawak terms for lake.

⁷⁴ Humboldt discusses the myth of El Dorado in connection with the Rupununi floodplain (1841: 5-14).

The centre of the village is situated at its highest elevated point. A football pitch is encircled by a cluster of municipal buildings, including the village office, the primary and secondary schools, a nursery school, a medical centre, and the Anglican Church. The spatial layout of the village is relatively open, with homesteads being separated by areas of savannah and clusters of fruit trees and palms. The architectural styles displayed in the houses of the village exhibit increasing diversity. Most people live in the mud-bricked, ité palm-thatched houses typical of savannah-based Makushi communities. Although most people build their houses with locally produced burnt clay bricks, a few houses retain the wattle-and-daub walls of old, constructed of wooden sticks and wet clay.⁷⁵ Some villagers choose to build their homes with concrete breezeblocks purchased from Brazil. Zinc roofs are becoming ever-more popular, owing to their durability and lower labour input: unlike ité palm fronds,⁷⁶ which must be harvested from swamps and replaced every three years or so, zinc panels, although extremely hot in the midday sun, last indefinitely. The hilltop is scattered with mature fruit trees that grow in and around the established homesteads; consequently, the village forms an oasis for a host of frugivorous birds including macaws, toucans, and parrots. Several bush-filled valleys run down the slopes of the hill toward the wetlands below, forming habitat corridors for small mammals such as tayra and agouti. The scrubby savannah surrounding the village is peppered with hardy trees and the giant mud-grey termite mounds which form the hunting grounds of the giant anteater.⁷⁷

Yupukari currently has three churches: the Anglican church, established in 1907, the Christian Brethren, established in the late 1980s, and the evangelical Church of Christ, founded by missionaries from Alabama in 2007. Each church has a separate and self-contained congregation, with religious affiliation often being kin-based. The village hosts a community-run ecolodge, Caiman House, which was built in 2004 in collaboration with

⁷⁵ See Farabee for a detailed description of Makushi houses circa 1913-16 (1924: 15-19), as well as Richard Schomburgk's earlier observations from the early 1840s (1922: 273, 281).

⁷⁶ Ité palm (*Mauritia flexuosa*). Makushi name, *kuwai ye*. Young leaves used to make *tibisiri* fibre.

⁷⁷ Giant anteater (*Myrmecophaga tridactyla*). Also known as the 'ant bear'. Makushi name, *tamanua*.

an American couple from Connecticut. The couple, a tropical ecologist and his wife, were seeking to establish a black caiman research project in the North Rupununi, an area which supports a healthy population of the regionally threatened crocodylian species.⁷⁸ Although the couple have since left Guyana, the village continues to run the ecolodge as a research-friendly touristic enterprise with ecological orientations. Today, Caiman House employs local people as wildlife guides, boat captains, cooks, and cleaners, with all profits feeding back into the community. The research station, located close to the centre of the village, occasionally hosts researchers in the field of neotropical ecology.

The history of Yupukari village is intimately linked to the history of agriculture in the region.⁷⁹ As with most Makushi villages, Yupukari is located in the savannah-forest ecotone; as such, villagers can live in the former and farm in the latter. The majority of families cultivate primary farms in the gallery forest that lines the banks of the Rupununi River nearby. Most also have second, larger farm situated further away in the forested foothills of the Kanuku Mountains, at locations including Salipenta, Tupa, and Mapari.⁸⁰ Mîri'ku Pai, another important farming area, is situated on the forested periphery of an area of savannah on the southern bank of Awarikuru Lake.⁸¹ Forest farms, which function as second home sites, are visited relatively infrequently but for long periods of a month or more. The Rupununi River is an important transportation highway, connecting the village to these farming areas, and to Katoka upstream and Karanambu and Annai downstream. As well as by water, the village is accessible via a network of tracks that connect to the main Lethem-Linden dirt road which bifurcates the North Rupununi. The border town of Lethem can be reached in four hours by truck or motorbike, although during the rainy season the journey is more hazardous and time-consuming. Villagers would traditionally

⁷⁸ Black caiman (*Melanosuchus niger*). Makushi name, *kuratu*.

⁷⁹ See Chapter 3 for a thorough overview of agriculture and the historical ecology of the region.

⁸⁰ The place name Tupa refers to the crimson-crested woodpecker, *tu'para*; Salipenta is named after the gold tegu lizard – species which are often seen at these respective sites.

⁸¹ The place name Mîri'ku Pai means 'gravel pool' in Makushi; *mîri'* being a type of red gravel, named after a species of large red freshwater crab of the same name.

use ox-and-cart (*tararan*), and more recently tractor-and-trailer, to reach nearby savannah villages. In 2013, the community acquired a minibus from the Government, which runs to Lethem twice a week, revolutionising accessibility to Lethem and Brazil for Yupukarians.

Organised religion played a fundamental role in Yupukari's history inasmuch as the formation of the village itself was an Anglican missionary strategy. Established circa 1907, Yupukari hosted the largest Anglican congregation in the North Rupununi in the early twentieth century, led by James Williams. Ethno-history describes how prior to the establishment of the mission, the Makushi were much more nomadic in their movements. In fact, the idea of a centralised village was completely alien to the Amerindian way of life. Before the founding of the mission, there was no permanent village at Yupukari. Instead, family units would shift between multiple sites of residence located in the high forest in the foothills of the Kanuku Mountains. Characterised by dispersal and relocation, family groups would spend significant periods of the year at these shifting farm sites in the bush – farming sites which are still in use today. As Williams wrote in 1932,

The Makuchis... live within reach of a forest to secure a plantation, and within easy reach of a stream to make sure of a water supply, and thus they must be, more or less continually, changing their places of residence. No list of the names of their villages can remain exact for long, such names merely indicate the general range of country where these people have been found in the past.

- Williams 1932: 6.

One of the first aims of the mission was to establish a centralised village, with a church, a school, a vicarage, and other municipal buildings. This required, in short, a fundamental restructuring of the Amerindian way of life. In order to affect this change and to bolster local church attendance, the Anglicans encouraged the Makushi to abandon their more nomadic lifestyle in favour of a sedentary one.

The centrally situated hilltop location was desirable, being only a mile away from the Rupununi River. Access to a river landing was essential for transportation of supplies and personnel to Georgetown and the coast (Williams 1932: 9). Furthermore, it allowed for access to and from nearby villages and settlements, which was crucial for expanding the reach of the church to satellite communities and beyond. Prior to the establishment of the mission at Yupukari, the inlet on the river was referred to as Pirara Landing by the British (cf. Rivière 1995: 171). By 1838, a Christian mission had been established at the nearby Makushi settlement of Pirara, to the west of modern-day Yupukari (Veness 1869). Access to the Pirara Mission became the primary motivation for using the river landing on the part of the British, thus gifting the inlet its initial name. The landing was also used by explorers throughout the nineteenth century, most notably by the Schomburgk brothers and, later, the Oxford-based intellectual Everard im Thurn (1883). It provided the shortest route of access between the Rupununi River, of the Essequibo basin, and Lake Amuku, the floodplain of the Amazon basin, thus making it possible to travel between Guyana and Brazil almost entirely by boat. Using the Awarikuru Lake as a conjoining channel, boats could be transferred from one river system to another with minimal portage over land.⁸² As Rivière has commented, this portage “was the key to an immense system of inland navigation and thus invaluable to the development of commerce” (1995: 66).

There are two theories regarding the etymology of the place name ‘Yupukari’.⁸³ First, a much-told local story, or *panton*, describes how Yupukari got its name. The story recounts how prior to the existence of a village at the site, there was a river landing which people would sometimes use when travelling along the Rupununi River. A ferocious jaguar (*kaikusi*) lived by the river landing, and used to attack passers-by as they paddled to their forest farms. It killed and ate many people. Eventually, the people asked a shaman (*pia’san*) to banish the beast from the river landing. The shaman and his grandson went to

⁸² In 1876, the British geologist Charles Barrington Brown estimated that during the rainy season, this required “a portage of about half a mile to span from one river system to the other” (1876: 265).

⁸³ See Glossary: Toponyms for a list of place names mentioned in the text.

confront the jaguar, which they found sitting upon the large laterite rocks which adorn the riverbank, waiting for its human prey. The jaguar jumped at the old man, growling loudly and waving its tail. The shaman and the jaguar began to fight each other in an epic battle. Eventually, with the help of his grandson, the shaman defeated the jaguar. They locked the beast away in a deep oxbow lake many miles away, from where it could no longer trouble the people. The first settlers at the newly pacified site named the village after the sound of the jaguar's ferocious roar, 'hyip', with the postfix *-kalî* meaning hill. Thus the original Makushi name for the village is *hyip-kalî*, later Creolised to 'Yupukari'. In local folklore, then, Yupukari means 'the hill of the ferocious jaguar's roar'. The second, more prosaic theory attributes the derivation of the place name Yupukari to the Carib (Karinya) phrase meaning 'salipenta hill', salipenta being a large terrestrial lizard.⁸⁴ As Reverend Williams wrote in his early account of Yupukari, "*Chimarupàn*, popularly called 'John Bull', the Makuchi chief at Eupukari,⁸⁵ who died June 1st 1914, told me that 'Eupukari' signified the place where people came to catch the iguanas which were plentiful, and that the name came from the Caribs who formerly lived there" (1932: 13). Although Williams took the large lizard in question to be the iguana (*waramaka*), it was suggested to me on multiple occasions that it was in fact the salipenta. In Makushi, the salipenta is called *arikpa*; in the closely related Carib dialect, it is *ipuka*. With the added postfix *-kalî* (hill), the Carib toponym becomes *ipuka kalî*. The phonetics of the latter, combined with local exegesis, suggests that it was indeed the salipenta that gifted the place its name, *ipka* and *kalî* making *Ipuka-kalî*, eventually being creolised to 'Yupukari'.⁸⁶

⁸⁴ Golden tegu lizard (*Tupinambis teguixin*). Also known as the 'bush motorbike', after its tendency to run at high speed through the undergrowth.

⁸⁵ Eupukari: a curiously European rendering of Yupukari, by the Anglican missionary.

⁸⁶ In 1847, Richard Schomburgk wrote of 'Wai-ipukari Inlet' on the Rupununi River. He describes "a path leads from there to the Macusi village of Pirara on the bank of the Amucu", eleven miles inland (1922: 295-96). Schomburgk's party used the 'Awaricuru River' as a connecting channel to minimise the portage. Later, in 1876, Barrington-Brown recalled of his journey through the North Rupununi that "we arrived at Pirara landing, the termination of our journey by water. At the entrance of a little inlet, called Wai'ipukari, we formed a camp" (1876: 106). The name given by Schomburgk and Barrington-Brown – Wai'ipukari – lends further credence to the etymology proposed above.



Yupukari Landing, c.1944—(Pirara Landing) | Photograph courtesy of Diane McTurk



Yupukari Landing, 2013 | Photograph by the author

1. 4. 2. Rewa

The village of Rewa is situated at the confluence of the Rupununi and Rewa rivers in the eastern-most reaches of the North Rupununi.⁸⁷ Unlike the savannah community of Yupukari, Rewa is located entirely in the high tropical rainforest, its sylvan setting being a defining feature of the place. The community is enveloped by towering *mora* forest, with economically important crabwood, purpleheart, bulletwood, and letterwood groves nearby. The village is directly encircled by a patchwork of secondary forest, which is dominated by the pioneering kokorite palms (*maripa ye'*) that populate fallow farm plots. The diverse and multi-sensory world of the rainforest (*yu'*) permeates the goings-on of everyday life in the village. Rewa is the first and only habitation on the tannin-rich black water Rewa River, which stretches south from the village towards the remote headwaters of Rewa Head. Rewa is a small and geographically isolated village, with a population of 250 people.⁸⁸ The surrounding forests are subject to seasonal flooding, and access to the riverine community is achieved by boat year-round. The tangled network of waterways surrounding the community functions like an intricate and ever-changing system of roads, by which people travel to neighbouring villages and on which fishermen practice their trade. Most households own a dugout canoe (*kanua*),⁸⁹ which serves as the principal form of transportation. A small number of outboard motors are shared within the community. The giant peak of Makarapan Mountain can be seen from the village, overshadowing the floodplain of the Rupununi River. At over 1000m, the mountain is the tallest peak in the North Rupununi and forms a core motif in many myths as told by Rewa elders.

Municipal buildings are located in the centre of the village, including a nursery and primary school, a health post, a small shop, and the church. Houses radiate out from this central area, most of which are still built in the traditional Makushi architectural style,

⁸⁷ N 3° 53.018 W 58° 48.266. Elevation 80m.

⁸⁸ 2012 national census, preliminary data.

⁸⁹ Usually made from large hardwood trees such as purpleheart, greenheart, anjalene, or currywood.

with kokorite palm-thatched roofs and wooden or mud-brick walls. Generally speaking, homesteads are organised in kin-based clusters, with daughters and sons-in-law living in close proximity to their parents.⁹⁰ Rewa only has one church, of the Christian Brethren denomination. It was founded by American missionaries in the late 1970s and is now run by the community; the current pastor of the church, Nathaniel Edwards, has occupied the role since 1980. Christian Brethren doctrine decrees that members of the congregation do not consume alcohol; consequently the village has an unofficial social policy of sobriety, with drinking sprees being uncommon.

The village has a fledgling community-run ecolodge, built in 2004. The lodge is located approximately one kilometre from the village itself, in a forest clearing on the west bank of the Rewa River. Staffed and managed entirely by local people, the lodge has become one of most unique products in Guyana's developing ecotourism industry, seeing a year-on-year increase in trade and revenue. The lodge has its own river landing, and is purposefully separated from the village itself, which is seldom visited by tourists. The site of the lodge also contains a researchers' hut, which houses the not-infrequent stream of natural scientific researchers drawn to the village by its biodiverse surroundings.

Rewa is situated on a bed of fine white-grey alluvial sand. A network of sandy paths winds across the village from homestead to homestead. Villagers farm the relatively infertile sandy soil, with kitchen gardens peppering the village on the edge of habitations. Most houses are surrounded by groves of coconut palms and mango trees. Agriculture in the area is subject to extreme seasonal variations, with flooding common during the rainy season. Farmers from Rewa cultivate the bulk of their cassava at three main farming sites: Awarami, Makarapan, and the Airstrip. Villagers typically travel to their forest farms for periods of a few weeks to a few months at a time. It is common to see families leaving the village in empty dugout canoes powered by small outboard motors, and returning weeks

⁹⁰ This kin-based layout being typical of the morphology of Makushi villages today (Santilli 1997: 99).

later with overladen boats full of people, bananas, and cassava roots, bearing testimony to the fecundity of their farms.

Rewa is renowned across the North Rupununi for its rich biological diversity. The abundance of plant-life in the forests around the village is bewildering even to the most astute botanical eye. The birdlife is equally impressive, with parrots, macaws, toucans, and loquacious parakeets frequenting the village. I often woke to the booming sound of a chorus of howler monkeys (*arouta*) calling in the nearby mora trees. The river itself is a breeding ground for endangered giant river turtles (*warara*), which lay their eggs in the sand banks found upriver. Giant otters (*tura'ra*), capybara (*paranwi*), and caiman (*kuratu*) are also common in the surrounding waterways. The network of rivers and oxbow lakes are also home to the gargantuan prehistoric air-breathing arapaima (*Arapaima* sp.). More elusive creatures can be found upstream on the Rewa River, including jaguars (*kaikusi*), anacondas (*wîi*), harpy eagles (*kuwanu*), and tapirs (*waira*).

Although Rewa is predominantly Makushi in ethnic constitution, a significant minority of the population is Wapishana and Patamona. Although perceived by many to be a 'traditional' community, Rewa is in fact one of the newest villages in the Rupununi. As a consequence of its shallow history, there is little archival documentation relating to the village. However, a number of the community's founding members still reside there; as a result, I was able to collect first-hand ethno-historical accounts of its formation and history. The village was formed via a series of small-scale migrations from the savannah village of Massara, beginning in the late 1950s. Prior to the establishment of the village, Rewa was no more than virgin rainforest. In 1957, the Edwards family started travelling to the site to farm the fertile forest. At this time, there was a lack of viable farming ground in the vicinity of Massara owing to drought and over-population. The first major wave of permanent migrations occurred between 1959 and 1965. A second wave began in the late 1970s, from the Wapishana village of Shia in the South Rupununi. At this time, many

Wapishana families were migrating north to seek work as balata bleeders at Apoteri, the headquarters of the Balata Company, located adjacent to modern-day Rewa.

There is some uncertainty as to the etymology of the place name ‘Rewa’. From the early colonial literature and maps, we can deduce that the river was being referred to variously as ‘Roiwa’ (1), ‘Rewa’ (2), and ‘Illiwa’ (3) as early as the 1830s.⁹¹ The name of the river thus pre-dates the establishment of the village by more than 130 years.

There are three local theories regarding the etymology of the toponym Rewa. The first is that it derives from the candiru fish, *rewakaimî* in Makushi, which is common in the waterways around the village.⁹² This small species of parasitic fish is much-feared for its propensity to jump into the urethras of humans and other mammals as they urinate in water. The next theory is that the village is named after a monstrous fish, *ariwî*, which is said to have inhabited the deep pool at the confluence of the Rupununi and Rewa rivers. This giant fish with spiny scales would sink fishermen’s canoes as they paddled around the bend in the river. *Ariwî* killed many people, before a *pia’san* (shaman) banished the monster from its home in the river and locked it away in a deep oxbow lake far away. The prevailing opinion, however, is that the name of the village derives from the Wapishana term for the river whitey tree, *ariwî* or *aliwî*. The river whitey (*Inga* sp.) lines the banks of the river in its upper reaches, thus gifting the river, and latterly the village, its name.

⁹¹ (1) River Roiwa: depicted in ‘Part of a Map of Colombia’ (Arrowsmith 1832). (2) On October 25, 1835, Robert Schomburgk recorded that he “passed the River Taraqua (the Rewa and Quitaro of the maps)” (1836: 238). (3) In his work on Schomburgk, Peter Rivière states that “the Rewa is also known as the Illiwa” (2006: 58, n1). Schomburgk also refers to the river as the ‘Roiwa’ (Ibid: 239).

⁹² Also known as the vampire fish (*Vandellia cirrhosa*).



The municipal centre of Rewa village | Rewa, 2013



A view of the Rewa River | Rewa, 2013

1. 5. Living with the Makushi

I first travelled to Guyana in September of 2011, as an uninitiated and somewhat under-prepared Master's graduate with a burgeoning interest in human-plant relationships. The purpose of this month-long pilot field-trip was, first, to find a suitable village in which to conduct my doctoral fieldwork, and, second, to apply for permission from the relevant authorities to do so, including Toshias, Village Councils, and the Guyanese Government. After receiving a few tip-offs from contacts in Georgetown, I booked a flight on a small aircraft to the frontier town of Lethem on the Brazilian border, 260 miles inland from the coast. An afternoon spent in this remote and disheveled town of 3,000 residents – rife with Brazilian influence and covered in red laterite dust – allowed for a brief yet acute initiation into the wild frontier culture of the Rupununi. I watched the Brazilian *vaqueros* drinking rum on the wall outside the bar at the airstrip as I waited for my lift, while gold-teethed 'pork knockers' (gold miners) from the coast clattered by on motorcycles.

After waiting for three hours, my contact, Felix, eventually arrived. This was my first initiation into "Rupununi time", the elastic interpretation of punctuality that defines temporality in this part of the world. From Lethem, we travelled by motorcycle through the savannahs to Yupukari thirty miles to the east. The last light rains of the wet season were falling as we arrived on the hilltop, where children were playing volleyball on the dusty sports field. Felix took me straight to Caiman House, the hub of village activity, whereupon I was welcomed by members of the Village Council and the ecotourism crew. I met with the then-Toshao, Rudolf Roberts, who attentively listened to my research plans before encouraging me to conduct my fieldwork in the village; it would be of interest to the community to have someone to record aspects of indigenous knowledge, he said. My initial impression was that Yupukari seemed like a unique location for my study, owing to the interaction of indigenous life-ways with ecological research and ecotourism.

I was based in Yupukari from June 2012 until October 2013.⁹³ The village formed the primary field site for the project, and the location from which the majority of my data derive. I lived in multiple locations in the village, including Caiman House, a volunteers' house in the centre of the village, and various villagers' abodes. The community has a welcoming attitude to foreign researchers, with whom local experts and wildlife guides participate in on-going research projects. Whilst I was living and working in the village, for instance, a number of European and American researchers visited for short periods to investigate, variously, jaguar populations in the circum-Kanuku region, ichthyofaunal diversity in the Rupununi Portal, and the lekking behaviour of blue-backed manakins.

During my third trip to Guyana, I decided to travel to the small community of Rewa in the northeast Rupununi, with the intention of conducting some ethnobotanical enquiries in the high rainforest biome, for comparison with my data from the savannah-forest ecotone of Yupukari. I had come to know a few people from Rewa as a result of my Yupukari connections, who helped me to gain permission to visit the community in advance. I made the two-day (87 miles; 140km) journey by boat downstream along the Rupununi River with a scientific research team, before arriving in Rewa for the first time in January 2013. I presented my research plans to the community during a meeting held under the mango trees in the centre of the village. The Village Council graciously allowed me to conduct ethnographic research in the community, and suggested a number of local experts who could help with my enquiries. I would go on to spend approximately three months in Rewa (January, July, and August 2013). Whilst in Rewa, I lived in a designated researchers' hut at the site of the ecolodge, a five-minute walk through the rainforest from the village centre. As in Yupukari, I was co-resident with scientific researchers for short periods, including a three-person biological research team from an aquarium in Chicago, who were conducting a radio-tagging project on arapaima in order to determine their wet

⁹³ June to October 2012, December 2012, February to June 2013, and August to September 2013

season migration patterns. The triangular interactions with natural scientists and Makushi residents formed an important component of my research experience.

The research methodology of this study was composed of the traditional research methods of social anthropology: long-term immersion, participant observation, and semi-structured interviewing. Language acquisition and the recording of mythological stories (*panton*) also formed a core element of my research. In conjunction with these primary qualitative methods, I conducted ethnobotanical surveys of farms, gardens, the savannah, and the forest. Plant surveys were ideally conducted with gardeners, who would assist in counting, photographing, and recording information about their crops. A corpus of ethnobotanical data was systematically recorded for each entry, including the Makushi name, the common name, the Linnaean classification (if known), ecological notes, uses, and any associated beliefs or local knowledge.⁹⁴ It is from these surveys that a large proportion of my taxonomic data derives. Substantial archival research was conducted to supplement the qualitative component. Museum collections were consulted and photographed at the Walter Roth Museum in Georgetown and the Pitt Rivers Museum in Oxford. Manuscripts were consulted at the British Library and the Bodleian Library, Oxford.

It seems somewhat strange to describe my ‘methodology’ in these abstract terms, for in reality, I was simply living with people whom I grew to know intimately, and the inter-personal nature of these social relationships precedes the systematic idea of research methods as employed in the social sciences. In effect, I played the well-known role of the inquisitive anthropologist, perpetually hanging around with a black notebook and pencil asking people, “what does *this* mean?” Nevertheless, I allowed my Makushi counterparts themselves to guide me as much as possible, and I cannot count the number of times local experts told me, “stop asking about that; it is *this* that is of importance”. The unexpected

⁹⁴ Plant names mentioned in the text include, where known, the common name, Makushi name, and Linnaean classification, with the latter usually being given in a footnote. This information is elaborated upon in the Appendices; for instance, crop species are listed in Appendix 1, ‘bina’ plants in Appendix 3, and so on. Thus, the Appendices may be used as a reference for the plant names given in the text.

tangents that I was guided down resulted in some of my most insightful and challenging experiences, experiences from which I wittingly or unwittingly achieved a much deeper understanding of Makushi culture than would have been afforded by my own control. The partial and partisan nature of my own experiences and interpretations was always in the forefront of my mind during fieldwork; the representation that I give of Makushi culture, although very real, is also – necessarily – very subjective. As Eduardo Viveiros de Castro has written, “ethnographers are not photographers – they are portrait artists” (2015: 14).

Of course, anthropological fieldwork should be viewed as an on-going dialogue between the ethnographer and their host community (cf. Rival 2014: 224). Local people actively nurtured and guided my learning experiences in social relationships of tutelage – in particular, a number of elders, to whom this study is deeply indebted. As interlocutors in long-term relationships, my hosts often had their own ideas about what they wanted me to take away, outside of my own intentions. When I would visit Uncle Isaac Rogers – an elder in Yupukari – he would often say, “today, my son, I will teach you about the spirit stones”, or whatever topic he felt to be of relevance on that day. There was often a latent socio-political dimension to these dialogues: people were much happier to educate me in the rudiments of ‘traditional knowledge’ than economically important yet controversial extractive practices such as seine net fishing or timber harvesting.

Acquisition of the indigenous language was of primary importance to my research methodology. I undertook frequent lessons in the Makushi dialect with local elders, who for the most part seemed happy and willing to teach me. I recall countless afternoons sat with Amoko Nathaniel, a teacher from Rewa, tracing words into the sand with a piece of wood. People would often express intrigue as to what interest a *paranakîrî* (‘white man’) might have in learning their language. It was only through the experience of learning the language that I began to glimpse the vast complexity of Makushi indigenous knowledge. Although I admit the nuances of grammar and syntax continue to evade me, my under-

standing of ‘Makushi-ness’ itself would be greatly impoverished if not for the kind people who took it upon themselves to tutor me in the rudiments of the local dialect during those sunny afternoons underneath the shade of palm-fronded eaves. I intend to continue to fill the holes in my linguistic proficiency during future visits to Guyana.

During my time with the Makushi, I embraced any opportunity I could to participate in daily subsistence activities such as fishing, hunting, and farming, since it was the trans-specific relationships revealed therein with which I was predominantly interested. I was also lucky to be invited on a number of river trips, an important activity for Makushi people during which groups of friends or kin travel to remote areas of forest to hunt, fish, and farm. It was on these trips that I began to glimpse the bewilderingly diverse ecology of the forest. I also came to understand how the bio-geographical landscape of the region has been shaped by human action over deep historical time. The rainforest, which initially appeared to me as a perplexing labyrinth of ‘wild nature’, slowly revealed itself to be an anthropogenic network of managed farms, gardens, trails, canals, and hunting sites.

Practical engagement with agricultural labour was a priority of mine, although, on balance, my less than Herculean attempts at clearing a farm or ploughing cassava banks were probably more of a hindrance than a help to the horticultural productivity of my hosts. A friend and collaborator, Jose, kindly allowed me to cultivate a garden plot within his cassava farm, in which I was able to experiment with planting and harvesting different varieties of cassava (*kise*).⁹⁵ Jose taught me many of the techniques utilised in subsistence agriculture, and it is to this apprenticeship that my understanding of Makushi horticulture is most indebted. Under the tutelage of local women, I was able to manufacture traditional cassava products, including cassava bread (*ikei*), farine (*u’wi*), and fermented cassava beer (*parakari*). It was only in the practical engagement of making these products that I was able to acquire an embodied and experiential understanding of the complex technical

⁹⁵ See Chapters 3 and 4 on horticultural techniques.

and semiotic processes that local people utilise in culinary praxis, processes that in many ways form the bedrock of Makushi social and cultural life.

Of course, the majority of my time was not spent in gardens, canoes, and forests, but rather hanging around in hammocks (*atta*) in people's homes. The familiar boredom that accompanied the hours or sometimes days of waiting around might itself be regarded as a research method of the highest importance. The nature of boredom brings reflection. It was during those quiet times, with few stimuli dominating my attention, that I found myself observing the mundane, noticing the unsung minutiae of life. I often thought of these moments as 'micro-observational': the way a bored child would play with leafcutter ants by jabbing a stick into their trail, the tactile interactions between an owner and their pet howler monkey, or how the dog would sleep in the ashes of a still-warm hearth. These moments also allowed for reflexive meditation regarding my own place within and effect on the social milieu. Further, it was only through spending this lackadaisical 'down-time' with people that bonds of trust and familiarity gradually formed, fostering a longevity to relationships that would not have been provided by acute participatory experiences alone. In simple language, through shared boredom, my hosts and I got to know each other.

During the first phase of my fieldwork, illness was a constant issue. I contracted suspected typhoid fever during the first month of being in the country, while stationed in Georgetown waiting for research permits from the Government. Already light on body-mass, I lost a lot of weight in a short period. The lasting legacy of this initiatory illness was a near-constant affliction with food poisoning and bodily malaise for the rest of the first four-month trip. However, the curse turned out to be something of a blessing. First, I learned more than I ever expected about Makushi etiology and traditional healthcare in the very experience of being sick. For instance, whilst ill, local healers ("blow-people") would visit my bedside to administer medicinal plant remedies and perform healing spells (*taren*) upon me, a double coup for both my well-being and my research. Second, on a

personal level, the often-traumatic experience of being ill necessitated the formation of relationships of care with local people. It humbled me that people were concerned about my well-being. Through these relationships of care, I was able to form intimate bonds with people, bonds which through time became lasting friendships. Third, I seemed to gain a boosted immunity as a result of those initial infections, for I remained exclusively healthy throughout the subsequent ten months of fieldwork. This immunity (of body, and mind) encouraged me to err on the side of risk in relation to which activities I undertook in a participatory capacity. I became more confident in unquestioningly trying the array of foods, drinks, herbal medicines, and ritual elixirs that were offered to me. As I came to understand, it was only through engaging in the intimate processes of living together that I would become, if only fleetingly, a surrogate Makushi person. My personal experiences and research findings profited from this immeasurably.



Yupukari School, c.1944 | Photograph courtesy of Diane McTurk

1. 6. The Original Contribution of the Thesis

This thesis is an ethnography of Makushi shared human-plant life-worlds. The study is novel in that it combines classical ethnobiological subject matter – traditional ecological knowledge and practice – with a renewed focus on socio-technical systems. Theoretically, the thesis strives toward a new synthesis of the ecosemiotic, ontological, and phenomenological approaches to human-environmental relations. The investigation is thus equally concerned with trans-specific communication, nonhuman subjectivity, and the embodied experience of the world. This integrative model, in my view, represents an important step in progressing anthropological understandings of multispecies relations in Amazonia.

The present study makes a number of new empirical contributions. First and most importantly, this is the first in-depth ethnographic study of the Guyanese Makushi with a focus on human-environmental relations. As yet, no full monograph of the Makushi of the North Rupununi exists. In the thesis, I present and analyse a substantial body of new and revealing ethnobotanical data, including taxonomies of crop species, cassava landraces, medicinal plants, and shamanic plants. I provide an analysis of ‘bina’ plant charms, which represents the first in-depth ethnobotanical inventory of plant charms from an indigenous group in the Guianas. Furthermore, the list of cassava folk-varietals includes a number of landraces previously unrecorded by scientists or anthropologists. The thesis also describes a number of socio-technical processes that have hitherto not been discussed in any detail, including the fermentation of cassava beer (*parakari*) using a cultivated species of mould.

A wide range of examples of cross-species communication are documented and analysed, in the domains of agriculture, food processing, fermentation, and shamanism. Throughout, linguistic terms and ecological concepts are semantically evaluated. The data described herein is predominantly derived from first-hand field research, conducted in two Makushi villages in the period 2012-13. The ethnography is situated in relation to the

wider Carib literature, with the understanding that the Carib-speaking groups of northern Amazonia display a pan-cultural unity. Previous anthropological contributions relating to neighbouring Carib groups in the Guianas provide a solid basis for comparison, from both English and non-English sources (see literature review).

The 100,000 word limitation of this thesis, combined with the necessary priority given to the ethnography over the theory, dictates that I am not able to fully develop this theoretical synthesis to its ultimate conclusion. However, this conceptual project is larger than any one thesis, and it is something that I plan to continue developing in later work and in my future career. The investigation is driven by some profound questions: what is a person, what constitutes a body, what – indeed – is a soul, and, ultimately, what is life? Clearly, I do not purport to provide any conclusive answers to these most fundamental of ontological and existential dilemmas that have occupied thinkers and philosophers since since time immemorial. However, it is my hope that a thorough analysis of the Makushi ethnography, combined with a number of modest theoretical proposals, will represent but one small empirically grounded footstep along this grand intellectual pathway.

Thesis Structure

The following chapter, *Plant Personhood*, constitutes a critical overview of theoretical perspectives on human-environment relations in anthropology. First, I outline the Peircian model of ecosemiotics, and assess its applicability to human-floral engagements. Next, I evaluate the merits of “ontological” approaches to indigenous Amazonian cosmologies, including constructivist theories of the body and personhood. Following this, I critically evaluate Ingold’s ecological phenomenology, vis-à-vis his intellectual forebears. I close the discussion with an appraisal of the Maussian approach to socio-technical systems. In

concluding the chapter, I propose a synthesised model which focuses at one and the same time on the flows of signs and the flows of substances in indigenous theories of life.

Chapter 3, *Makushi Horticulture*, is a general overview of horticultural practices, techniques, and concepts. First, I outline some of the core technical processes involved in farming, from clearing a farm to ploughing soil banks. I evaluate local notions of physical labour and the sociality of farming in relation to a system for collaborative work known as *mayu*. Subsequently, I assess the influence of a category of ‘nature spirits’ (*imawari*) in horticultural praxis. Throughout, I highlight the trans-specific nature of farms as dynamic social spaces in which humans and other types of beings intermingle and interact.

In Chapter 4, *Cassava Spirit and the Seed of History*, I examine the centrality of the staple crop bitter cassava (*kîse*) in Makushi culture and cosmology. Socio-technical activities regarding the transformation of cassava plants into edible foodstuffs dictate the rhythm of daily life. I begin by tracing the cyclical processes of cultivation, processing, and consumption, whilst paying attention to the cosmological motifs that frame these processes. Following this, I investigate the varietal hyper-diversity of the staple crop, its ethno-classification into sweet and bitter types, and the system of varietal naming which encodes human-vegetal movements within spatio-temporal networks of exchange.

Chapter 5, *The Nature of Sweetness*, concerns techniques and ecosemiotics in the fermentation of traditional cassava beverages. The most important drink fermented by the Makushi is *parakari*, a cassava beer that serves as the ultimate commensal substance and a fuel for social reproduction. I detail the technical processes involved in its manufacture, whilst drawing out some core semiotic themes relating to bitterness and sweetness. The pervasiveness of bitter-sweet symbolism is explored in relation to three case studies: the ceremonial *parisara* hunting dance, ritualised ant stinging, and charm tattooing.

Chapter 6, *Bina Plants: Plant People, Charms, and Cures*, examines the use of a category of charm plants known as ‘bina’. Plant charms are used for hunting, fishing, and

farming; for finding love, accruing wealth, and cursing enemies. For the Makushi, bina plants are thought of as powerful subjects who act in the world of their own volition. I outline various aspects of the diverse category of bina (*muran*), including the emergence of a range of ‘modern’ charms utilised for contemporary concerns. I suggest that certain bina plants might best be conceived as plant shamans: powerful cosmological actors in their own right, capable of killing or healing like the human shaman (*pia’san*, *piaiman*).

The final ethnographic chapter, *Unseen Spirits and the Pia’san’s Eye*, constitutes an investigation into the roles of plants in shamanism. I attempt to unveil some of the relations that transpire between human-beings and plant-beings in shamanic training and ritual. First, I give an overview of Makushi shamanism, including a detailed description of the curing ritual called ‘beating leaf’. Next, I assess the consumption of a portfolio of bitter barks (*mai’ pi’pî*) and tobacco (*kawai*) in detail. Finally, I examine a set of healing spells known as *taren*, as employed by shamans and traditional healers (*taren esak*). The shaman is the cosmo-ecological mediator, tempering relations between humans and plant-beings. Plant-people, I show, are powerful interlocutors in the cosmic field of sociality.

By way of a conclusion, I return to the recurring theme of ‘plant personhood’ in Amazonian cosmologies. I reflect on the feasibility of an ecosemiotic approach to cross-species engagements and appraise whether this framework is of import in understanding human-plant encounters and Makushi theories of life. I conclude that ecosemiotics is of import as the study of sign-flows, but only transmits a partial picture; a more integrative, holistic approach is required which can better account for associated notions of substance-flow and person-making. An integrative symbiotic anthropology, I contend, should strive to account for both *semiotic* and *somatic* logics. Finally, I conclude the thesis with a short meditation on reflexivity and collaborative ethnography in anthropological enterprise.

2. WHAT KIND OF PEOPLE ARE PLANTS?

Theoretical Perspectives



A flowering pineapple plant (*kaiwura'*) | Rewa, 2013

2. 1. Rudy and the Bush Tai-Tai Flower

One morning I was having breakfast in the palm-thatched benab of Rewa Ecolodge when Rudy, an avid storyteller, began to tell me about a secret plant which grows on the slopes of Makarapan Mountain. The flowering plant, he said, belongs to bush tai-tai (*piai'ma*), a hairy human-like being that inhabits the deep forest. Ferocious and gargantuan in stature, tai-tai preys upon humans, whom he slays and carries back to his house in the mountains to cook in a cauldron. His lair, it is said, is scattered with the discarded bones of humans.

There is a special plant that grows up on Makarapan Mountain. It has three flowers facing in different directions, one east, one southwest, one northwest. That is bush tai-tai's plant. It is a person; his watchdog. It talks to him; the flowers alert him if someone is approaching, a shaman, a jaguar, or anything. He uses it for revenge, too. My grandfather, a great shaman, left word to his sons, if war comes, you can go and use them same flowers. Pick the flower or leaf, point it at the enemy and they will die. Many people have tried to find that secret plant, but they all failed. Bush tai-tai hides that plant from people; he knows that they might use it to kill their neighbour. The vine is like a fig, a strangler. When the vine drips, it is like blood, dark red. It drips down, recycles, and grows back up into another one. Bush tai-tai is the owner for that flower; it is a very dangerous plant.

- Rudy Edwards | Rewa, 2013

What did Rudy mean when he said that the tai-tai plant was a person? How can a plant think, speak, see, or even kill of its own volition? Can human beings communicate with plants, and furthermore what kind of relationships do they maintain with them? These are the types of questions with which I will grapple throughout this thesis. Rudy's statement highlights a number of prickly themes which recur throughout, including the personhood of plants, cross-species communication, the transfer of substance, ecological relationality, mastery, and shamanism. In this opening theoretical chapter, I intend to show how these themes lie at the heart of Makushi ethno-theories of life.

In the following paragraphs, I shall explore the varied ways in which plant-life is conceptualised by Makushi people. This exploration requires an evaluation of symbiotic processes as well as semiotic flows and cosmological categories. Investigating the cross-species relationships between people and plants necessitates that we must first turn our attention to the constituent elements in that very relation – people and plants – and ask what those terms might mean for Makushi people. What is a person, what is a plant, and,

crucially, how might they relate to one another? For, both the category of plant and the condition of personhood in Makushi cosmology cannot be uncritically assumed to accord with their equivalent Western notions.

This discussion also serves as a review of relevant anthropological literature on human-nonhuman relations, and as a preface to some fundamental concepts in Makushi metaphysics. A number of pertinent theoretical frameworks will be evaluated, including ecosemiotics (Kohn 2013, Peirce 1940), ontological anthropology (Viveiros de Castro 1998, Descola 2013, Halbmayer 2012b), anthropological approaches to corporeality and personhood (Vilaça 2002, Rival 2005a, Santos-Granero 2012), phenomenology (Ingold 2000, 2007; Bateson 1972, Gibson 1979), and techniques-oriented anthropology (Mauss 1934, Lemonnier 1993). Similarities and divergences will be drawn out.

In short, I propose a synthesis of the semiotic, ontological, and phenomenological approaches, in order to attain a more holistic analysis of human-environmental relations. This tentative synthesis combines the perceived strengths of each of the three paradigms:

- 1) The ecosemiotic appreciation of trans-specific communication and non-symbolic modes of signification in socio-ecosystems;
- 2) Ontological approaches to the body and person-making in Amazonian cosmologies;
- 3) The phenomenological attentiveness to ecological relationality and the embodied experience of being-in-the-world.

Each of these theoretical approaches will be assessed in this order. As a coda, I close the chapter with a discussion on the anthropology of techniques, and make a proposal for a new object of analysis, which I term *multispecies techniques*.

2. 2. Ecosemiotics

One evening, as we paddled back from the farm along Awarikuru Lake, Uncle Isaac and I saw a small brown bird on a tree trunk in the flooded forest. I asked Isaac what the bird was. He replied, with his usual verve,

That's *suwusuwu* (brown woodcreeper); it gives signs in its calls.¹ Sometimes, he will give you a bad sign – that means your mother or father will get sick. But if you hear it give a different whistle, that is a good sign. Then you gonna get good luck for fishing and hunting. Dem birds send us messages, man.

- Isaac Rogers | Yupukari, 2013

The woodcreeper, then, is understood to actively communicate coded messages to human beings, often involving a clairvoyant aspect relating to future events. Isaac's statement is indicative of a broader propensity among Makushi people to make sense of life's dynamic interactions in terms of signification. From the human-avian dialogue that occurs in farms to the propensity of the *kanaimi* (dark shaman) to transform into a red-eyed rat and talk to snakes, from the charm songs sung to the mistress spirit of crops to inculcate growth to the esoteric communication that the shaman shares with the spirits of bitter-barked trees, the field of sociality is constitutively inter-specific and ecosemiotic. In native Amazonian cosmologies, ecological actors, relationally-situated, are typically thought of as subjects occupying points of views on the world (cf. Descola 1994; Viveiros de Castro 2004a). In the interactive cosmos of selves, all or any beings can occupy a subject perspective. The varied ways in which other kinds of being perceive and experience the world – and see humans – are of practical and philosophical interest to Makushi people. Nonhuman living beings are themselves thought of as thinking, feeling, knowing selves.

¹ Brown woodcreeper (*Dendrocincla fuliginosa*). Makushi name, *suwusuwu*.

How might the anthropologist, conceptually manacled to the taxon *Homo sapiens*, begin to make sense of “the subject-dependent perceptual quality of natural systems” (cf. Kohn 2002: 107)? This question has recently been taken up by a number of thinkers, who are united by their ambition to take nonhuman living beings seriously in social scientific analysis (e.g. Haraway 2008, Kirksey and Helmreich 2010, Tsing 2014).

In the following subsection, I appraise the body of work of Eduardo Kohn (2002, 2007, 2013, 2014), the foremost proponent of an ecosemiotic approach in anthropology. Kohn has defined ecosemiotics as “the study of the ecological relations among different subjectivities as mediated via their modes of communication” (2002: 401). Here, I shall evaluate how his approach has evolved over time, in light of several of his key influences (e.g. Peirce 1940, Deacon 1997), in order to convey some core strengths and weaknesses of ecosemiotics as applied to Makushi ethnoecology. Kohn’s work is of particular interest to this study because, as I will convey, Makushi people, too, “think of ecological relations semiotically” (Kohn 2002: 181). Makushi ways of engaging with living beings are based precisely upon an astute awareness of and involvement in the cross-species flows of signs within the communicative field of ecological relations. In this thesis, I document a variety of instances of cross-species communication, from the use of charm plants to ceremonial hunting and fishing dances, from ritualised arthropod stinging to shamanic relations with a parliament of nature spirits. From the Makushi perspective, I posit, these multispecies engagements are all viewed as communicative in one sense or another.

The idea that life is a semiotic field is not new. The Estonian ethologist Jakob von Uexküll (1934, 1940) long ago put forth that all living creatures were agents of semiosis. Uexküll advocated a systemic and relational approach to ecology, in which the dynamics of whole systems take precedence over individual organisms. Of particular interest is his concept of *Umwelt*, or “environment-world”, which refers to the “self-centred” worlds as experienced by particular organisms. “Each Umwelt”, Uexküll writes, “forms a closed

unit in itself, which is governed, in all its parts, by the meaning it has for the subject” (1940: 30). Organisms are thus subjects inhabiting subjective life-worlds; ecosystems, in Uexküll’s frame, are envisaged as “subject-webs” (cf. 1934). Each organism’s *umwelt* is ultimately constituted of the flows of signs, and is therefore semiotic. Taken collectively, the semiotic field of ‘nature’ is inherently meaningful (cf. Hornborg 2006: 25). Meaning, it follows, is not the privileged domain of human beings; rather, it is dispersed throughout ecological systems. “Meaning,” Uexküll poetically states, “is the guiding star that biology must follow” (1940: 43).

In recent decades, a number of ecologically-minded anthropologists have begun to emphasise the semiotic character of social-ecological systems (e.g. Brightman 1993, Gell 1995, Hornborg 2001, Kohn 2013, Albert 2016). Hornborg, echoing Uexküll, writes that “ecological relations are based on meaning; they are semiotic. Ecosystems, no less than cultures, are contingent upon communication” (1996: 53). From this viewpoint, the very currency of meaning within multispecies assemblages is *signs*. Further still, not only are ecosystems presented as meaningful, they are also treated as being *epistemological*. As Kohn (2002) has written, nonhumans, too, have ways of knowing the world:

Nonhumans also have “epistemologies” in that they perceive the world in specific, situated ways. These “forms of knowing” affect the way the world is by informing the manner in which these beings interact with other beings in the world; over evolutionary time the system is shaped by these interactions.

- Kohn 2002: 107.

If socio-ecological systems are innately semiotic and meaningful, and nonhuman beings are capable of sensing, knowing, even thinking, then the question arises, how might we make sense of and analyse those trans-specific flows of signs, meanings, and thoughts?

Makushi logics of thinking about the living environment have much to contribute to these debates. In the Makushi language, the general word for sign is *te'karei*. This term may be used to refer to any kind of sign or signal: a whistle, a hand gesture, or a design painted on a human body in annatto pigment. Ecological happenings may also be taken as signs, from the fruiting of jamun trees, to the calls of macaws, parrots, and toucans, to the movements of constellations in the night sky. Indeed, the dynamics of the seasonal cycle are measured via an integrated system of ecological, meteorological, and celestial signs, including, for instance, the migration of fish from rivers into creeks to spawn in the early rainy season, the phases of the moon, and the emergence of flying ants in April.² There is a specific subset of signs known as *paanî*, referring to omens that signify illness or death. *Paanî* omens are typically transmitted by animals and plants via sonic signals, which are interpreted as meaningful messages by their human recipients. As my friend Marcellus told me one afternoon as we walked in the savannah, “when you hear *kawa* (the laughing falcon)³ calling *wa-ka-wa wa-ka-wa*, it means that somebody has come to the village to attack you. That night, a *kanaimî* (malevolent shaman) will kill you. The bird, he is giving you a sign.” Or, when Aunty Urmellita told me that ‘bina’ plant charms “whistle” to warn their owners of evil spirits approaching during the night. These are examples of the kind of cross-species sign-flows that the ecosemiotic approach can illuminate.

Makushi people often speak of and to animal and plant beings in subjective terms, in a manner that suggests that these nonhuman beings are thought of as being sentient, communicative selves. Human gardeners talk to their crops in the everyday processes of cultivation. Plants, as reactive beings, “speak” back in various ways: they grow, flower, seed, sway in the wind, and move towards light; they appear in dreams as human-like persons with the power of speech, they talk with human shamans during visions, and they

² See Butt Colson and Armellada (2001), on the seasonal and celestial dynamics of the cosmic whole.

³ Laughing falcon (*Herpetotheres cachinnans*). Makushi name, *kawa*. This black and white raptor is known for its propensity to hunt snakes.

eventually wither and die. These kinds of cross-species communication are understood by Makushi people in terms of ecological sign-flows.

With reference to his rich ethnography of the Ávila Runa of Amazonian Ecuador, Eduardo Kohn (2002, 2007, 2013, 2014) has embarked upon “an ontological exploration of the forest’s living logics” (2014: 276). In order to do so, he has developed an approach by which, he has argued, we can begin to move away from “human exceptionalism” and toward a kind of anthropology that takes the agency of nonhuman beings seriously. This audacious project, which he terms “an ethnography of signs beyond the human” (2013: 15), is an attempt to expand the ethnographic panorama from the exclusively human to include the dizzying diversity of living beings that constitute life in the sylvan domain of the Amazon rainforest. In his view, this can be successfully achieved via a fundamental reconceptualisation of semiotics – one that provincialises human language and promotes the non-symbolic referential modes that pervade all life to the forefront of the analysis (2013: 8). Anthropologists can then begin to make sense of the ecological relations that constitute ‘life’ by tracing non-symbolic sign-flows within and across species boundaries. Multispecies ethnography, thus argues Kohn, must begin with a renewed appreciation of *signs* and their diversity of forms.⁴ But what, exactly, are signs?

Roman Jakobson defined semiotics as “the doctrine of the essential nature and fundamental varieties of possible semiosis” (1966: 22). Signs, in this frame, might simply be defined as those *things which represent*. In various ways, signs have been treated as instrumental features of human cultural life in social anthropology (e.g. Douglas 1966, Lévi-Strauss 1966, Turner 1967, Geertz 1973). For the most part, sign, in these analyses, has equated to symbol. It is well established that symbolism, as the constitutive feature of language, is a distinctly human affair (Deacon 1997: 25). “We humans”, as Kohn writes, “are uniquely symbolic beings” (2014: 275). As a consequence of this, anthropological

⁴ Kohn’s writings were foreshadowed by those of a number of anthropologists who have attempted to look at human-animal relations in terms of communication (cf. Scott 1989; Brightman 1993; Hornborg 1996, 2001). See also Whitehead on Peirce’s semiotics (2004: 66-68).

approaches to semiotics have tended to focus almost exclusively on symbolic reference. Saussurean semiology, for instance, is staunchly symbolic, taking as its starting point the arbitrary relationship between signified and signifier (Jakobson 1966: 25). This form of symbolic exceptionalism has led to a paucity of focus on the other forms of signification in which humans and nonhumans engage. Clearly, proto-symbolic signs also exist which operate according to alternate relations of referentiality.

As Terrence Deacon, a neuro-anthropologist and one of Kohn's main influences, has argued, "we tend to underestimate the complexity and subtlety of much non-human social communication" (1997: 31).⁵ All living beings represent the world in various ways: animals, plants, fungi, and bacteria perpetually communicate with one another in non-symbolic ways (cf. Hoffmeyer 2008b: 4). Life is, in short, a web of signification, an idea summed up by the simple dictum: *that which lives represents*. The living world of nature, as conceptualised here, is composed of communicative acts based on multiple forms of reference that exceed the merely symbolic: the calls of birds, human body language, the cryptic wing-patterns of moths, the sweet-smelling nectar of flowers, the vivid yellow colouring of poison dart frogs, and so on. Ecosystems are, in short, webs of sign-flows. It follows that in order to make sense of semiosis in socio-ecological systems, an alternative approach to the Saussurean-symbolic must be employed.

For Kohn, following Uexküll and Deacon, the ecological field of living beings is constituted of relations of signification; as he argues, "life is constitutively semiotic. That is, life is, through and through, the product of sign processes" (2013: 9). The capacity to engage in semiosis, or the production and transmission of signs, is the defining feature of biological life (2013: 8). From towering mora trees to bioluminescent fungi, from scarlet macaws to anthropologists, *all* living beings represent the world using signs of one kind or another. From this vantage point, the forest appears as a semio-scape, formed of the

⁵ As is becoming apparent via new research in plant sciences, plants communicate with one another and with other kinds of beings in complex ways, to the extent that they have been ascribed "feelings" and "intelligence" by some commentators (Marder 2013, Pollan 2013, Ananthaswamy 2014, Wong 2016).

perpetual flow of signs between living entities (2002: 148). Living beings in indigenous Amazonian animic ontologies are commonly thought of as subjective *selves* (cf. Descola 1994). In Kohn's language, the Runa conceive of the forest as an "ecology of selves": a relational field of shared selfhood, in which all living beings interact as thinking, feeling subjects (2013: 16). As agents of semiosis, the forest's denizens represent the world in various ways, their capacity to do so being rooted in their ability to transmit and interpret signs of different varieties. The substrate of self-hood that permeates the forested domain allows for communication to occur across species boundaries, the axiomatic characteristic of the "cosmological deixis" of perspectivist ontologies (cf. Viveiros de Castro 1998). Kohn introduces the concept of "trans-species pidgin" (2013: 131) to highlight the idea that humans and nonhumans (in this case, dogs) communicate not via a shared unified language *per se*, but rather via "blurred" or Creolised modes of interspecies semiosis that serve to both flatten and maintain distinctions between species. As Kohn states, "trans-species pidgins really are middle grounds" (Ibid: 148).

In order to harness the poly-semiotic nature of socio-ecosystems, Kohn must look farther than the dyadic symbol-centric semiology of Saussure (1959). As an alternative, he adopts the triadic semiotic theory of the American philosopher Charles Sanders Peirce (1940). For Peirce, who himself coined the term 'semiotics', logic in its most fundamental sense was "only another name for *semiotic*" (1940: 98). He was interested in the ways in which signs are "contextually actualized in the practices and experiences of their users" (Brightman 1993: 28). Signs, in this regard, are not abstracted, arbitrary phenomena, as Lévi-Strauss (cf. 1963) would have it, but rather, vibrant entities immersed in the active goings-on of life. Kohn is able to utilise Peirce's "more robust analytic" to more fully explore the non-symbolic modes of reference that permeate semiotic systems (2013: 8).

Saussure's (1959) dyadic model of the sign consists of a signifier (*signifiant*) and a signified (*signifié*), being based on a binary relationship between the sign and its object.

For Peirce, however, there is always a triadic relationship between three core elements: the sign (a “first”), the object (a “second”), and the interpretent (a “third”). The addition of the interpretent to the semiotic equation means that the subjective thought-processes of an interpreting agent are accounted for. In essence, this “thirdness” is what distinguishes Peirce’s triadic theory from Saussure’s dyadic framework. For Peirce, all signs represent some-*thing* to some-*one* – the latter being a subjective, thinking self. As Kohn points out, the interpreter does not have to be a human being: in fact, in cases of iconic and indexical signification, the interpreter can be plant, animal, or fungal (2013: 59). Thus, “thirdness” may refer to the agency of any kind of interpreting self – not ‘merely’ the human.

In his philosophical writings, Peirce identified three cardinal types of sign: icons, indexes, and symbols (cf. 1940: 102-15). Icons operate on relations of similarity between signified and signifier, i.e. via relationships of resemblance. A portrait painting is thus an iconic representation of its subject (Ibid: 104). Indices act by a ‘real’ existential contiguity between signified and signifier, as in the case of smoke signifying fire. In indexical signs, generally speaking, there is a “brute dyadic causal relation” between the signifier and the signified (Hookway 1985: 123). Symbols, finally, operate via a “conventional” or learned relation between sign and meaning, the quintessential example being (non-onomatopoeic) language, in the Saussurean *langue-parole* sense (Peirce 1940: 112). The most important notion that Kohn takes from Peirce, then, is that signs are plural. All regimes of signs, in other words, are inherently *poly-semiotic*.

Two points must be made regarding semiotic plurality. First, the nature of a sign is largely interpretive. No object is intrinsically an icon, index, or symbol – it is merely interpreted to be so by the subject. On their own, Peirce writes, “icons and indices assert nothing” (1940: 111). A pointing finger might variously be interpreted to be a signal of direction (an index) or an offensive gesture (an icon), depending on the context, which is itself contingent upon a set of cultural values. As Deacon conveys, “modes of reference

are not mutually exclusive alternatives; though at any one time only one of these modes may be prominent, the same signs can be icons, indices, or symbols depending on the interpretive process” (1997: 72). Secondly, different representational modes necessarily coexist in any given semiotic context. Webb Keane has characterised such sign-contexts as ‘representational economies’, or “the dynamic interconnections among different modes of signification at play within a particular historical and social formation” (2003: 410). These poly-semiotic clusters are hierarchically ordered; that is, “more complex forms of reference are built up from simpler forms” (Deacon 1997: 73). The hierarchical character of a ‘representational economy’ is also contingent upon interpretation: which sign takes precedence in any given sign-cluster is relative to the interpreter’s point of view. In line with the focus of ecosemiotics, we might modify Keane’s term to make ‘representational *ecologies*’: the dynamic assemblages of different modes of signification within particular living systems. These, in essence, constitute the object of an ecosemiotic anthropology.

“How forests think” is not a metaphor: for Kohn, the ecosemiotic method enables unprecedented insight into the thought processes of living beings. Thought, in Kohn’s framework, translates simply as semiosis: the process of sign-flow between similar and different kinds of life-form (2013: 9). “*Thought*”, as Peirce wrote, “is the chief, if not the only, mode of representation” (1940: 100). For Kohn, the grammar of ecological thought is equally semiotic; thus, a sign-oriented approach can elucidate something of the very nature of cross-species consciousness. With this radical notion of thinking-as-semiosis at hand, it becomes possible to state that *other-than-human beings think*. As such, Kohn’s framework allows us to go beyond Descola’s assertion that “conceptions of nature are socially constructed” by humans (1996a: 82) to the realisation that the field of “nature” itself is semiotically constructed by all living beings – or, even better still, that nature is the aggregate product of the semiotic interactions of assemblages of living beings. Life, in this frame, is always the product of a multitude of interacting selves.

A few criticisms must be voiced regarding Kohn's semiotic approach.

Firstly, its faunal bias. Throughout his writings, Kohn repeatedly emphasises the dynamic interconnectivity of life-forms. In purporting to explore "how forests think", he fails to adequately take into account perhaps the most 'iconic' living selves found in the rainforest: *plants*. In his charge against human exceptionalism, Kohn sometimes veers towards human-animal exceptionalism. Although occasionally making reference to plant-life, such as a palm crashing down during a monkey hunt or an epiphytic cactus with a "leaf that grows out of itself", plants are not afforded the same degree of analytical or ontological significance as animals. Although Kohn states that "plants are also selves" (2013: 75) and this is implicit in his approach, for the most part, they feature only as appendages to human activity. This is largely a consequence of focus; Kohn is primarily interested in human-animal encounters – in particular, those that occur between hunters and their dogs (Ibid: 135).⁶ Plants, however, belong to a different biological kingdom altogether, and seem to operate on radically different timescales. They cannot "speak" (or bark), at least under normal conditions. However, plants, too, represent their life-worlds semiotically – a fact that Makushi farmers understand only too well. As the semiotician Thomas Sebeok conveys, "plants interact with other plants via the chemical channel, and with animals (especially insects, but humans as well), in addition to the usual contact channels, by optical means" (1994: 19).⁷ These channels are semiotic. As will be seen, the Makushi conceive of plants as 'selves' who communicate with humans in various ways, and these symbiotic entanglements are of practical and theoretical importance to Makushi people. There is great scope for expanding Kohn's approach to the domain of plants.

Secondly, its apparent insensitivity to notions of substance and corporeality. The ecosemiotic approach is illuminating when it comes to tracing the trans-specific flows of signs that Kohn so expertly demonstrates constitute much cross-species communication.

⁶ An intimate cross-species relation which is particularly visible because humans and dogs, as "companion species" (Haraway 2008: 16), co-evolved over a period of 15,000 years.

⁷ Plant communication is known as "phytosemiosis" (Sebeok 1994: 19).

However, it is arguably less well-equipped to deal with notions of physical contiguity and the flows of substances that are central to Makushi theories of life. The latter, certainly, can be treated as semiotic flows in an indexical sense; as Peirce himself wrote, “the action of indices depends upon association by contiguity” (1940: 108). However, as I will argue, indexicality alone does not sufficiently encapsulate the full cosmological importance of Makushi ‘substance logic’. The ecosemiotic approach is arguably ill-equipped to account for these non-representational physical and bio-chemical processes (Descola 2014b: 271). Accounting for these somatic and subjectival flows requires a deeper appraisal of notions of the body and personhood in indigenous Amazonian cosmologies.

Perhaps the most fundamental criticism of the ecosemiotic approach, however, is that it does little to actually give a true “voice” to those non-human beings that it purports to better represent. The question must be asked – how feasible, in a practical sense, is the multispecies proposal? An anthropologist can quite easily ask a human what they may think about plants; this is the conventional remit of ethnobotany. But how can one – or, indeed, *can* one at all – infer what plants may “think” of humans? Are we not ‘merely’ investigating what humans think plants think, or even what humans think plants think humans think? As Philippe Descola (2014b) has also pointed out, in a critique of Kohn, “we have to rely on what the anthropologist says the Runa say about nonhuman relations. That, after all, is barely one step removed from what Kohn criticises in the traditional anthropological accounts of the relationships between humans and nonhumans” (2014b: 272). In this thesis, I explore whether ecosemiotics can deliver on its promise to harness cross-species relationality in a fashion that truly transcends the human, with regards to the understudied domain of human-floral communication and plant-based semiosis.



A fisherman catching a lukanani (*kamakara*)⁸ | Rewa, 2013

2. 3. Animism and Other-than-Human Personhood

It is a well-established fact that personhood is a cross-species phenomenon in Amerindian cosmologies (Hallowell 1960, Scott 1989, Brightman 1993, Descola 1994, Århem 1996, Viveiros de Castro 1998, Fausto 2007, Kohn 2007, Rival 2012a, Albert 2015). In such ontologies, usually characterised as “animic”, subjectivity transcends the human and the cosmic field of sociality is trans-specific. Animals, plants, spirits, material artefacts, and elemental forces can all be personified subjects, capable of communicating with humans (Descola 1992: 114). As Rival has put it, in animist worlds, there are no ‘things’ – something is always some-one (2012b: 128). Typically, the substrate that unites all beings, facilitating cross-species communication, is “soul” (cf. Descola 2013: 129). Soul, here, refers to a trans-specific seat of subjectivity. In Amerindian ontologies, the cosmo- and

⁸ Lukanani, also known as the peacock bass (*Cichla ocellaris*) – the most highly prized food fish.

the eco-logical cannot be definitively separated; here, ecosystems are not only biological fields of relationality, they are social ones. For animists, the environmental field is thus constituted of subject-subject relations (cf. Bird-David 1999; Hornborg 2006).

Makushi ontology is essentially animistic, in that it exhibits these basic features. The Makushi state that all living entities possess a soul (*ekaton*), the same word as used to express the human spirit. The *ekaton* gives “life-strength” to the physiological body that it inhabits; it is the vital essence which makes one “alive”. The possession of *ekaton* is thus synonymous with being a subject. Humans, animals, plants, and certain material objects and elemental forces possess souls of basically the same order (cf. Caesar-Fox 2003: 72). Indeed, some beings are simply spirits, sans-bodies: the invisible, intangible souls which inhabit the “unseen” world. The cosmo-ecological domain is thus constituted of the fluid and varied interactions of these myriad subjectivities. Personhood, in its broadest sense, is not defined by outward appearances; one does not have to look like a human being to be a person. Different kinds of living beings possess different bodies (*esak*), and thus different capacities for action. Makushi people assert that each kind of being has its own *yaseru* (plural, *yaseruton*), a term which translates best as ‘customs’, ‘habits’, or ‘ways’ (cf. Butt Colson 1989). Ultimately, these capacities – the *yaseruton* – are what differentiate species in the contemporary world (Butt Colson, personal communication, April 2015).

The pioneering work of A. Irving Hallowell (1960, 1955) on Ojibwa ontology has influenced a number of anthropologists of relevance to this study, including Viveiros de Castro (1998) and Ingold (2000). The Ojibwa “behaviour environment” (cf. 1955: 86), in Hallowell’s portrayal, is populated by a multiplicity of “other-than-human persons”, all displaying subjective features. Personhood, in Ojibwa ontology, is thus conceived of as a trans-specific condition which is not restricted to human beings. As Hallowell writes, “in the Ojibwa universe there are many kinds of reified person – objects which are other than human but have the same ontological status” (1960: 24). He elaborates:

At the level of individual behaviour, the interaction of the Ojibwa with certain kinds of plants and animals in everyday life is so structured culturally that individuals act as if they were dealing with “persons” who both understand what is being said to them and have volitional capacities as well.

- Hallowell 1960: 35.

Personhood, in the Ojibwa ontology, is not expressed in anthropomorphic traits; rather, “outward appearance is only an incidental attribute of being” (1960: 34). Instead, it is the interiority, or “spirit”, that constitutes the person. All beings that have souls are persons, and exhibit a range of faculties including self-awareness, volition, and communication.

The notion of “other-than-human personhood” is equally characteristic of native Amazonian conceptual systems. Descola, for example, writes of the Achuar that “humans and most plants, animals, and meteors are persons (*aents*) with a soul (*wakan*) and an individual life” (1994: 93). In the mythological era, all beings looked like humans and acted like humans – in short, every subject was a human subject, and this was expressed both in their soul and body. In the world of today, however, only the Achuar retain this outwardly anthropomorphic form. Non-human persons retained their ‘human’ interiority; however, their bodies have changed and thus their capacities for action are altered.

The same basic idea can be found in Makushi mythological exegesis. During the primal ‘beginning times’ (*pia’ton*), all beings were persons of the same form and essence. There was, as this point, no speciation; “everything was people” – all subjects spoke the same language and communicated. Gradually, through the events of mythic history, the outward bodily forms of all beings became differentiated, forming their species-specific capacities and dispositions. During the *pia’ton*, the primordial cosmos was infused with an ancestral force known as *pia*. *Pia* is a foundational concept in Makushi metaphysics: it is a fundamental aspect of life, referring to the nature of being. It denotes the essential qualities that make something what it is. As Uncle Isaac explained to me, “*pia* is nature,

it is he who creates, it is the beginning of creation. *Pia* means we – our long, long ago ancestors”. The concept, then, refers to the ancestral forces of creation from which the Makushi cosmos was forged. In Kapon and Pemon mythology, ‘Pia’ is also the name of the younger brother of the mythic hero Makunaima. He is the figure who embodies the concept and himself gave rise to a number of distinct forms which are in existence today.⁹ Armellada (1972) has described the concept of *piá* among the Pemon of the Gran Sabana:

Each race, each species has its ‘piá’. The best translation would be ‘ancestor’, primogenitor, the trunk from which everything else came... And every ‘piá’ gave qualities to its descendants which are perpetuated through generations.

Armellada 1972: 17—my translation from the Spanish.

The concept is manifested today in living beings of all kinds – human, animal, plant, spirit. All living entities came from *pia*, and each species has its specific manifestation of that force, its *yaseru* (Butt Colson 1989). Thus, beings are differentiated through their “ways of living”, which emerged from *pia*. In sum, nonhuman beings are people – and this personhood is a vestige of the original state of non-differentiation in the mythological proto-world.

All of this begs the question, if nonhuman beings can be “people”, what kind of relationships do they maintain with humans? What dimensions do the social relationships that obtain between humans and other living beings exhibit in animic cosmologies?

Of interest here is Enrique Salmón’s notion of “kincentric ecology” (2000; see also N. Turner 2005: 70). For Salmón, a Rarámuri ethnoecologist from the Sierra Madres

⁹ Makunaima and Pia are the Akawaio equivalents of the Makushi mythical heroes Insikiron and Anike. According to Roth (1915: 130), the twin children of the sun were known as Makunaima and Pia by the Makushi c.1907; when the names of the legendary brothers changed to Inskiron and Anike is as yet a mystery, requiring of further inquiry. Makushi today unequivocally state that they do not know the names ‘Makunaima’ or ‘Pia’. See Koch-Grünberg (1916, II) for a set of myths about Makunaima, as collected among the Makuxi and Taurepan of Venezuela and Brazil, c.1911-13.

region of Mexico, native cultures such as his own “include human communities in their cultural equations of nature. To indigenous people, humans are at an equal standing with the rest of the natural world; they are kindred relations” (2000: 1331). In indigenous eco-cosmologies, humans typically view non-human species as being akin to blood relatives; the remit of ecology thus converges with the remit of kinship. From this perspective, the “web of life” appears as “an extended ecological family” (Ibid: 1331). The kincentric model suggests “a respectful and nurturing dependency relationship” (Brightman 1993: 187) between humans and nonhumans, a notion reflected in productive activities.

A similar sentiment is presented by Tim Ingold in his seminal paper on trust and domination (2000: 61-76). Ingold puts forth the hypothesis that relations between humans and nonhumans in hunter-gatherer societies are typically based on the notion of “trust”. In such societies, human-environmental relations operate on a premise of reciprocity, being conceived “in the image of sharing” (Ibid: 76). The environment is essentially a giving, nurturing domain, with which human hunters reciprocally interact as “caregivers” (Ibid: 69). It is only with the economic shift to animal domestication and pastoralism, so Ingold argues, that human-nonhuman relations become conceived as relations of “domination”. He does admit that there is, indeed, a dark side to trust – it necessarily involves risk, and is therefore always accompanied by a degree of anxiety. However, human-environmental engagements remain predicated on a reciprocal relationship of mutual care-giving.

In both Ingold and Salmón’s models, then, the relational dimensions of human-nonhuman relationships are predominantly consanguineal and reciprocal in character, and thus suggest a kincentric field of ecological relations. Here, the vibrant domain of life is ultimately a familial, anthropocentric one, with humans and nonhumans being viewed as “kin”, “relatives”, and “family” (cf. N. Turner 2005: 73). However, arguably, the kindred view does not fit easily with Amazonian animic cosmologies, in which human-nonhuman relations classically operate on a logic of predation rather than one of reciprocity (Albert

1985, Århem 1996, Descola 1996a, Lenaerts 2006). In Amazonia, as Fausto has argued, predation – rather than trust – is the “trans-specific vector of sociality” (2007: 500).

At first glance, the kincentric principle seems to apply to many Makushi human-environmental relations. The spirit masters of animals are known as *tamona* in Makushi, a term that stems from *tamo-*, meaning “grandfather”.¹⁰ Thus, semantically speaking, the master spirits are conceived of as the grandparents of humans, supplying them with game and other natural resources. Human beings, in turn, reciprocate via means such as ritual spells and offerings. However, there is more to this relation than initially meets the eye. The *tamona* are not just benevolent kin; they are also apex predators and master hunters who exercise control over the behaviour of human subjects by force, often with the threat of punishment in the form of sickness and death. The masters are thus predatory beings capable of killing human beings who mistreat their forest resources, often via gruesome means involving bodily mutilation. Clearly, this is not an arcadian, harmonious human-environment relation. Makushi hunters and farmers express fear as well as reverence for the masters – a relational dimension not typical of a familial bond.

The same complexity pertains in the field of human-plant engagements. Makushi farmers speak of their crops as being their “children”, whom they love, nurture, and care for. Human-crop relations therefore seem to exhibit consanguineal “kincentric” features. However, the relation between human farmer and cassava plant is complicated by virtue of a third relation with the ‘Cassava Mama’ spirit, the mistress-owner of cassava plants who is feared for her propensity to impart punishment upon farmers, “lashing” those who mistreat her crop-children (see Chapter 4). Other human-floral relations are characterised by the requirement to “tame” dangerous plants, such as the ultra-powerful ‘bina’ charm plants used by shamans (see Chapter 6). These plants are described as being “enemies” or “ugly spirits”, or even – as Uncle Isaac put it – “the evil right-hand men of the *kanaimi*

¹⁰ See Chapter 3, section 3.5.

(dark shaman)”. These human-plant relations seem to be antagonistic, even predatory, in nature. This relational complexity and pluriformity must be accounted for.

As I argue throughout the present study, Makushi horticulturalists do not conceive of human-environmental relations under one totalising mode. Notions of trust and control, of nurture and predation, of seduction and protection can be found in various ratios across the variegated field of human-nonhuman relations. The modes by which Makushi people relate to the environment are plural. In light of this, what I aim to explore in this thesis is – precisely – the heterogeneity of relational modes revealed in Makushi ethnoecology.

2. 4. People-making and The Body

Since Seeger, da Matta, and Viveiros de Castro’s (1979) seminal article on corporeality in Amazonia, the relationally constituted and socially fabricated nature of the human body has been extensively reported and theorised (cf. Turner 1980, Conklin 1996, Taylor 1996, Overing and Passes 2000, Rival 2005a, Vilaça 2005, Santos-Granero 2012). And as these anthropologists have shown, Amazonian notions of person-making are inexorably bound up with themes of person-making and consubstantiality. The basic premise is that human bodies are constructed via the intimate processes of shared living and domestic intimacy (cf. Overing-Kaplan 1981: 153). The relationally-constructed person is “a condensation of lives lived along with others” (Ingold and Palsson 2013: 13). Over time, persons become consubstantial, that is, literally of the same substance. The fabrication of the human body is a process of acquisition of affects, capacities, and dispositions from both human and nonhuman others. Input in this person-making process comes from a diversity of sources, including humans, plants, animals, divinities, and artefacts. The notion of “the body as a social product constituted by relations with a diversity of human and nonhuman others” (Santos-Granero 2012: 185) is a pertinent one in Makushi ethno-metaphysics.

The Makushi person is known as *pemon* (pl. *pemonkon*). In essence, the person is composed of a body and a soul in unity (Butt Colson 1989: 1).¹¹ However, the body and soul are multiple and exist not in a Cartesian dualistic opposition but in a mereological relation of encompassment (Figure 1, below).¹² The constituent whole is known as *esak*, a term designating something akin to “total body” or “embodiment”.¹³ The physiological dimension of the body is referred to as *pun*, “flesh”. *Pun* is composed of various organic materials, such as the heart, lungs, liver, and the brain, and vital substances or humours, including blood (*mîn*), semen (*ikuyamî*), and bile (*sere’ku*).¹⁴ The Makushi, as with the Kapon and Pemon generally, conceive of the world as being animated by a vital energy or “brightness” known as *a’ka* (*a’kwa* in Akawaio).¹⁵ As Desrey Caesar-Fox describes of the Akawaio, “*a’kwa*, ‘brightness, life force’ is the soul energy-giver, or the life force of a person, that activates the true soul or spirit. *A’kwa* is believed to come from the sun, the energy producer and life force of everything on earth” (2003: 72-73). This vital energy is concentrated in the spiritual substrate that animates all living beings; “the entire Universe is suffused with it, even those places which are out of sight. By definition, everything alive possesses it and obtains its strength from it” (Butt Colson 1989: 2). Envisaged as a bright-white luminosity visible only to the shaman, *a’ka* vibrant energy is ultimately the source of all life on earth. At the same time, the multiverse is infused with dark energy (*ewaru*), equal and opposite to *a’ka*, which fuels the sinister dynamics of the underworld, the subterranean domain of harmful spirits (*o’makon*), shades, and dead souls (*katon’pî*). From the underworld, darkness filters upwards to the terrestrial plane of earth, bringing night and being associated with shadow, weakness, and death (cf. Butt Colson 1989: 15).

¹¹ See also im Thurn, on the same point (1882: 3).

¹² This discussion is based on fragmentary primary field data, as well as secondary data from the literature, which is clearly cited in the text. For a thorough review of these concepts in the Kapon and Pemon context, see Butt Colson (1989) and Butt Colson and Armellada (1990). These abstract spiritual principles are common to all of the Carib-speaking peoples of the circum-Roraima region.

¹³ The same term, *esak*, refers to “master” or “owner”, such as a species master or the owner of a pet, and also ‘boss’, as in the boss of a company. See Chapter 3, section 3.5, on mastery.

¹⁴ The same term – *pun* – refers to meat, as in the flesh of game animals.

¹⁵ In Makushi, *a’ka* means “light”, as in the light emitted by a fire or a torch.

The “true soul”, *ekaton*, is formed of concentrated *a’ka* energy.¹⁶ Although it can be detached from the material body, the *ekaton* is diffused throughout it; thus, body and soul at one and the same time form an aggregate whole and detachable constituent units. According to Caesar-Fox, the true soul is constituted of two essential elements: the mind (the “thinking cave”) and the breath (“air or wind”) (Caesar-Fox 2003: 73). The mind controls knowledge, understanding, and wisdom, and is located in the forehead. Breath, which is seated in the region of the heart and lungs, is the core force harnessed in the ritual incantations called ‘blows’ (*taren*).¹⁷ The true soul can leave the body during sleep (as in dreams, envisaged as journeys of the soul) or during visions (as in shamanic trance or soul flight). The functioning of the organic body is contingent upon the concentration of life-energy (*a’ka*) contained within the soul (*ekaton*). Without the presence of the soul, the body dies (*emo’ka*), as exemplified by the mortal danger of soul-loss. During sickness the spirit becomes loosened from the body; at death it dissipates entirely. The souls of the dead are known as “shadow souls” (*katon’pî* – the suffix *-pî* indicating past tense; thus, they are ex-souls). Occasionally referred to as “ghosts”, the ex-souls of humans become “unseen spirits” which roam the cosmos after the physical body has ceased to exist.

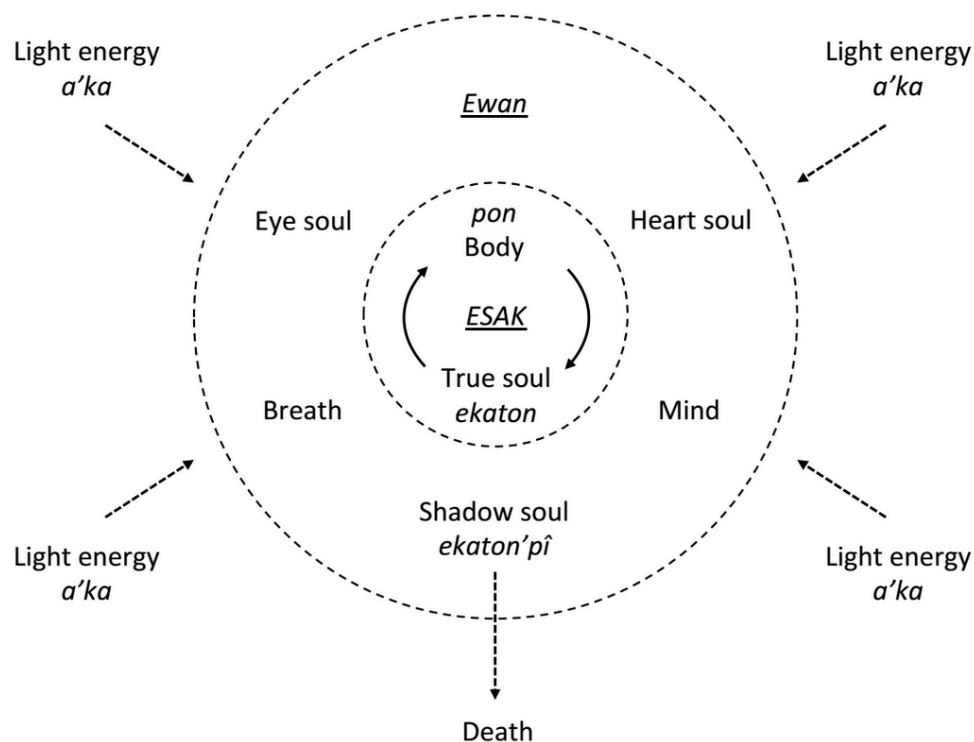
The body-soul unit contains a number of subsidiary meta-souls which aggregate to form *ekaton*. These ancillary souls are known as *ewan*, and are embedded in various body cavities or organs, which they animate by endowing with energy (*a’ka*). *Ekaton* is a unitary notion of soul; *ewan* are fractions of that unity. Both *ekaton* and *ewan* seem to be of the same nature, the latter simply being small fractals of the greater true soul (cf. Butt Colson 1989). There are a large number of *ewan*, corresponding to the multitude of bodily cavities, organs, and fluids. Examples include the heart soul, liver soul, and eye soul, the latter being described as a tiny inverted person situated in the pupil of the eye (Thomas

¹⁶ Interestingly, the term *ekaton* applies to one’s shadow as well as to a photographic image of oneself. Thus, *ekaton* denotes multifarious related meanings: spirit, shadow, image, and photograph.

¹⁷ See Chapter 8 for a discussion on *taren* and the power of breath. See also Salmón (2000: 1331) on the role of breath as a universal animating energy in indigenous cosmologies.

1982: 142). If the *ewan* leave their corresponding bodily cavities, the health of that bodily region will quickly deteriorate owing to a lack of vital force, which in turn diminishes the vitality of the *ekaton* as a whole. In sum, the Makushi person is constituted of a body and a soul which exist not in a binary opposition but in a relation of encompassment. The true soul contains various ancillary parts, which are energised by the light-force that emanates from the sun, imbuing all beings (see Figure 1, below).

❖ Figure 1. The Makushi body-soul unit



According to the orthodox perspectivist thesis, there is essentially one prototype of personhood in indigenous Amazonia: humanity (Viveiros de Castro 1998, Lima 1999, Vilaça 2002). All agentic beings – at least those of a human or animal persuasion – see themselves as humans from their own point of view. This human subjectivity is seated in the “true soul” – the unchanging vital essence which animates volitional beings – and is

essentially universal and unwavering. What differentiates beings, from this viewpoint, is corporeality; perspectives in this relational field are determined by the bodies that beings inhabit. ‘Body’, in this model, refers not to a stable unit in the Cartesian or Thomist sense, but rather to a “chronically unstable” set of affects, capacities, and dispositions (Vilaça 2005) – or, an amalgam of somatically-rooted ways of being and capacities for action. Humans, jaguars, tapirs, and peccaries all see themselves as human beings – complete with language, cooked food, marriage rules, ceremonial dances, shamans, and all of the rest of it – but see other species as being animal or spirit predators or prey, relative to their own relational point of view (Viveiros de Castro 2004b).

If the perspectivist position is to be believed, then, personhood simply equates to humanity in native Amazonia: all soul-possessing subjects in the cosmic field of sociality are human beings, from their own point of view. Humanity, in this model, equates to a cultural condition – i.e. the socio-cultural reality of being human, with social conventions, values, and practices. Therefore, the ideal soul-possessing person, regardless of species affiliation, behaves in accordance with the cultural conventions of human society. For the perspectivists, the soul is the stable and transcendent source of subjectivity and the body is the unstable, fluid, and constructed seat of one’s point of view (Vilaça 2002: 352). As Viveiros de Castro (2001) elaborates, “the Amazonian construction of kinship concerns essentially the fabrication (and destruction) of bodies, while ‘souls’ are not made, but given: either absolutely during conception, or transmitted along with names and other pre-constituted principles, or captured ready-made from the outside. The soul is the eminently alienable, because eminently alien, part of the Amazonian person: it is ‘given’ and, thus, can be taken” (2001: 33). This neatly encapsulates the perspectivist position.

However, as Laura Rival has argued, “there is more to lowland South American cultures than the animist and perspectival ontologies have so far revealed” (2012b: 132). Perspectivism, as a paradigm, seems to have an inherent human-faunal bias – by and

large, it applies to animals, and further still, only those large mammals of direct relevance to humans as predator and prey species, i.e. jaguars, tapirs, and peccaries (Rival 2012a: 70). All well and good, if this is what the ethnographic data reveal. However, it is clear from the Makushi case, as it is from myriad other cases in the ethnographic canon, that cross-species personhood is diffused across a wider cosmo-ecological field than orthodox perspectivism allows. What about the bewildering diversity of non-mammalian animals – not to mention plants, fungi, artefacts, forces, and elements – that populate the neotropical forests? Are not these beings too afforded a subjectival status in indigenous Amazonian cosmologies? The Makushi attribute a range of personified characteristics to many non-mammalian beings such as birds, reptiles, fish, and plants. These varied agentic faculties include sentience, intentionality, and – most crucially – the capacity for communication. However, the forms of subjectivity attributed to these beings do not seem to accord with the rather narrow anthropocentric model of personhood espoused by the perspectivists.¹⁸

As I put forth herein, the vitality of non-human life-forms in Amazonia cannot be universalised under a single all-encompassing model of non-human subjectivity; rather, “other-than-human persons” – and the multiplex relationships that obtain between them – are heterogeneous and characterised by diversity of form. It is my contention that plants in Makushi cosmology do not seem to occupy a classically ‘human’ point of view on the world. Their biotic vitality and, in some cases, animic subjectivity does not accord with the generic anthropocentric prototype of personhood. Plants may be agentic persons; however, they are not necessarily *human-like persons*. For the Makushi, plants are indeed subjects – however, in practical terms, most plants are not afforded the same degree of subjectivity as humans or certain animals such as jaguars or peccaries. This observation might lead us to speculate that in the Makushi eco-cosmology – to paraphrase Orwell –

¹⁸ In a similar vein, Harry Walker (2011) has critiqued orthodox perspectivism for its tendency to universalise spiritual essences and, concomitantly, forms of personhood in Amazonia. In a study of human-bird relations among the Urarina of Peru, Walker argues that the agency of birds departs from the perspectivist model of anthropocentric subjectivity, with its mammalian focus. The status of birds as subjects in Amerindian thought, he argues, “appears complex and uncertain” (2011: 3).

all living beings are subjects, but some beings are more ‘subjective’ than others. In recent years, the idea of “gradations” of life or subjectivity has been discussed by a number of Amazonianists (e.g. Rival 2012a: 75; Halbmayer 2012a: 14). From this vantage point, animism is not a matter of kind, but rather a matter of degree. This notion requires further research and theorisation vis-à-vis indigenous Amazonian ethnoecologies.

2. 5. Substance Logic

The idea of “substance sharing” is a pertinent one in Amazonian cosmologies (cf. Rival 2005b: 105). In light of this, Fernando Santos-Granero (2012) has proposed a model of personhood in Amazonia which diverges in certain ways from the perspectivist paradigm. For the Yanésha people of Eastern Peru, he argues, subjectivity as well as corporeality is socially constructed and a matter of degree or gradation. He states, “subjectivity is a fluid condition, and its particularity derives not from some immanent singularity of their bodies and souls, but from the unique combination of bodily and subjectival substances obtained through interaction with a variety of subjects, whether humans or nonhumans” (2012: 187). This entails two propositions: (1) different kinds of beings may possess different degrees of soul substance or subjectivity, and (2) both bodies and souls are the fabricated products of shared living with a community of human and nonhuman beings and things. The social construction of consubstantial bodies is not merely a human affair, but also incorporates the agency of a diversity of non-human life-forms. The consequence of this is that “in native Amazonian ontologies and social praxis all beings are viewed as possessing composite anatomies and subjectivities” (Ibid: 189). Persons are conceived as dividual amalgams of social-ecological relationships (cf. Halbmayer 2012b: 110). Greater attention must be given to “the assimilation of bodily and subjectival substances from human and nonhuman Others” (Santos-Granero 2012: 184) in the construction of persons

in Amazonia. This ‘substance logic’ permeates Makushi eco-cosmology, and reappears in many of the human-vegetal relations assessed in the following chapters.

Like the Yanéssha, the Makushi “conceive of persons as being constituted by the subjectival substances of multiple entities, and as being constitutive of other persons” (Ibid: 200). In Makushi ethno-theories of life and person-making, the flow of substances between different kinds of beings plays a central role in the construction of bodies and subjectivities. As shall be seen, human persons are constructed via the incorporation of substances from a range of human and nonhuman actors, including, importantly, plants and animals. The basic premise is that physical and subjectival capacities can be acquired from other kinds of beings, by way of the physical transfer of substances. For example, the majority of shamanic plants operate on the principle that the specific capacities of the plant can be transferred to the shamanic apprentice by ingesting the plants as decoctions. Likewise, many herbal medicines operate on the same principle of physical transference, often via oral ingestion. In short, species-specific capacities and powers can be transferred from one kind of being to another via the act of physical incorporation and embodiment. Persons, in this frame, are continually being created via “intersubjective contact and the exchange of substances” (Santos-Granero 2012: 203).

The basic principle that the physical and subjectival capacities of beings can be transferred to other beings by the process of bodily incorporation or physical contiguity is demonstrated clearly in the case of ‘bina’ charm plants. These powerful plant-charms are most commonly rubbed into the skin of the user, and transfer the specific properties of the plant to the beneficiary. For instance, *Caladium* hunting binas show coloured patterns on their leaves that resemble the species of game animal for which they function as charms. Once rubbed into one’s hands, forearms, biceps, and bow and arrow, the charm gifts the user with the capacity to attract those animals. Dietary prohibitions basically function on the same principle, in reverse – one must refrain from consuming those animals or plants

which have unwanted or detrimental traits, vis-a-vis the individual's current life-status. In certain precarious bodily states, for instance during menstruation, pregnancy, or puberty, people must be careful not to eat particularly contagious creatures, lest they may take on qualities of those animals. If a person eats only armadillo, so it is said, they will take on armadillo-like features and grow long claws.

The sharing of substances and the acquisition of species-specific capacities can be intentional or unintentional. The latter, for instance, is demonstrated by the much-feared possibility of the unborn child taking on characteristics of animals, plants, or substances that its parents consume or interact with in various ways. The most feared of all in this respect are snakes, known collectively as *ikii*. Stories abound of human babies (*wa'wa*) being born with serpentine features, an occurrence usually attributed to the fact that its parents killed or “troubled” snakes during the pregnancy. If the father kills a snake whilst in the farm, the physical and subjectival qualities of said snake can contaminate – that is, be incorporated into – the growing foetus via the vector of its father. Certain animals and plants are more ‘contagious’ than others, owing to their powerful subjectivity – the “land kamudi” (*Boa constrictor*) being the most dangerous of all.¹⁹

On face value, these substance-based interactions seem to suggest the Frazerian notion of sympathetic magic; as such, it is necessary to address this association. Frazer first proposed his theory of magic in *The Golden Bough* (1922: 11-12). His basic idea was that magic operates on a principle of sympathy, with cause and effect having some kind of “sympathetic” correspondence – in his words, “things act on each other at a distance through a secret sympathy” (1922: 12). Under the umbrella of “sympathetic magic”, he identifies two main branches: (1) “homeopathic magic”, based on the association of ideas by similarity, and (2) “contagious magic”, based on the association of ideas by contiguity,

¹⁹ *Boa constrictor*. Makushi name, *a'mang*. Common name, ‘land kamudi’. The semi-aquatic green anaconda (*Eunectes murinus*) is known as the ‘water kamudi’, and is deemed equally as dangerous.

or physical contact. These combined Frazerian “laws” of magic appear to relate to aspects of Makushi ethno-medicine, the charming complex, and the shamanic ritual use of plants.

Certain plant medicines appear to follow the logic of homeopathic or “imitative” magic, in that they resemble the body parts for which they serve as remedies.²⁰ The juice of the “tree ear” plant (*ye’ pana*), for instance, is a remedy for ear infections, the rounded leaves resembling human ears. The imitative relationship may also refer to the colour of substances – as with annatto, the red seeds of which are cures for a variety of heart and blood-based ailments. In these cases, the cure and the effect are related according to the principle “like produces like, or that an effect resembles its cause” (1922: 11).

The ‘bina’ charming complex exhibits features that seem to accord with the idea of contagious magic, in that physical contact – or contiguity – serves to transfer the effect of the charm to its user.²¹ For instance, the “osprey” fishing charm must be rubbed over one’s hands, arms, and fishing equipment in order to transfer the properties of the charm to its user. The beneficiary gains the defining skill of the osprey fish hawk – that is, he becomes a supreme fisherman.²² In this case, the charm and effect are related according to the basic principle “things which have once been in contact with each other continue to act on each other at a distance after the physical contact has been severed” (1922: 11).

Although separated in theory, “in practice the two branches are often combined” (1922: 12), as is the case with the ‘salipenta’ lizard.²³ This large land-dwelling reptile has smooth, shiny skin, and as such is used as a cosmetic application for aging. If oil derived from the fat reserves of the lizard is rubbed into one’s face, it is said to make the skin “smooth, like the lizard”. In this example, we see the combined influence of homeopathic magic – in that the lizard resembles the effect of the cure: smoothness – and contagious magic – in that physical contiguity with the lizard’s body activates that effect in the user.

²⁰ See Appendix 5 for a comprehensive list of Makushi plant medicines.

²¹ See Chapter 5 for a full discussion on the ‘bina’ charming complex.

²² Osprey (*Pandion haliaetus*). Makushi name, *tanuwaka*.

²³ Salipenta. Golden tegu lizard (*Thumpinaphis teguixin*).

However, as with Santos-Granero vis-à-vis the Yanéscha (2012: 198), I posit that the association in these cases does not refer to a “magical” relationship of contiguity or imitation, acting “at a distance” (in Frazer’s words), but rather to a relation of somatic and subjectival incorporation and embodiment that operates through the flows of substances. The capacities of nonhuman life-forms are actively transferred to human persons not by magical association but via processes of bodily and spiritual *incorporation*. As shall be seen, plants, animals, and fungi may variously be ingested, inhaled, touched, rubbed into skin, tattooed, or bathed with by Makushi people, with the core understanding that those nonhuman substances and subjectivities can be incorporated into the beneficiary. Human bodies thus become transformed in various ways; as Ernst Halbmayer has written, “one may find among Carib-speaking groups spiritual, form-logical, and humoral-pathological idioms of transformation” (2012a: 13). This kind of ‘substance logic’ seems to be rooted in the basic notion that nonhuman beings are agentic subjects with capacities, qualities, and skills that can be co-opted by human beings via processes of physical and subjectival embodiment. Species-specific faculties can therefore be transferred between living beings and some inorganic things via the sharing of substances.

It is well-established that Amazonian cosmologies are essentially animist, a mode of praxis predicated on the attribution of human-like interiority to nonhuman beings and things, thus allowing for cross-species communication and, under certain circumstances, transformation to occur (Descola 2013: 129; Rival 2012a). Animism, like perspectivism, is predicated upon an inversion of the nature/culture dualism that characterises naturalist ontologies: rather than a unitary nature and multiple cultures, there is one unitary culture and multiple natures. Hence, we get Amazonian “multinaturalism” as opposed to Western “multiculturalism” (Viveiros de Castro 1998: 472). However, many native Amazonian cosmologies also exhibit partial naturalistic and analogic characteristics, to the extent that emphasising their animic character becomes somewhat of an essentialisation. Animism,

certainly, is the dominant mode of interacting with nonhuman others in many Amazonian ontologies, as seems to be the case among the Makushi people. However, and working for a moment with the assumption that there exist distinct ontological modes à la Descola, it might be suggested that multiple ontologies necessarily co-exist within any given regime (cf. Hornborg 2006: 22; Ellen 2016: 26; Sahlins 2014). As Halbmayer has posited:

Different ontological perspectives can communicate with one another and therefore are not necessarily entirely incompatible. To a large extent, cosmologies are able to integrate different ontological positions, at least at their peripheries.

- Halbmayer 2012b: 105.

In short, alternate ontological modes can co-exist with the animic. This plurality comes from without and within; the interaction with exogenous cosmologies necessarily has an effect on both sides of the equation. The Makushi continue to practice shamanism whilst participating in scientific research projects and ecotourism, exhibiting both animistic and naturalistic tendencies in their interactions with nonhuman others. Likewise, the Christian and shamanistic belief systems coexist and interact in complex ways. Other-than-animic onto-logics have been incorporated into the cosmology through the vicissitudes of history – with organised religion, formal schooling, the market economy, and biomedicine being major vehicles. However, this diversity does not have to come from with-out: even within “animistic” ontologies, there may exist multiple modes of identifying the living world – endogenous onto-logics which sometimes appear contradictory. For the Makushi, vitality emerges not only from the cosmological attribution of spirit matter, as in animism, or a somatically-rooted human point of view, as in perspectivism, but also in the forms and processes of biological life that frame the ecological panorama (cf. Rival 2012b: 79). The living agency of animals and plant-life, for instance, is not always or only understood in terms of trans-specific personhood, but also in terms of organic processes and symbiotic

relations, qualities which appear, at least at face value, very naturalistic (see also Shepard 2004). As I hope to convey, human-vegetal communication is as much biological as it is animistic, although the interface between the two in the Makushi context is definitively permeable and blurred (see also Rival 2012a). Biological processes of symbiosis, growth, reproduction, domestication, and so forth cannot be abstracted from the cosmological categories and ontological postulates that frame them.

To push this point further, we might speculate that all ontological potentialities necessarily co-exist in any given cosmological system, with one or more modes asserting dominance depending on context. Within any cosmological regime, alternate ontological modes converge in a hierarchically-structured ontological economy. Ontologies, in this sense, do not constitute bounded, totalising systems; rather, they are always – necessarily – hybrids. For the purposes of classification, then, we might talk of ‘ontological plurality’ as the coexistence of different worlds, and ‘ontological hybridity’ as the coexistence of different ontological modes within one world – the two, of course, being continuous in practice. All cosmologies, in this sense, are constitutively *poly-ontological*.

The centrality of flows of substances between bodies is a core motif in Makushi ethno-metaphysics and theories of life, and reoccurs in all of the empirical chapters of this thesis. The evidence seems to suggest that not only are many nonhumans understood to be persons, in the sense that they have vital souls and subjectivity, but that all persons possess “composite anatomies and subjectivities” (Santos-Granero 2012: 189). Persons, in this sense, are constituted of myriad physical and subjectival elements of human and nonhuman others, which are incorporated into their bodies via the shared multispecies processes that constitute everyday and ritual life. In this frame, then, both interiorities and exteriorities are multiple. The idea that human persons are essentially amalgams of trans-specific substances and relations seems to accord with Descola’s (2013) analogistic mode of praxis, which he defines as follows:

A mode of identification that divides up the whole collection of existing beings into a multiplicity of essences, forms, and substances separated by small distinctions and sometimes arranged on a graduated scale so that it becomes possible to recompose the system of initial contrasts into a dense network of analogies that link together the intrinsic properties of the entities that are distinguished in it.

- Descola 2013: 201.

In this sense, then, it might be speculated that some – or even many – indigenous Amazonian cosmologies exhibit partial analogistic tendencies as well as the more familiar animistic features. This form of ontological hybridity appears to be particularly prominent among the Carib-speaking groups of the Guiana region. Halbmayer (2012b) has similarly argued that “the cosmologies of Carib-speaking groups, although generally understood as animic, establish elaborated partial – analogical and fractal – similarities across different scales of the multiverse” (2012b: 19). Following Halbmayer, I put forth the hypothesis that Makushi modalities of relating to nonhuman others often draw upon proto-analogical associations, as well as the animic. The partial analogical character of Makushi ontology is suggested by the mereological constitution of the person, which, as described above, is formed of a multiplicity of meta-souls arranged in spheres of encompassment, themselves situated in relation to the bodily flows of vital energies and humoral substances. In sum, these analogic elements seem to exist on the periphery of a non-totalising animic system.



Makushi boys taming parrots (*worokai*)²⁴ | Rewa, 2013

2. 6. Ingold's Ecology of Life

In Makushi understandings of life, relationality is key. Makushi ecological philosophy emphasises the dynamic interconnectivity of the environment and the beings contained therein, placing primacy on the shared intersubjective experience of being-in-the-world. Put simply, the Makushi are interested in the symbiotic relations that transpire between living beings of different kinds. As mentioned, nonhuman beings are typically afforded an 'emic' (subject) perspective. The ways in which living entities relate to and communicate with one another form a central facet of Makushi ethnoecology. These symbiotic relations are often realised in ethno-classification, with plants being named after associated animals and vice versa, in ecosemiotic webs. A similar observation has been made by Butt Colson and Armellada (1990), of the wider Kapon and Pemon grouping:

²⁴ Yellow-crowned Amazon parrot (*Amazona ochrocephala*). Makushi name, *worokai*.

They are ecologists in the sense that they are concerned with symbiotic relationships and view their living universe as a system of countless interactions... Their beliefs show an appreciation of a great variety of intricate interdependencies between species, including plants and also soils and minerals and climatic phenomena.

- Butt Colson and Armellada 1990: 63.

In light of such ethnoecological observations, it is necessary to evaluate the work of Tim Ingold, who has addressed the question of ecological relationality from a rather different perspective to Kohn and the Franco-Brazilian ‘ontologists’. Ingold’s (2000) philosophy is of interest to this study because, in certain regards, it reflects Makushi ways of thinking about and interacting with the living environment and nonhuman species. As such, in my view, the Ingoldian approach can elucidate aspects of Makushi shared human-plant life-worlds that remain hitherto hidden in semiotic and post-structuralist approaches.

The development of Ingold’s neo-phenomenology has been influenced by various giants of twentieth century philosophy, including Uexküll (1934), Merleau-Ponty (1962), Heidegger (1971), Bateson (1972), Gibson (1979), and Deleuze and Guattari (1980). It is necessary to appraise a few of these formative influences in order to draw out some key features of his thinking – before returning to a comparison between Ingold and Kohn.

Ingold’s approach to how human beings perceive their surroundings is relational, processual, and emergent. The notion of life-as-process lies at the heart of his philosophy. “Life”, he has written, “is not the realisation of pre-specified forms but the very process wherein forms are generated and held in place” (2000: 19). In a nutshell, Ingold espouses “an ontology that assigns primacy to processes of formation as against their final product, and to flows and transformations of materials as against states of matter” (2010: 2-3). The Ingoldian subject is immersed in a “current of materials”, ebbing and flowing in constant flux. Individual actors experience the mesh-bound action of being-in-the-world in an on-going process of dwelling. Rather than dealing with pre-existing entities, then, Ingold is

interested in the processes of the world's continual generation and regeneration (2007: 9). Things do not simply exist as fixed, static entities; rather, they are constantly in a process of 'biosocial becoming' (Ingold and Palsson 2013). His emergent approach to phenomena "gives primacy to the processes of ontogenesis – to the fluxes and flows of materials entailed in making and growing – over the forms that arise within them" (Ibid: 8).

This processual, experiential model of ecology is deeply inspired by Heideggerian phenomenology, a philosophical model predicated on the primacy of being-in-the-world in shaping experience. For Heidegger, being is totalising; there is not, nor can there be, any perspective on being from without; every-thing is necessarily immersed in the very process of being itself. Thus, in Heidegger's (1971) world, nouns become verbs: thing > thinging; presence > presencing; world > worlding, and so on (1971: 174). Whereas nouns are static and fixed, verbs are dynamic and processual. Life, for Ingold, is likewise an emergent process of becoming.²⁵ Thus the dynamic experience of "being alive" is best represented via a series of interconnecting verbs: dwelling, weaving, being, et cetera. This is what Ingold refers to as the "dwelling perspective".

Another key notion in Ingold's philosophy is the interdependence of the organism and environment. In his view, "the environment is a world that continually unfolds in relation to the beings that make a living there" (Ingold 2007: 14). Here, environment and organism form an integrative and mutually-defining totality, which emerges in the flows of life (2000: 4). He was influenced in this respect by the British genre-defying polymath Gregory Bateson (1972). In essence, Bateson was interested in the intersecting patterns of relationships between the elements of indivisible systems – an idea which can be summed up in his much-quoted mantra, "*the pattern which connects*" (cf. 1972). He emphasised the interdependency of the individual and the world, of the organism and its environment. In Bateson's view, then, neither can exist independently of the other; rather, they form a

²⁵ Here, Ingold adopts the Deleuzian notion of "lines of becoming" to express the idea that the entangled paths of life are always "works in progress" (Ingold and Palsson 2013: 8).

coevolutionary whole. As he once wrote, “the organism which destroys its environment destroys itself. The unit of survival is the flexible organism-in-its-environment” (1972: 457). Thus, organism and environment exist in a “necessary unity” (1979). For Ingold, as for Bateson before him, the primary focus is the holistic totality of the ecological system. And within this interconnected whole, humans and other kinds of beings and things are relationally connected to one another, as well as to the dynamic whole. Both thinkers are interested in the interdependency of living entities and their environment, and espouse a relational approach to ecological interactions. This relational system, in short, is what Ingold refers to as the “ecology of life” (2000: 19).

In developing this core idea, Ingold has also drawn influence from the ecological psychology of James J. Gibson (1979). Gibson argued that the organism and environment form one single indivisible unit. “Each term implies the other”, he once wrote (1979: 8). Thus, we arrive at “the organism-environment concept” (1979: 8) – a holistic, indivisible totality, à la Bateson. In Gibson’s view, the perception of the environment arises from the dialectic between the cognitive processes of the perceiving agent, on the one hand, and the “affordances” of the environment, on the other. The biophysical environment affords organisms various options for engagement which in part determine the parameters of their behaviour. He defined the term “affordance”, as such:

The affordances of the environment are what it offers the animal, what it provides or furnishes, either for good or ill. The verb to afford is found in the dictionary, but the noun affordance is not. I have made it up. I mean by it something that refers to both the environment and the animal in a way that no existing term does. It implies the complementarity of the animal and the environment.

- Gibson 1979: 119.

Thus, it is in the inalienable marriage of the perceptual apparatus of the organism and the affordances of its surrounding environment that life occurs. Gibson's notion of affordance is irreducibly integrative, uniting organism and environment in a constituent whole. His ecological psychology is of import in interpreting the ways in which the Makushi interact with their living environment – for example, in the context of swidden agriculture and the historical ecological management of the forest-scape (Chapter 3). Certainly, for Makushi people, the environment affords certain possibilities for action and, in a non-deterministic sense, mutualistically shapes the life-paths of its inhabitants, just as they shape it.

Although Ingold's processual and emergent perspective on human-environmental relations is of use in interpreting aspects of Makushi environmental praxis and ecological philosophy, there are a number of limitations to his approach which must be aired here.

In Ingold's phenomenological world, the specificity of bio-organic life becomes consumed by the homogeneous flow of materials; it therefore becomes difficult to draw out differences at a number of levels. First, the ethnographic: there is very little room in Ingold's phenomenological project for culturally-manifested differences, nor for specific ethnographic descriptions or exegesis.²⁶ People, or peoples, along with their institutions, conventions, and societal structures, dissolve into the material soup. Ingold occasionally strays toward a kind of phenomenological individualism in which the social and moral order becomes all-but inaccessible (cf. Rival 2012b: 130). The human being becomes but a Heideggerian presencer, an affective sense-set situated within the weather-world, but curiously outside of the socio-structural apparatus of society. It is difficult to see how the increasingly politicised character of Makushi socio-ecological engagements (ecotourism, gold mining, conservation) can be accounted for by Ingold's model. Second, the ecologic: eco-systems (including indigenous theories about living organisms) fade into obscurity in the shadow of the all-encompassing meshwork. In presenting the material life-world as a

²⁶ A criticism also levied by Daniel Miller, in whose view Ingold's phenomenology is "rather removed from the experience of ethnography" (2007: 25).

“tangled web of meandrine complexity” (2007: 9) within which all things are embroiled, the condition of ‘life’ itself becomes everything, everywhere, always.

In Ingold’s philosophy, the specificity of organic life and biology dissipates into the totalising material maelstrom. However, as ethnobiologists have consistently shown, all cultures, in one way or another, make a fundamental categorical distinction between living beings and non-living things, as manifested in taxonomic systems (see Atran and Medin 2008: 4). Furthermore, as Kohn (2013) has argued, there *is* something distinctive about organic life that sets it apart from the world of non-living material things: from amoeba to giant redwoods, all living beings represent the world using signs. In my view, then, local ecological knowledge, as well as the vital processes of semiotic referentiality that permeate the interactions of living beings, cannot be fully accounted for using (only) an Ingoldian phenomenological approach which obfuscates the differences between living beings and non-living things.

In certain respects, Kohn and Ingold share an intellectual genealogy. Both are clearly influenced by Gregory Bateson’s “ecology of mind” (Ingold 2000: 16-18; Kohn 2013: 98). Bateson (1972) was mainly concerned with communication and the relational dynamics of ecological systems, which were conceived as integrated wholes – a notion that underlies both Ingold’s “ecology of life” and Kohn’s “ecology of selves”. Both also take inspiration from Jakob von Uexküll’s (1940) subject-focused semio-biology and his key concept of *umwelt* (Ingold 2000: 176-78; Kohn 2013: 84). Uexküll highlighted the semiotic nature of ecological systems, as well as the organism’s subjective experience of the world (cf. 1934). Thus, both Bateson and Uexküll promoted the idea that ecological systems were constituted of subject-subject relations, and this subject-focused concern lies at the heart of both the eco-phenomenological and ecosemiotic paradigms. Ingold and Kohn are opposed to human exceptionalism and the neo-Darwinian view of human-nature relations of being of a subject-object order (cf. Hornborg 2006).

Both thinkers espouse a relational stance that treats nonhumans as communicative subjects. However, there are significant differences between their two approaches. In a nutshell, Ingold is more concerned with how living entities *perceive* their surroundings, whereas Kohn is primarily interested in how they *represent* them. Ingold's "ontology of dwelling" (cf. Rival 2012b: 130) is acutely orientated toward individual perception and experience. It is here that he draws influence from Heidegger's (1971) phenomenology, Gibson's (1979) ecological psychology, and Hallowell's (1955) approach to the interface between culture and personality via the medium of experience (cf. Ingold 2010: 4). Kohn, alternatively, finds his most formative influence in Peirce's (1940) semiotic theory, and Deacon's (1997) biological anthropological application of it. Peirce's triadic typology of signs allows Kohn to more fully theorise the poly-semiotic modes by which living beings represent their worlds (cf. Kohn 2007).

Meanwhile, the 'ontologists' (an epithet they would no doubt reject, but one I am using merely for convenience) have for the most part paid less attention to phenomenal experience and forms of other-than-symbolic signification (cf. Descola 2014b). Instead, coming largely from the Lévi-Straussian lineage, these thinkers have been more interested in theorising the construction of indigenous cosmologies, often involving a reappraisal of the base categories of nature and culture (cf. Viveiros de Castro 1998, Lima 1999, Fausto 2007, Descola 2013). A perceived advantage of this post-structuralist approach is that it pays fuller attention to the socio-cultural dynamics and ontological axioms of Amerindian cosmologies, without resorting to less contextualised universalist explanations for human experience or biological signification (cf. Descola 2014a: 66). For instance, Viveiros de Castro's (2004b) model of Amerindian perspectivism that has found such traction in the anthropology of Amazonia is hyper-ethnographic, in that it emerges from the cultural and ontological postulates and cosmological categories of indigenous explanations themselves (e.g. Lima 1999, Vilaça 2002). However, as Kohn has argued (2014), the capacity of the

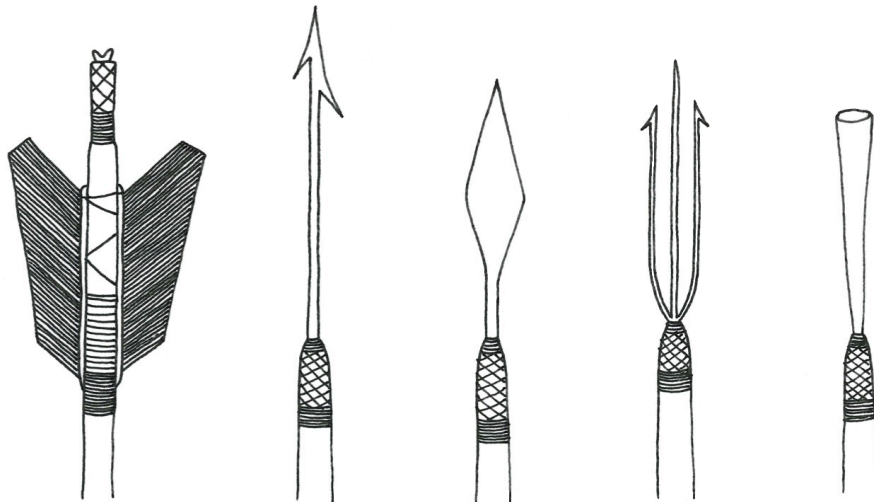
post-structuralist approach to deal with biological processes and ecological interactions has been limited by its historically-rooted allegiance to Saussurean symbolism, which, by all accounts, is rather human-centric and anti-ecological in its focus.

It is my contention that each of the three approaches is of import in analysing the Makushi ethnography herein. As shall be seen in the following chapters, Makushi people tend to think of and interact with the living environment both phenomenologically and semiotically – that is, they emphasise the aesthetic and sensory experience of being-in-the-world at the same time as paying great attention to the varied modes of trans-specific semiosis and communication that constitute the cosmo-ecological field. However, these approaches cannot fully account for the structural dynamics of indigenous ontologies, nor for the fundamental ethno-metaphysical categories, postulates, and motifs that constitute those cosmologies. This, in my view, is where the ontological paradigm is most valuable. In short, this study situates itself at the semiotic-phenomenological-ontological interface. The theoretical synthesis between these approaches is not hermetic, nor is it a panacea to the deep-seated disagreements espoused therein. Rather, as I shall show, aspects of each paradigm are of use in assessing different dimensions of the Makushi ethnography, with each approach being reflected in indigenous ways of thinking about and interacting with the living world in various ways.

In sum, I strive toward a synthesised approach which allows at one and the same time for an appreciation of subjective experience of the world, the semiotic character of ecological systems, and deeper ontological postulates and cosmological categories.

One area to which Ingold (2000: 289) has made a significant contribution – and in which Kohn's approach, as well as much ethnobiology, is lacking – is the study of skills and techniques in socio-technical systems and productive activities, and it is to this that I now turn in closing the chapter.

❖ Figure 2. Arrow (*pîrîu*) flight and tips.²⁷



2. 7. Multispecies Techniques

The concept of ‘technology’ is a fractured and heterogeneous one, to the extent that it has been called “an anthropological problem” (Coupaye 2013: 63). In one sense, it may refer to ‘high technology’, the world of smart phones, wireless internet, and cyborgs. This is, perhaps, the meaning that most people in post-industrial societies associate with the term. In this view, technology becomes an object, a noun, a feature of post-modernity that can be held in the hand, metaphorically or otherwise. In another sense, however, technology may refer to a more pervasive human phenomenon involving those technical activities employed in any or all aspects of everyday life, from felling a tree to opening a tin can. These kinds of actions are “technological” in that they involve technique or skill. This latter caricature is universal and non-hierarchical, in that technical actions proliferate throughout activity in the world: all or any transformative actions enacted by people upon the material world may fall into this category.

²⁷ Sketches based on arrows made by Joseph Edwards of Rewa village, 2013. From left to right, a flight with curassow (*powi*) feathers, a tip for large fish (*arami*), a spear for game animals (*sipurari*), a trident for smaller fish, and a blunt wooden tip for birds (*tumara*).

The artificial distinction between ‘high’ and ‘low’ technologies serves merely to highlight a conceptual stumbling block in the philosophising of techniques. This is not an ontological division, nor is it a particularly useful conceptual one. With Bruno Latour, we must aim to “subvert the distinction between ancient techniques (the *poesis* of artisans) and modern (broad-scale, inhuman, domineering) technologies” (1994: 46-7). There is, in reality, an “extraordinary continuity” between artisanal and postmodern technologies. How best to analyse this continuity has been the subject of much debate in anthropology.

Reflecting the complexity of its object, the anthropology of technology is a varied and undefined field. To crudely dichotomise, this body of scholarship might be split into an Anglophone tradition centred on material culture studies and the concept of materiality (Appadurai 1986, Kopytoff 1986, Miller 1987, Tilley 1994), and a Francophone tradition more concerned with productive activities and socio-technical systems (cf. Mauss 1934, Leroi-Gourhan 1945, Haudricourt 1964, Lemonnier 1986, Pfaffenberger 1992, Coupaye 2013).²⁸ The latter approach, associated with the Parisian *Techniques et Culture* group, might be more accurately termed the ‘anthropology of techniques’. For if the former takes ready-made commodities and their consumption in society as its main focus, the French tradition takes the techniques employed in processes of production as its primary subject. Its intellectual genealogy can be traced back to Marcel Mauss, bearing the socio-centric fingerprint of *L’Année Sociologique*.

In his famous essay of 1934, Mauss put forth the idea that bodily techniques, or the ways in which human persons use their bodies for technical ends, are total biological, psychological, and sociological phenomena. The sociological element of the somatic triad determines that, from society to society, the ways in which persons use their bodies for the same tasks differ (1934: 457). In this sense, bodily techniques are not strictly, or only, functional. As Mauss writes:

²⁸ A full discussion on the complexities of the various anthropological approaches to technology is beyond the scope of this thesis. I am well aware of the brashness of the dualism identified between English and French material culture studies. For a more detailed overview, see Coupaye (2013: 60-86).

I call “technique” an action that is *effective* and *traditional* (and you will see that in this it is no different for a magical, religious, or symbolic action). It has to be *effective* and *traditional*. There is no technique and no transmission in the absence of tradition.

- Mauss 1934: 461.

Thus, a technique must at one and the same time cause a desired effect and be a product of socio-cultural convention. What Mauss achieved with this post-Durkheimian revelation was the dissolution of the absolute boundary between the technical-functional and the social-symbolic, and, concomitantly, the biological and social. For Mauss, any corporeal action is thus simultaneously technical and social. The bodily *habitus* is man’s first and foremost technical instrument. The ways in which it is used are the products of ‘tradition’, of conditioning, of processes which are socially imparted and culturally determined.

Pierre Lemonnier (1986, 1993a) has done much to advance the anthropology of techniques. Influenced by Mauss and interim French anthropologists including Leroi-Gourhan (1945) and Haudricourt (1964), Lemonnier is primarily interested in the ways in which societies act upon and transform the material world (1993a: 2). He argues that the collective conscious or unconscious decisions or choices that determine the technological apparatus of any given society are defined as much by socio-symbolic convention as by functional requirements: “In short”, he writes, “the mental processes that underlie and direct our actions on the material world are embedded in a broader symbolic system” (Ibid: 3). Techniques, stripped of their functionalist veil, become culturally sculpted and partially arbitrary. Henceforth, it becomes impossible to separate the ‘technical’ from the ‘social’. All transformative actions of human beings upon the material world thus may be considered socio-technical (see also Pfaffenberger 1992).

The Maussian notion that techniques are channelled through the body accords with Makushi technical exegesis. For Makushi people, techniques are social phenomena. Rather than templates for action, technical skills are better thought of as emergent ways

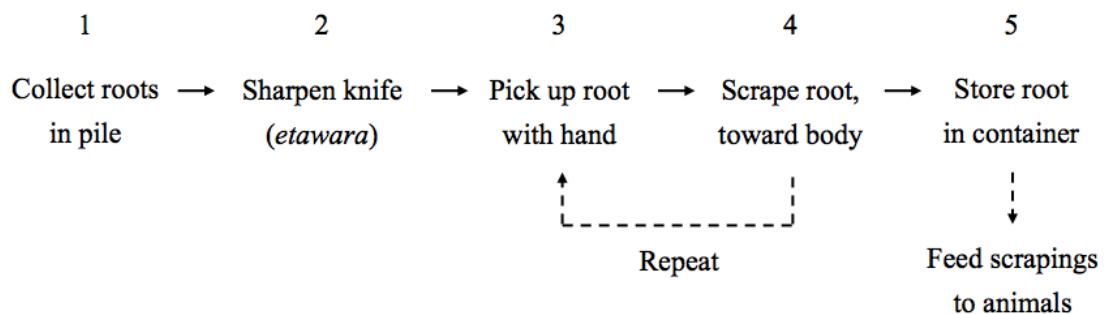
of acting that flow through bodies. A similar idea has also been promoted by Ingold, who has written, “it is not through the transmission of formulae that skills are passed from generation to generation, but through practical, ‘hands-on’ experience... They are, in every case, embodied skills, incorporated into the human organism through a process of development” (2000: 291-92). Ingold refers to the process by which techniques become embodied through experience as ‘enskilment’. Enskilment is always social and embodied, in that the practical acts contained therein operate as a platform for the re-production of social relations, which are always in the process of being made.

The role of convention in technical systems might be demonstrated with a short ethnographic vignette. Upon first moving to Yupukari village, I was introduced to a group of women, who were sitting under a mango tree scraping cassava and chatting. Scraping cassava, perhaps the archetypal convivial activity, is a mainstay of daily life for Makushi women. Part of the process of making toxic bitter cassava edible, it involves removing the bark-like exterior from the woody tuberous roots (*imun*) using a knife, prior to their being processed into flour. After asking if I could join in, I was hastily given a knife and thrown a large knobbly root. With no idea of how to proceed, I glanced around hoping to glean something from the techniques used by the women. As much by intuition as by anything else, I began scraping the tough skin from the root by moving the blunt knife in a forward motion along the root’s surface away from my body. After a while I noticed a few of the women giggling. I continued to feign proficiency. A few more giggles. This continued for a while. Eventually one of the women, Flora, said, “you be scraping Brazil style, Lewis! We Makushi do it the other way – this is Makushi style!” She demonstrated the correct method. It was only then that I realised that I had inadvertently been using an inverted technique; everyone else was scraping in knife strokes *toward* the body, not away. This method, to my uninitiated eye, did not seem any more efficient than my naïve technique; however, in line with convention, I quickly adopted it, whereupon it seemed to become

naturalised. Months later, after becoming somewhat more proficient at the job, I tried “Brazil style” again out of curiosity, only to find it completely ineffective. This anecdote serves simply to highlight two points: first, the blurred interface between the ‘technical’ and ‘social’; second, the role of ‘tradition’ in the naturalisation of techniques.

How, then, can we attempt to make sense of the shifting interface between the technical and the social domains? How can we communicate the complexity of technical processes? A promising method has been employed by Lemonnier (1986) and his cohort. *Chaînes opératoires*, or “operational sequences”, are detailed maps of technical systems, constructed by mapping out the steps involved in any given socio-technical process in a systematic step-by-step fashion (cf. Lemonnier 1986: 149; Cresswell 1993: 182). These “work chains” take the form of diagrammatical representations, detailing materials, tools, forces, and associated information in temporally-mapped sequences of action. To avoid the trappings of mechanistic determinism, the method of *chaîne opératoire* must only be employed as a descriptive tool: in short, it refers to a methodology, not a theory (Coupaye 2013: 12). For purposes of demonstration, then, we might devise an operational sequence for scraping cassava – one of the most archetypal acts of Makushi daily life:

❖ Figure 3. Operational sequence for scraping cassava





Cassava roots (*kise imun*) | Rewa, 2013

But what, then, about techniques that permeate the dynamic and diverse world of living beings? Is there a place for ‘ecology’ in the anthropology of techniques? From hunting peccaries to fishing for catfish, from plaiting baskets to spinning cotton, technical acts can be thought of as the coming together of numerous different living beings in trans-specific spaces. Lemonnier and his Maussian forebears have been predominantly concerned with the socio-symbolic significance of techniques enacted by humans on the material world; nonhuman living beings have little or no place in the analysis, save as materials to be transformed by human action. However, as Latour (1994) has presciently pointed out:

Technical skill is not uniquely possessed by humans and reluctantly granted to nonhumans. Skills emerge in the zone of transaction, they are properties of the assembly that circulate or are redistributed among human and nonhuman technicians, enabling and authorizing them to act.

- Latour 1994: 45.

In this thesis, I explore what an anthropology of techniques might look like if techniques are thought of as being trans-specific phenomena which flow across species boundaries. Non-human living beings employ skills, too, inside and outside of their interactions with humans (cf. Ingold 2000: 172-73). Animals, plants, and fungi perpetually react to their surroundings in ways that might be considered *effective* and, if not *traditional* in the conventional socio-symbolic sense, in the very least semiotic, pace Kohn. Nonhumans, too, transform their surroundings while communicating meaningful messages. Can these living beings not be said to be employing technical skills to achieve strategic outcomes?

According to Makushi people, for sure, humans and nonhumans routinely utilise other living kinds for technical ends – as with bush tai-tai and his homicidal flower. These interactions must be accounted for. Think also of the farm-space: human farmers, their kin, cassava crops, charm plants, domestic animals, and unseen spirits all intermingle here, contributing to the growth of crops in various ways – not to mention the pollinating insects, frugivorous birds, and elemental forces that are essential for a successful harvest. From the cultivation of bitter cassava to the ritual application of arthropod stings, from the fermentation of alcoholic drinks using a species of domesticated mould to the human-avian communication that occurs during hunts, the skills and capabilities of nonhuman beings may be harnessed by humans for both productive and destructive ends. Put simply, the techniques and skills of nonhuman beings are entangled with the productive activities of humans in every dimension.

In order to better understand these complex interspecific interactions, the analysis of technical systems must be freed from its anthropocentric shackles. By obfuscating the role of nonhuman beings in socio-technical systems, whilst overlooking the non-symbolic processes of signification that flow across species boundaries, we are only transmitting a partial picture. There is a need, I contend, to combine Kohn's neo-Peircean approach to ecosemiotics with the neo-Maussian approach to socio-technical systems. As I explore in

the following chapters, this can be achieved by expanding the semiotic remit of the latter from the exclusively human to include the pre-symbolic modes of semiosis common to all life. Socio-technical processes, in this view, are constitutively ecological, being composed of *multispecies techniques*. In exploring the dynamics of these diverse assemblages, then, we can begin to imagine what a multispecies approach to technical systems in Amazonia might look like. For, it is in the socio-ecological-technical dynamics of these assemblages that the ontological axioms of those very cosmologies are revealed.

3. MAKUSHI HORTICULTURE and the Sociality of Farming



Uncle Louis among the fish poison plants (*aya*) in his garden | Yupukari, 2013

3. 1. The Ecological Ethic

Makushi people might be described as expert horticulturalists, in that they exhibit and utilise specialised knowledge and techniques relating to the ecology of living plants. As subsistence hunters, fishers, and farmers, they interact with a wide range of plants and animals in every facet of daily life. The local livelihood, still largely subsistence-based, is composed of the complementary interaction of horticulture, fishing, and hunting, with a small and supplementary reliance on the gathering of wild plants (mostly fruits, medicinal plants, and building and craft materials). Farms and gardens are intercropped spaces of hyper-diversity in which farmers cultivate and tend to plants in symbiotic relationships of

nurture, control, and management. Makushi horticulturalists cultivate over one hundred different types of crop, many of which display a multitude of folk-varieties.¹ In any given forest farm plot, one will find an array of food crops, fruit trees, craft materials, narcotic shrubs, ornamental cultivars, medicinal remedies, and shamanic charm plants. Although first and foremost a productive exercise orientated toward the provision of food to sustain the family, farming is also a process imbued with semiotic meaning that reveals an innate appreciation for floral and faunal diversity and the aesthetics of gardens as living spaces. Agricultural practice is far more than a functional activity; rather, it can be considered as the most important expression of Makushi culture and identity, and as a microcosm of the multiverse itself. Via the social exchange of botanical materials, cultivators accrue large collections of plant-life that far transcend any utilitarian requirements. In the processes of acquiring and experimenting with new varieties of crop, Makushi horticulturalists display a deep understanding of the living properties of plant-life. Cast in the light of innumerable shades of green and adorned with ornamental shrubs and flower beds, gardens and farms are places of “beauty” in which humans and plants interact in the creative and symbiotic processes of nurture and shared selfhood. Furthermore, in Makushi cosmology, all plants are considered agentive to some degree, and certain plants are conceived of as “persons” capable of communicating with – and exercising power over – human actors. How might horticulture be thought of in cosmologies where plants, too, can be thinking selves?

This chapter constitutes a general overview of Makushi horticulture, with a view to highlighting some of the ethnographic themes which are investigated in greater depth in subsequent chapters. Herein, I delineate some core technical aspects of horticultural practice, before examining farming as a socio-technical system. In this frame, I put forth that farms are interspecific spaces of sociality within which humans, animals, plants, and spirits interact. Following this, I examine the interconnectedness of the seasonal cycle and

¹ See Table 1, at the end of this chapter, and Appendix 1 | Cultivated Plants.

successional cycle with socio-ecological phenomena, before describing some of the most important cosmic agents of influence in agriculture, including the masters of species. The chapter concludes with a discussion on mastery and personhood in Makushi cosmology.

The “symbiotic” and co-evolutionary engagements evaluated herein include those between human beings and their forest farms. The human-forestry complex is regarded as a multispecies network uniting farmers with a diversity of cultivated and wild plants and a multitude of animals and spirits, including the all-powerful forest masters. Ultimately, the forest is conceived of as being “the domestic gardens and fallows of the dominant animal masters” (Kohn 2013: 149), and thus all human activity in the forest is entangled with and determined by local understandings of the all-powerful spirit masters (see below). Herein, in short, I broadly assess “the indexical communicative modalities typical of nonhuman communication” (Kohn 2013: 147) that permeate the living world of the farm.



Aerial view of a forest farm (*mîi*) | Annai, 2013

Makushi horticulture happens in multiple places. Most Makushi families cultivate a kitchen garden and one or two forest farms.² The kitchen garden (*umî*), a living space dedicated to the cultivation of certain types of fruits, vegetables, and medicinal plants, is usually located adjacent to the homestead (*wittî*). Often fenced off with wattle or barbed wire to keep out cattle, goats, and pigs, kitchen gardens are typically around 50-100m² in size. In this domesticated space, cultivators grow crops such as plantain (*kurani*), squash (*kaima*), sweet cassava (*ka'na*), capsicum peppers (*pimi*), aubergine (*balanji*), avocado (*apa'*), pineapple (*kaiwura'*), papaya (*ma'piya*), bananas (*paruru*), and cotton (*kato'ka*). These crops tend to be labour or water intensive; as such they must be cultivated close to the homestead for constant nurture, rather than in forest farms where crops are left to their own devices to a greater degree. Cultivators also grow a number of plants in the yards that encircle their houses, including lime, tangerine, and grapefruit trees, larger fruit trees including mango (*mankuro ye'*), whitey (*kuwari ye'*), and jamun, and a variety of coconut palms (*koko ye'*). Unlike the kitchen garden, which is a horticultural space in and of itself, the plants that populate the yard are part of the immediate and heterogeneous domestic domain in which people partake in the everyday processes of living. This trans-specific space also plays host to a plethora of domestic animals, including chickens (*kariwana*), Muscovy ducks (*maiwa*), domestic cats (*pisana*), and hunting dogs (*arinmaraka*), as well as tamed wild animals such as parrots, monkeys, deer, and 'labba' (lowland paca).

The majority of the vegetable element of the Makushi diet is produced in forest farms (*mîî*). Forest farms may be situated at varying distances from the village, but are typically a few miles away and accessed via waterways.³ Some remote farms, however, are located as much as two days paddling away (approximately 20 miles).⁴ Families will often visit remote forest farms for days or even weeks at a time, sleeping and eating in

² Farms are known as 'backdam' in Guyanese Creole.

³ Important farming sites for Yupukarians include Yupukari Ikîlî, Mîri'ku Pai, Aruwa Falls, Salipenta, Tupa, and Mapari. The main sites at Rewa include Awarami, Makarapan, Sea Wall, and the Airstrip.

⁴ Outboard motors have revolutionised long-distance river travel in recent decades. By using a motor attached to a canoe, a one-day paddling trip can be completed in two hours or less.

situ while attending to their crop plants, before returning to the village with their harvest. Practically and conceptually, farms are dominated by the staple crop bitter cassava (*kîse*); however, farmers also cultivate sweet cassava (*kana*), bananas (*paruru ye'*), corn (*a'nai*), cotton (*katoka*), sugarcane (*kaiwaraku*), fish poison plants (*hayari*), tobacco (*kawai*), and medicinal plants (*epik*) in farms. Makushi people practice shifting cultivation, alternating between farm sites in a fluid spatio-temporal process of soil exhaustion and regeneration. Farms, of the swidden variety, are usually located in “bush islands” (*pa'wî'ta*), areas of secondary forest surrounded by savannah. Each domestic household will farm at least one forest plot, in which they cultivate bitter cassava. Farms are variable in size, but average between one and two acres.⁵ Unlike the geometric gardens of the Gê-speaking peoples of central Brazil (Ewart 2014), Makushi farms do not follow any prescribed spatial pattern relating to cosmogonic symbolism. Plots are usually rectangular or trapezoidal in shape and surrounded by forest. The edge of the farm plot is referred to as *mîi ye'pi*, meaning literally, “farm lip”. Most farms contain an open-walled lean-to or workhouse constructed from hardwood posts and a kokorite palm roof,⁶ which is used for shade and shelter. It is common to see extended kin groups gathered together under these temporary structures, processing cassava or parching farine whilst telling jokes and stories (*panton*).

Farming is undergoing considerable change in the North Rupununi at the current juncture, owing largely to the diversification of the economy and concomitant lifestyles. Although still primarily subsistence-based, the economy is now routinely complimented by small-scale cash economy and temporary wage labour. Elder people often bemoan the lack of transmission of traditional agricultural knowledge to the younger generations, who are perceived to be less invested in farming than in new forms of acquiring capital. Many young men and women seek temporary paid employment in ecotourism enterprises or in

⁵ The Village Council of Yupukari designates a maximum of twenty acres for each family to farm within the official land title. This figure is largely symbolic and not stringently policed, since no one family farms remotely close to that area of land.

⁶ Kokorite palm (*Attalea maripa*). Makushi name, *maripa ye'*. Fronds used for thatching houses.

retail in the nearby border town of Lethem or the city of Boa Vista in Brazil. Many young men migrate to the Gold Bush (Upper Mazaruni, Region 7) to work in gold and diamond mines for months at a time, before returning to their home communities with accumulated capital or purchased goods. The intergenerational rupture in socio-economic practices has resulted in a range of 'lost skills' associated with traditional Makushi life-ways, including farming, hunting, fishing, and craft-making (basket weaving for men and cotton spinning for women). Some elders blame the erosion of the traditional work ethic for the perceived slackening of traditional kinship structures and marriage practices, a sentiment expressed, for instance, by Uncle Joel in the following statement:

Young people don't know farming anymore. They don't know how to make arrow and bow. These are lost skills. They graduate from school and go straight to Brazil. Long ago, people didn't used to get married like Christians; they had no ceremony for marriage. The parents of the girl would approve of the man based on how many acres of farm he had. They would go and see your farm. You got to be a good hunt-man, a work-man, not a lazy man. Today, it has changed. If someone wants to marry your daughter, you don't question them, they don't need to be a farmer anymore.

- Joel Samuel | Yupukari, 2013

To a degree, the diversification of the local economy has been accompanied by a reduction in the centrality of subsistence farming. The incorporation of cash economy, wage labour, temporary labour-based migration, and mass-produced commodities into the indigenous economic system has lessened dependence on subsistence agriculture, fishing, and hunting. Commercially-produced rice, for instance, can be bought relatively cheaply at local village shops as an alternative carbohydrate source to cassava. It is, however, a complex socio-economic interaction. The small-scale influx of capital from wage labour

has brought with it the ability of some to purchase commodities such as outboard motors, motorcycles, and chainsaws, commodities which themselves are used in farming practice.

In order to assess the future of farming in the North Rupununi, it is imperative to understand the mythic past, as poetically recounted in mythological stories (*panton*).⁷ The embryonic ‘chaosmos’ from which the structure of the world emerged, referred to as the “beginning times” (*pia'ton*), is considered to be continuous – and in certain senses coeval with – the world of the present-day Makushi. Cosmological categories rooted in mythic history continue to frame aspects of horticultural praxis as it exists today (see below).⁸

3. 1. 1. The Origin of Cultivated Plants

Consider the following famous origin story, which describes how the multiplicity of crops cultivated by Makushi people came into being. There are many iterations of the story, the central narrative of which is common to all of the Kapon and Pemon peoples of the circum-Roraima region (e.g. Roth 1915: 144-5; Koch-Grünberg 1916: 33-38; Butt Colson 1989: 112-13). The creative nature of oral storytelling decrees that the story differs with each telling, although it retains the same general structure. The myth, which features the culture heroes Insikiron and his younger brother Anike,⁹ concerns the legendary food tree *wayaka ye'*, a towering arboreal presence which grew in the Pakaraima Mountains during the primordial epoch. A veritable cornucopia, the gigantic tree bore all kinds of fruits and vegetables: cassavas, yams, bananas, plantain, corn, pumpkin, mango, papaya, pineapple, even cotton and bina charm plants, along with all of their innumerable folk-varieties.

⁷ Makushi oral narratives include a significant number of “vocal sound effects” (Gell 1995: 240) to emphasise and illustrate the storylines. These include the calls of animals, such as the howler monkey, or the sounds of the weather, such as thunder. Storytelling is also rich in performative body language, containing distinctive forms of gesticulation and even dancing to emphasise the action.

⁸ Collections of myths of the Kapon and Pemon peoples can be found in Brett (1880), im Thurn (1883), Roth (1915), Koch-Grünberg (1916-24), Armellada (1964, 1973), Forte (1996b), and Amodio (1999).

⁹ Inskiron and Anike are the twin ancestral forces who, through various misdemeanours, created the constitution of the world during the beginning times (*pia'ton*). The brothers, the first human beings, were born of a union between the sun (*wei*) and the water (*tuna*). See also Butt Colson and Armellada on their Kapon (Akawaio) equivalents, Makunaima and Chikö (2001: 29).

m1. *Wayaka ye'*, or, the origin of cultivated plants

- Madelene Francis | Yupukari, 2012

Insikiron and his brother Anike had a pet agouti.¹⁰ Those brothers were very hungry, because they didn't have a farm or any crops to eat. Every morning the agouti would walk away, before coming back with big full belly. When the agouti came home, the children saw something white in his teeth. He had been eating cassava and banana.

The next morning the agouti wandered off again. The boys secretly followed him. The agouti walked through the forest to a giant tree called *wayaka ye'*. That tree had many branches, each bearing a different kind of fruit and vegetable. The tree bore all the types of cassava, paw paw, yams, potatoes, purple and sweet, all the types of cotton and bina plants. The agouti was eating fruits that had fallen from the tree.

The tree was too tall to climb to pick the crops. Insikiron and Anike were so hungry that they decided to cut the tree down. Those mischievous boys started to cut it down, chopping each side with axes (*waka*). After two days the huge tree fell. All the branches landed in different places, dropping the fruits and vegetables all across the landscape. Water started coming out from the tree stump. Plenty, plenty water poured out and flooded the landscape. Insikiron and Anike climbed up two tall awara palm trees to escape the flood.¹¹

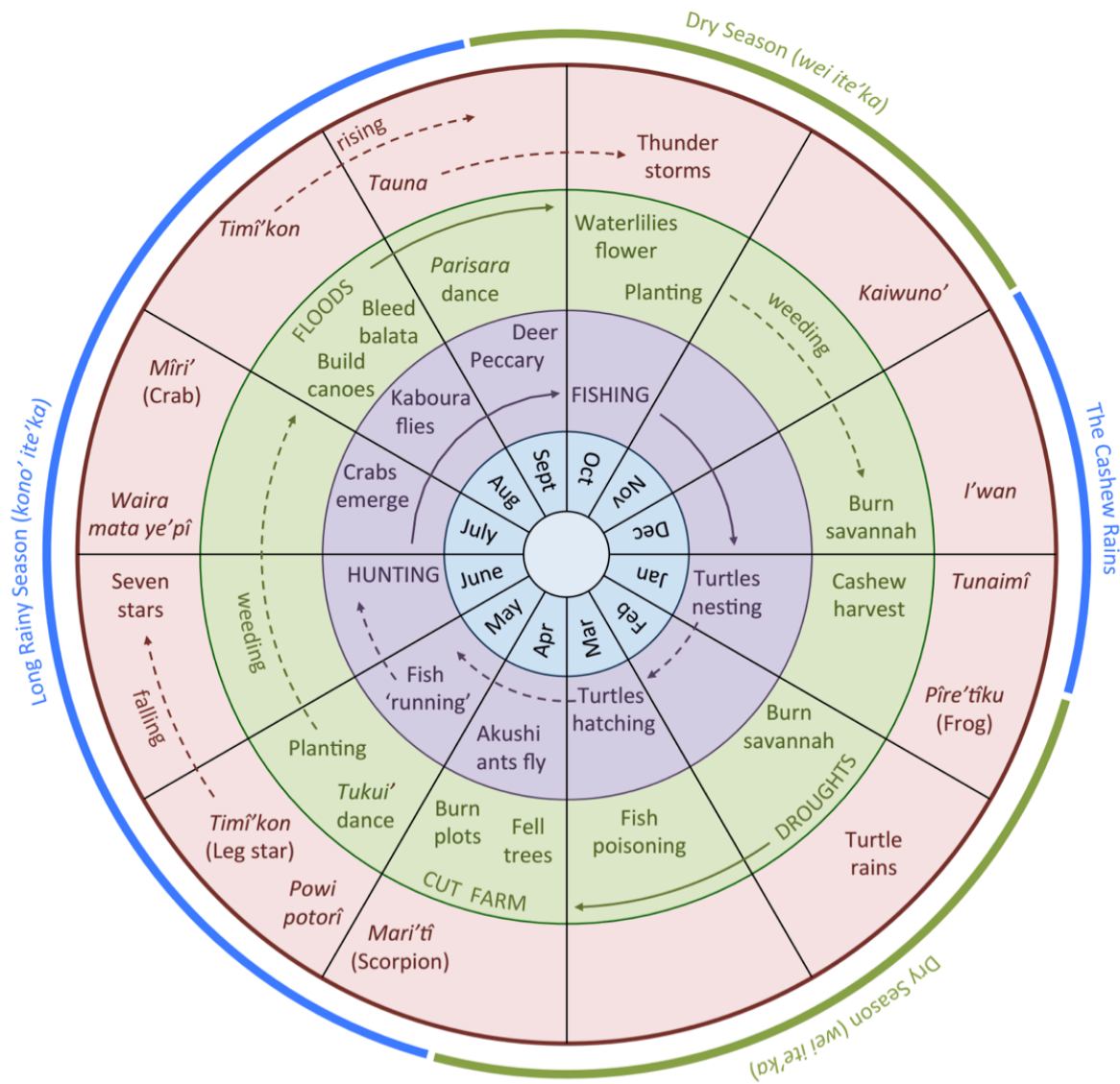
The water carried the fruits and vegetables all across the land. Everything started to grow by itself in the forest and savannah, bananas over here, cassava over there. One branch fell in the Pakaraima Mountains; that is why all the types of banana grow up there. Another branch fell in the Kanuku Mountains; that is why plenty of yams grow there. This is how we got all the different crops. The stump of that tree is now a huge mountain in the Pakaraimas.¹² Every Amerindian knows this story.

¹⁰ Red-rumped agouti (*Dasyprocta leporine*). Makushi name, *akuri*. The agouti is a common character in Makushi *panton*, being as it is the most common visitors to farms and a key prey species for hunters. The ecosemiotic significance of the agouti seems to be rooted in its salience as an ecological actor.

¹¹ Awara palm (*Astrocaryum vulgare*). Makushi name, *wara ye'*. Shoots used for plaiting *wiriwo'* fans.

¹² According to Robert Schomburgk's 1841 report, the mountain Waiaka-piapî, the "petrified tree stump", lies in the Roraima mountain range (Butt Colson 2009a: 140). Here, 'waiaka' refers to the tree of life, 'piapî' meaning stump. The narrow granite tepui resembles a huge tree stump.

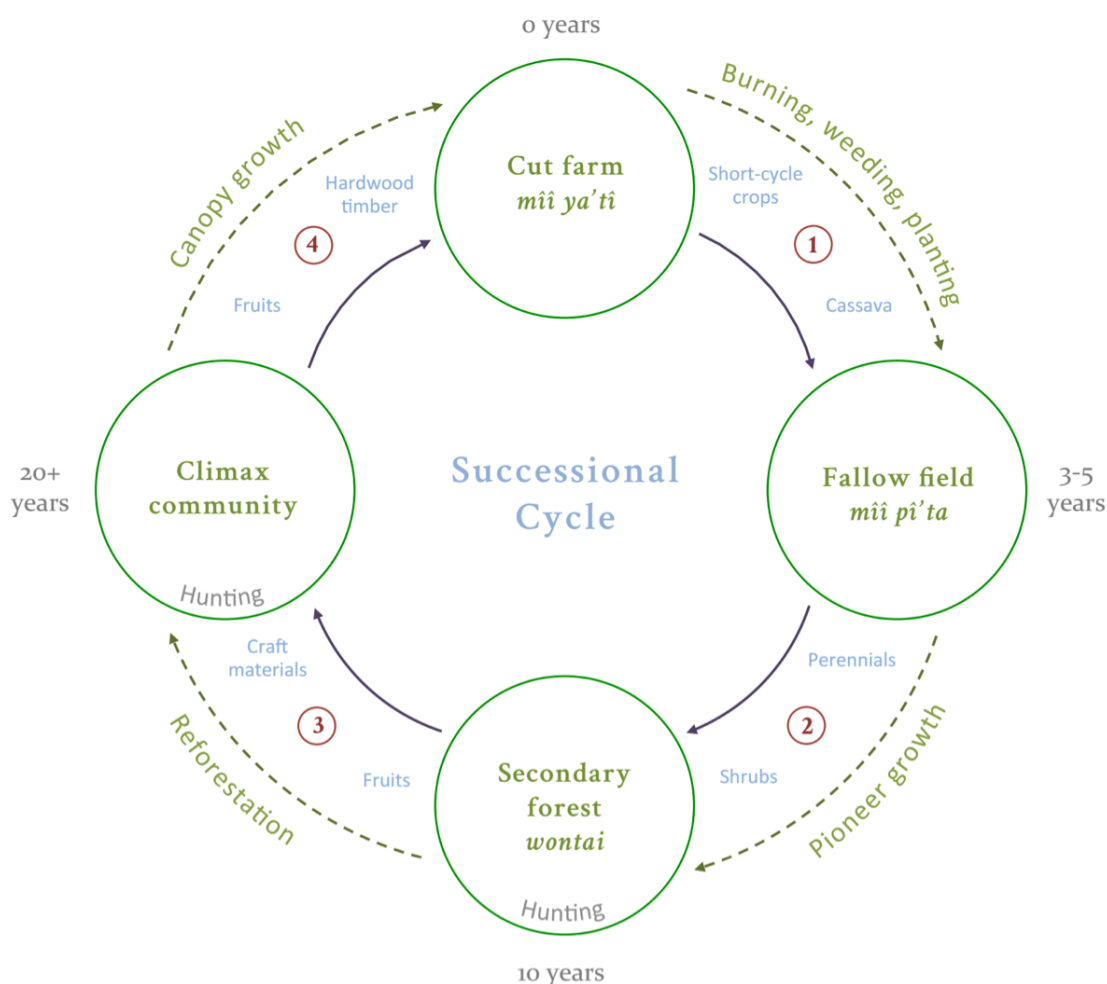
❖ Figure 4. The seasonal cycle.¹³



Nota bene. The single-year seasonal cycle must be situated relative to the multi-year successional cycle, as illustrated on the following page (Figure 5), which represents the process by which forest farms are cultivated, left as fallow, and reforested. Figure 6 shows the spatio-temporal pattern of shifting cultivation, whereby farmers alternate between forest farm sites in a cyclical sequence of soil exhaustion and regeneration. Taken together, Figures 4-6 illustrate the spatio-temporally dispersed system of agroforestry as practiced by the Makushi. See discussion below.

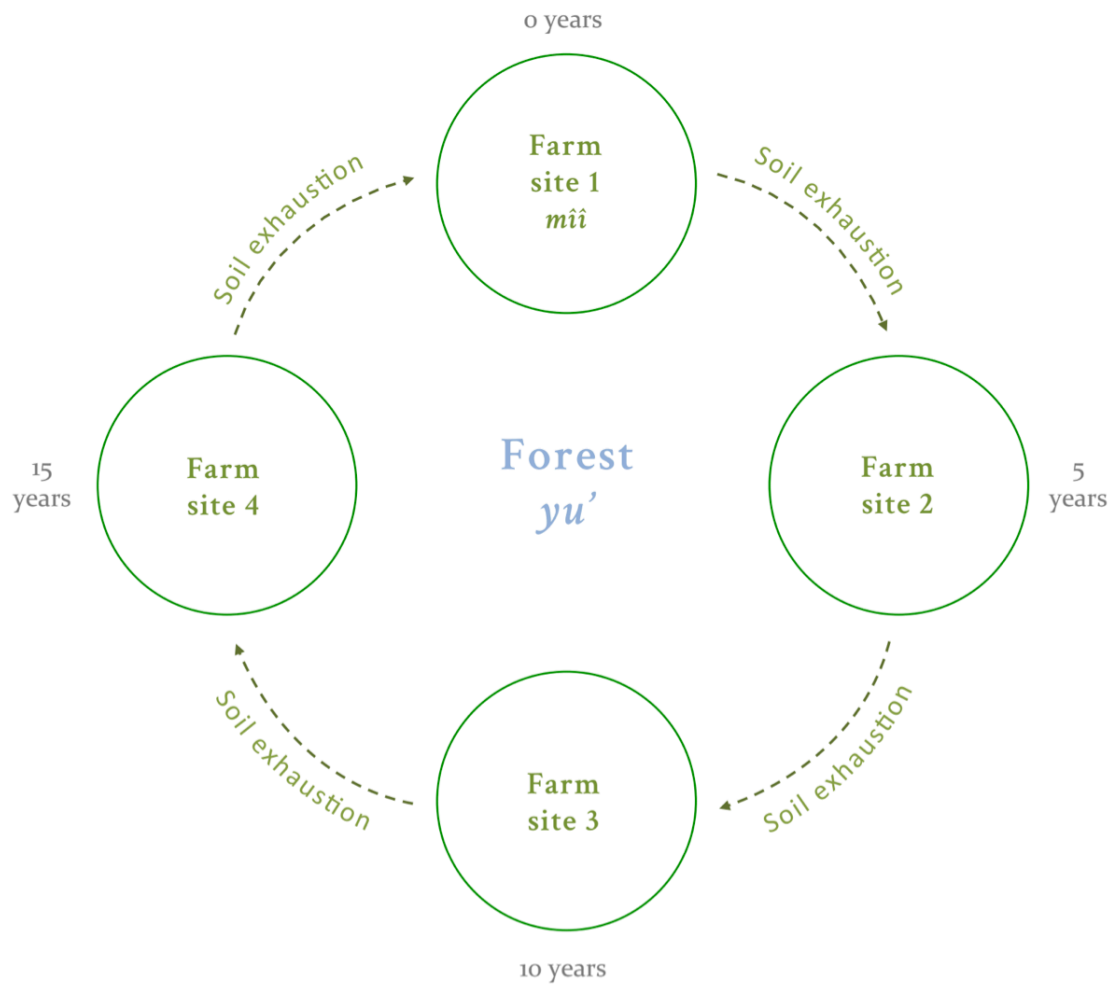
¹³ Diagram by the author, with stylistic elements from South Central and South Rupununi Districts Toshaos Council (2012: back cover). Astronomical information is derived from my own field data, Butt Colson and Armellada (2001), Koch-Grünberg (1916, II and III), and Roth (1924).

❖ Figure 5. The multi-year successional cycle



Phase	Dominant plants
1 [1-4 years]	Cultigens –> 60 species (see Appendix 1) – including bitter cassava, maize, banana, sweet cassava, yam, potato, pineapple, pumpkin, pepper, tobacco Non-cultigens – e.g. <i>Psidium</i> sp., <i>Desmodium</i> sp., <i>Mimosa</i> sp., <i>Solanum</i> sp., <i>Piper</i> sp., <i>Cnidocolus urens</i> , kapadula (<i>Davilla kunthii</i>), razorgrass (<i>Scleria</i> sp.)
2 [5-10 years]	Long-lived perennials – e.g. kokorite (<i>Attalea maripa</i>), papaya (<i>Carica papaya</i>), awara, kongo pump (<i>Cecropia</i> sp.), <i>Schefflera morototoni</i> , marishi (<i>Vismia</i> sp.), annatto (<i>Bixa orellana</i>), breadnut (<i>Brosimum alicastrum</i>), <i>Phthirusa stelis</i>
3 [11-20 years]	Trees, shrubs, bushes – e.g. genipap (<i>Genipa</i> sp.), whitey (<i>Inga</i> sp.), <i>Protium</i> sp., locust (<i>Hymenaea courbaril</i>), pariko (Myrtaceae), suckerberry (<i>Himatanthus</i> sp.), yari yari (<i>Duguetia pycnastera</i>), mango (<i>Mangifera</i> sp.), <i>Bauhinia</i> sp., lianas
4 [25 years +]	Hardwoods – purpleheart (<i>Peltogyne venosa</i>), buruhuda (<i>Parinari</i> sp.), silverballi (<i>Licaria</i> sp.), kabukalli (<i>Goupia glabra</i>), silk cotton (<i>Ceiba pentandra</i>), greenheart (<i>Chlorocardium rodiei</i>), bulletwood (<i>Manilkara bidentata</i>), mora (<i>Mora excelsa</i>)

❖ Figure 6. The system of shifting cultivation



Such formative events in the ‘beginning times’ – or *pia'ton* – are inscribed in the landscape, and are of influence in contemporary farming practices. For Makushi people, the forest itself is an historical-ecological artefact in the sense that it is conceived of as a mosaic of current and historical farming sites. On river trips, friends would often point out forest farms which, to my untrained eye, appeared indistinguishable from the rest of the dense bush adorning the river banks: here is the inlet where the Barnabus family have farmed for generations; this creek is used for access to the George family’s farming area; this exposed sandbank marks the end of Yupukari’s ancestral hunting grounds; and so on. This “landscape-memory” encodes not only recent historical events, but also events from

mythic-history.¹⁴ Over a period of time, I began to acquire an embodied understanding of the anthropogenic nature of the forest-scape and the acute spatio-temporal awareness that Makushi people have of it. Here, landscape is viewed as a dialectic between physical and social determinants (see Thornton 2008: 6-7). The landscape, in this frame, is a relational field constituted of biocultural interactions, rather than merely a physical space.

As historical ecologists have convincingly demonstrated, a significant proportion of the Amazonian forest-scape is in fact anthropogenic or “biocultural” in constitution (Denevan 1992; Balée 1993, 1994; Rival 1998a; Posey 2002). Large tracts of the tropical forest, previously considered to be undisturbed wilderness, have been revealed to be the products of sustained human activity over vast periods of time.¹⁵ Forests are extensively modified via the system of shifting cultivation practiced across Amazonia. Furthermore, as William Balée has argued, these anthropogenic forests may exhibit greater biodiversity than their uncultivated ‘virgin’ counterparts (1994: 249).¹⁶ This fluid “fashioning of the forest ecosystem”, by which human beings and other animals wittingly and unwittingly distribute seeds and other plant materials, has continued for millennia (Descola 2013: 42).

Makushi people often visit old farm sites (*mû pi'ta*) to utilise their resources. For instance, people harvest fruit from established fruit trees, which stand as living relics of previous generations of cultivators. These overgrown rectangles of secondary forest also form prime hunting sites, being said to attract more animals than the comparatively empty primary forest. Cultural memory remains attached to these “vegetational artefacts” (Rival 1998: 235) for generations, even as they become reclaimed by the voracity of the forest. The fact that fallows continue to be utilised for productive ends long after their cessation as farms “eliminates clear distinctions between field and fallow” (Denevan 1992: 374).

¹⁴ For one example among many, the shimmering granite rocks in the Rupununi River by the farming site of Aruwa Falls, exposed during the dry season, are said to be fallen ancestral warriors, slain in the ancient tribal wars that occurred between the Makushi and the raiding Caribs.

¹⁵ Balée has estimated that at least 12% of the Brazilian terra firme forest is anthropogenic (1993: 231).

¹⁶ According to Balée’s study of the Ka’apor of Maranhão, Brazil, “anthropogenic forests, produced by indigenous agroforestry practices of the past, represent net *increases* in plant biodiversity” (1993: 233).

On a broad spatio-temporal scale, the mosaic of savannah, secondary forest, and primary forest that characterises the anthropogenic landscape of the Rupununi must be understood as a product of a system of long-term agroforestry management by the Makushi and their ancestors. This system of land management and use stretches back in time for millennia.¹⁷

Prior to the establishment of the first permanent Anglican missions in the region around the turn of the twentieth century,¹⁸ Makushi people lived a more nomadic lifestyle typified by settlement dispersion and fragmentation. In the pre-Christian past there were no sedentary villages; instead, kin groups would periodically move between four or more shifting farm sites.¹⁹ Temporary settlements were typically located on or near to riverine waterways, which served as important transportation networks (Butt Colson 2009a: 188). This transient way of life is enshrined in cultural memory of the ancestral past, which is often compared favourably to the more sedentary “civilised” lifestyle of contemporary Amerindians. As Uncle Isaac once recounted to me, as we paddled to his farm:

Amerindians is children of the forest. We are the people who must protect the forest and our farms. Our ancestors did not know what a village was – they used to live in the forest and farm there. They would grow cassava, banana, yam, potato, all over the forest. Now, every household has its own farm. The school and church made people more sedentary; that’s why we formed villages like Yupukari.

- Isaac Rogers | Yupukari, 2013

The system of shifting cultivation that the Makushi practice today retains aspects of the traditional nomadic way of life. New farms are usually cleared on old fallow plots (*mîi pi'ta*). One family may alternate between three or four farm sites, cultivating one for

¹⁷ See, for instance, Plew (2005) and Rostain (2010) on land management in pre-Columbian Guyana. For a pertinent example from Mexico, see Ford and Nigh (2015) on the Maya Forest Garden, “a highly managed, anthropogenic landscape” resulting from the Mayan ‘milpa’ cycle of land use (2009: 216).

¹⁸ The first permanent Anglican mission in the North Rupununi was established by the Reverend James Williams in Yupukari in 1907 (Williams 1932). See Introduction, sections 1. 2. and 1. 3. 1.

¹⁹ See Rivière (1984: 10); Cary-Elwes in Bridges (1985: xiii); Santilli (1997: 99).

four years, before moving to the next site for the same duration, and moving back again to the original fallow. Via the process of ecological succession over the course of fifteen to twenty years, abandoned farms become colonised first with pioneer flora such as kokorite palms (*maripa ye'*), papaya, and kongo pump trees (*kumai ye'*)²⁰ before young hardwoods take root. Each exhausted plot is left to regenerate for 15-20 years before it is reused once the secondary growth has enriched the soil (see Figures 5 and 6, above). Old fallow sites are preferred for farms, as the secondary forest (*wontai*) is much more easily cleared than primary forest populated by established hardwood trees.

At any given point in time, a family will cultivate two or more farms – one close to the village, for ease of access, and one further away in the more fertile forest (*yu'*). The choice of forest farm site is influenced by a range of seasonal and geographical factors:

People normally have more than one farm. We have a farm close by the village, but that area is wetlands – it will flood in the wet season and rot all the cassava. So we also need a farm in the highlands for the rainy season. When the waters are high we prospect the land to find islands.

- Joseph Edwards | Rewa 2013

A freshly cleared farm can be expected to last for between three and five years, depending on the initial soil quality and type. As the soil (*non*) becomes exhausted with each subsequent crop, the size and yield of cassava roots begins to diminish. The farmer must make a calculated decision as to when the diminishing returns of crop yield warrants the considerable labour of clearing a new farm. When choosing a new farm site a number of important pedological, topographic, ecological, and social considerations come into play. Of primary importance is soil type. The fine sandy soil (*kasapan*) in the savannah is inferior for cultivating, as it contains fewer nutrients and is also amenable to over-heating

²⁰ Kongo pump tree (*Cecropia* sp.), *kumai ye'*. Leaves used as a remedy to assist in childbirth.

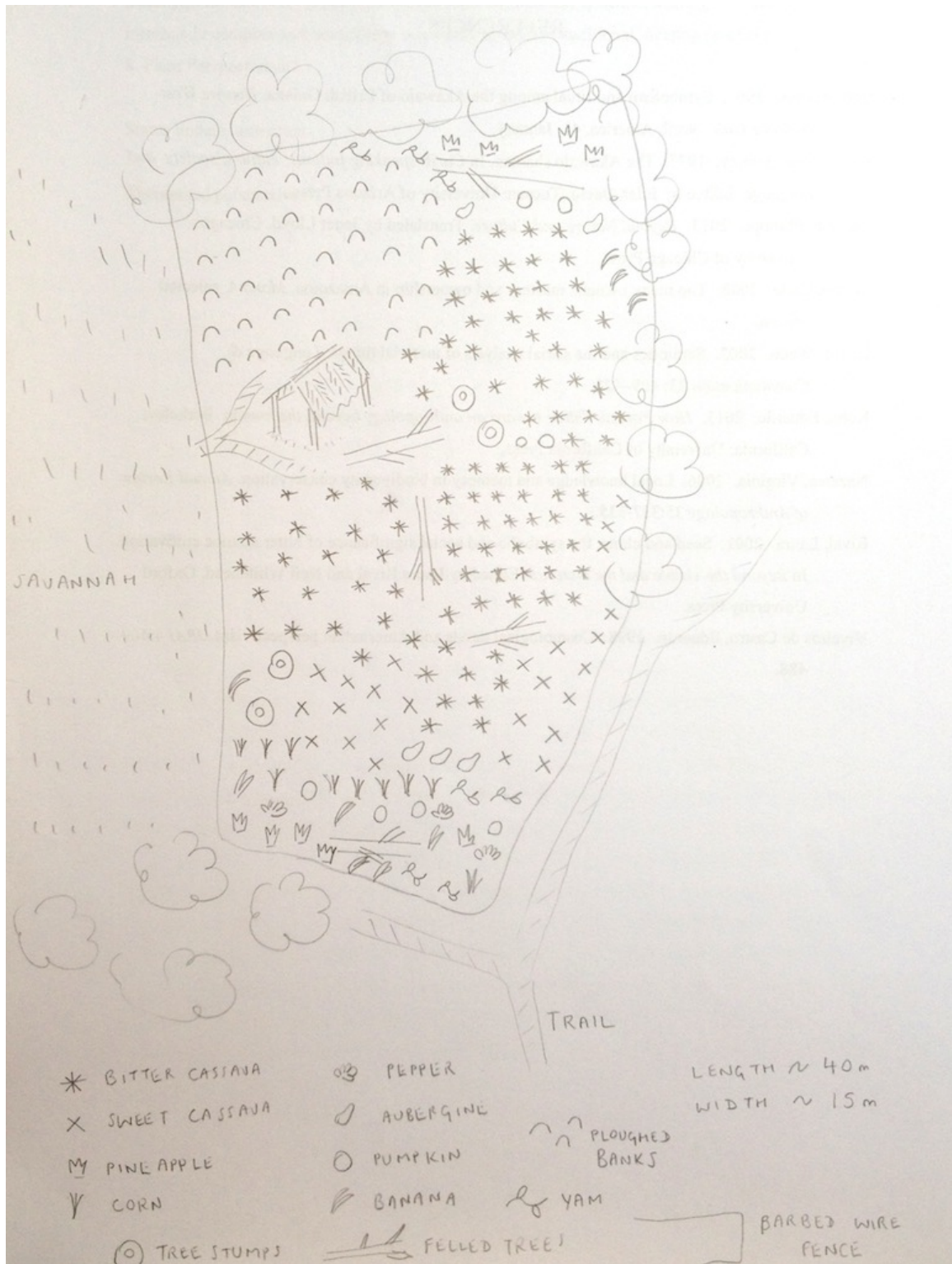
in the hot sun. Unlike the preferred gravelly laterite soil (*mîri*'), sandy soils provide poor drainage. Overheating and water retention are deemed to damage the roots of cassava and other crops. Farmers also consider the elevation, gradient, and drainage of the site. It is preferable to farm in a well-drained area located above the high water level, to avoid risk of flooding during the long rainy season. Kinship also plays an important social role in determining location: farms are usually situated in kin-based clusters. A conjugal couple will typically clear their first farm adjacent to that of their matrilineal unit. Thus, farming lands gain an ancestral character over generations of kin-based locality.

The geographical and ecological locus of any given village in part determines the parameters of its agricultural practice. Most Makushi villages, including Yupukari, are situated in the forest-savannah ecotone, so that people can live and ranch in the savannah (*etei*) and farm in the gallery forests (*wontai*) nearby. Villages located in the high forest (*yu*'), such as Rewa, are likely to have an abundance of fertile forested territory in which to farm, but do not practice ranching owing to the lack of grassland for grazing. Villages in the savannah typically rely on bush islands of a limited size for farming. As a result of increasing land pressures, farmers in savannah communities may cultivate savannah plots (*etei mîi*) or ité palm swamp plots (*ena'pon*)²¹ to supplement their distant forest farms.

In sum, the seasonal cycle must be situated relative to the multi-year successional cycle to achieve a complete picture of Makushi agroforestry management. The spatial and temporal dimensions of this system of shifting cultivation extend far beyond the village and the annual cycle. Farming lands may be located as far as thirty miles away from the village, and the evolutionary sequence of farm to swidden to forest to farm continues to repeat over many generations, shaping the living landscape all the while. Farming, for the Makushi, is a spatio-temporally dispersed process of landscape transformation.

²¹ Ité palm (*Mauritia flexuosa*). Makushi name, *kuwai ye*'. Fronds used for thatching houses. Fresh shoots are used as the raw material to manufacture *tibisiri*, a fine fibre used in basketry and crafts.

❖ Figure 7. Sketch-map of Jose's farm, from my notes



N.b. Strategic mixed intercropping of sweet cassava, corn, pineapple, pumpkin, banana, yam, pepper, and aubergine crops in the southern and northeast sections of the farm. Certain non-planted seedlings are also allowed to grow between the cultivated crops and felled tree trunks.

3. 2. The Personhood of Crops

In Makushi eco-cosmology, the plant kingdom is composed of social beings. The plethora of nonhuman actors with whom humans share the farm-space are themselves understood to be sentient subjects with the capacity for interspecies communication. Makushi people – to invoke Thomas Sebeok – conceptualise and represent “the vast domain of gardens as major nonverbal semiotic constructs” (1994: 20). In this frame, crop plants are thought of as sign-transmitting selves exhibiting a form of nonhuman personhood. As “people”, they are routinely spoken to and about in subjective terms. Through the intimate and nurturing acts of tending to their crops, farmers form enduring relations with them – relations which are conceived of as consanguineal bonds akin to those between parent and child. Farmers refer to their plants as “children” (*more yamî*), and speak to them in familiar tones while planting and weeding in order to keep them “happy”. The crops, too, speak back – usually via the medium of dreams (*we’ne*), in which their spirits appear as “persons” with the capacity for speech. As Junita Samuel, a Wapishana denizen of Yupukari, once told me, “plants will *dream you*, to tell you if they is happy. You will see them in your dreams”.

Gardeners draw parallels between the bodily movements and worldly sensitivities of cassava plants and the kinetic movements of human bodies: for instance, the swaying of leaves in the wind (*a’situn*) is described as the plants “waving”. Similarly, the rustle of leaves is often likened to whispering. As Junita once told me, “you can *hear* the cassava plants talking”. ‘Plant-whispering’ is typically represented with vocal effects, as follows:

shhh-shhh-shhhh – shhh-shhh-shhh

In Makushi theories of life, then, plants exhibit phenomenal awareness and multisensory perceptual capacities: they perceive and interact with their environments. Like humans,

plants can sense their surroundings, and it is via these shared multi-sensory pathways that plant-beings and human-beings communicate. ‘Everyday’ human-vegetal communication may be considered to be of a *second-order* type: cultivators observe the movements and actions of plants over time, and glean aspects of their well-being from temporally drawn-out changes. For instance, if a planted seedling starts to wither owing to a lack of water, it might be deemed to be “unhappy”. This communication is not based on dialogue; rather, it is based on the interpretation of a series of other-than-linguistic signals. In this sense, it accords with what Haraway has called “non-linguistic embodied communication” (2008: 27). Direct *first-order* dialogue with plants can only be achieved in dreams (*we’ne*), by reciting incantations (*taren*) or songs, or by engaging in shamanic visions and soul-flight. The shaman (*pia’san*) has the specialised capacity to act as a cross-species translator by directly mediating between the spiritual subjectivity of humans and plants. It is said that he can enter a garden and engage in dialogue with the crops – Aunty Flora once told me, “the piaiman sees them plants as people, now; he talks to them just like people”.²²

Under normal conditions, then, human beings can only speak to plants in dreams, by reciting incantations (*taren*), by singing charm songs (*eremu*), or engaging in shamanic soul-flight. Human beings and plants have very different bodies, and are thus confronted with physical barriers when trying to communicate. A human cannot speak with a genipa tree, since it neither possesses a voice-box nor ears, and thus can neither create nor detect human-like vocal sounds. Different species, therefore, speak different “body-languages”. However, they do have the same vital spirit – *ekaton* – and thus inter-species dialogue can occur via ‘spiritual’ channels. This idea accords with Descola’s (1994) notion of “soul speech”. Of the Achuar, he writes that “intersubjectivity can be expressed by speech from the soul, which transcends all linguistic barriers and transforms every plant and animal into a subject capable of producing meaning” (1994: 99). In short, different kinds of

²² For the shaman, the field of multispecies sociality is directly accessible. To him, the living world of animals and plants appears as a society of persons. See Chapter 7 on shaman-plant communication.

beings can only communicate with one another via the medium of their souls, rather than via their physiological bodies. This must be facilitated using specialised techniques. Soul-speech, the metalanguage by which humans and nonhumans can overcome “the material constraints of speech” (Ibid: 99), accords with what I have termed ‘first-order dialogue’. Dreams, spells, songs, and shamanic chants are all channels for cross-species soul-speech.

In contexts of both first-order and second-order human-vegetal dialogue, the plant assumes the position of Peircian “thirdness” (1940: 101): it is the “interpretant” of signs transmitted by its human cultivator. Here, the plant is the interpreting ‘self’, forming the “third” element in the triadic semiotic knot. Put simply, in Makushi ethnoecology, plants both transmit signs to humans and interpret signs transmitted by humans.

The social relation between cultivator and crop is not simply bi-directional; it is complicated by virtue of a third relation with a powerful farm-dwelling spirit known as Cassava Mama (*kísera yun*), the tutelary spirit of cassava plants. Cassava Mama governs and protects crops, whilst embodying them as an owner (*esak*).²³ By inculcating fecundity in the farm space, the mistress spirit encourages the growth and reproduction of cultivated plants.²⁴ However, Cassava Mama is an ambiguous presence, being capable of inflicting harm upon cultivators as well as encouraging the growth of their crops. It is warned that people should not visit farms when in a state of ill health, for the cassava spirit will injure those that do so as a punishment: the spirit will “lash” the perpetrator, imparting a whip-like blow which leaves no physiological trace but induces a spiritual malaise. One woman from Rewa described to me how, as a young girl, her grandmother would tell her, “don’t go to the farm when you are sick”. One day, however, she had a bad toothache and went

²³ According to Audrey Colson, the Pemon used to refer to the Mistress of Cassava as ‘*Akuwamari*’ (personal communication, May 2012). I asked my Makushi collaborators about this name on multiple occasions, but it is no longer recognised, nor held in cultural memory. Today, only the Creole term ‘Cassava Mama’ is used, or the literal Makushi translation *kísera yun* (‘cassava parent’). ‘Mama’ is the standard Creole translation of owner spirit – e.g. Cassava Mama; Watermama (*cf.* Roth 1915: 154).

²⁴ In Amazonia, gardens and farms are commonly populated by master spirits that facilitate the growth of cultivated plants. For a few examples, see Descola (1996b: 213-14) on Nunki, the Achuar guardian spirit of cassava plants, Kopenawa and Albert (2013: 146-48) on Yanomami garden spirits (*xapiri*), and Laura Mentore (2012) on the Cassava Spirit in Waiwai cassava cultivation.

to dig cassava. After returning home, she developed an abscess in her mouth and suffered agonising pain for a week. “That is because Cassava Mama had lashed me”, she said. In severe instances, the cassava mistress may co-opt the human soul (*ekaton*) entirely, which in times of illness is only tentatively attached to the corporeal element of the person – the flesh (*pun*). Once soulless, the human body, incomplete, will wither and die (*emo’ka*).

It is thus in the interest of human farmers to propitiate the cassava spirit in order to maintain an amicable relationship that benefits the fertility and productivity of their crops. Farmers talk to the Cassava Mama while planting cassava cuttings, asking for its goodwill and assistance.²⁵ Some sing esoteric charm songs to the spirit. Offerings may also be made: *parakari* blessed with ritual spells (*taren*) can be poured over the cuttings and ploughed banks, in tribute to the mistress spirit. A particular type of bina charm plant (*kîsera murani*) can also be used to increase fertility in the farm-space.²⁶ The grass-like plant is planted in amongst the banks, and functions by attracting the cassava spirit to the farm. In extreme instances such as crop-devastating drought or flood, the shaman can be enlisted to commune directly with Cassava Mama, asking for her favour.²⁷

Horticultural productivity, in essence, is predicated upon a harmonious three-way relationship between human cultivators, their cassava plants, and the mistress spirit of crops. This triangle is built upon a series of relations of parenthood: like parents, human cultivators nurture and care for their crop “children”, whilst Cassava Mama exerts control over both the cassava plants and human cultivators. The horticultural matrix, of course, also incorporates the agency of many other living beings, including birds, insects, reptiles, and mammals, not to mention the diversity of spirits that inhabit the forest (see below).

²⁵ According to Audrey Butt Colson, the Akawaio of the 1950s spoke of a feminine “cassava stick spirit” (*kîsera yekaton*) who resides in the toxic juice of the cassava stalks. The juice, a silvery liquid, is referred to using the word ‘siluba’, from the English. Silver is associated with the colour white (*aimutun*) and, by analogy, with *a’ka* – the bright white light emitted from the sun (*wei*), which infuses the cosmos with energy (Audrey Butt Colson, personal communication, April 2015). The Makushi today are not familiar with any such spirit, and make reference only to the Cassava Mama spirit.

²⁶ Cassava bina (*Eleutherine bulbosa*).

²⁷ See Chapters 4, on cassava cultivation, and 7, on shamanism.



A family cutting a new farm plot | Yupukari, 2013



Burning a new farm plot | Yupukari, 2013

3. 3. Horticultural Techniques

Agricultural practice can be usefully thought of as a system of socio-technical activities (e.g. Lansing 2006, Coupaye 2013).²⁸ From clearing a farm to planting banks of cassava, from deterring mammalian crop pests to invoking fertility-inducing spirits, farming praxis requires the mastery of a body of techniques and the acquisition of skill-based knowledge. This process of embodied learning occurs through practice: children begin to assist with agricultural labour from an early age, acquiring the necessary skills from their parents and grandparents. Horticultural techniques span the multi-year successional cycle, and include such acts as clearing, burning, planting, weeding, intercropping, and harvesting.

Farms can be cleared at any point during the dry season, but ideally this is done in late April, prior to the commencement of the long rainy season (May until September). This ensures the young crops receive ample water, as Jose described to me:

It is best to plant cassava before the rainy season. The plants grow better when there is more water – they grow faster, and have bigger roots. That’s why you see people cutting farm and planting before mid-April.

- Jose George | Yupukari 2013

Clearing a new farm plot (*mî ya ’tî*) is a labour-intensive undertaking. Known as ‘cutting farm’ in Creolese,²⁹ this process requires the recruitment of labour from kin and the wider community, with extended family, neighbours, and friends all being invited to help. After identifying and demarcating a new farm plot, the conjugal pair will begin to manufacture a large batch of the fermented cassava beverage *parakari*, or its non-alcoholic equivalent *wo’*. These cassava drinks are used as the chief incentive in a system of communal labour

²⁸ See Pfaffenberger (1992) on productive activities as ‘socio-technical systems’.

²⁹ “Cutting farm” here referring to the primary technique used to clear the plot: literally ‘cutting’ (verb, *ya ’tî*) the underbrush and secondary growth with a machete (*supara*) or axe (*waka*).

known as *mayu*.³⁰ *Mayu*, or collective work, is predicated upon an ethic of “helping each other out”: the family offer fermented drinks and cooked food such as pepper pot (*tuma*) to their fellow villagers in return for physical labour. *Mayu* is a social event; people like to socialise, drink, chat, and work. As Tom Griffiths has written, “co-operative labour is a potent form of social bonding in which festive work groups form animated *communitas*” (2001: 248). Co-workers form lasting emotive bonds in the social experience of working together, which in turn contributes to social cohesion and the formation of a group ethic.

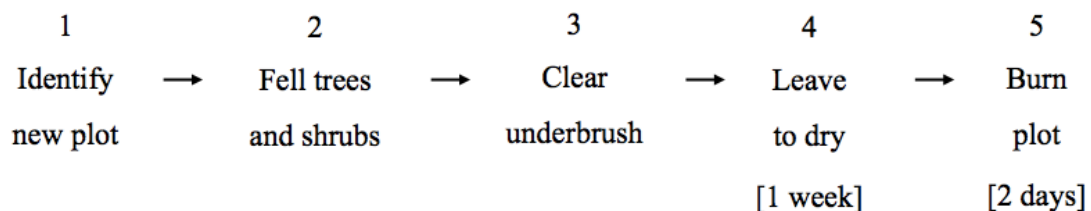
Although most agricultural labour is divided equally between husband and wife, cutting farm is an exclusively male activity. Over the course of a few days, the farmer and his helpers will enter the site and fell the majority of the trees with axes (*waka*) or a communal chainsaw. A few shade or fruit trees may be left on the peripheries of the plot, depending on the preferences of the farmer. Underbrush is cleared using steel machetes (*supara*). Strewn around the stumps of felled trees, the macerated plant matter is left to dry in the sun for around a week. Any useful timber may be taken away for future use; for instance, the trunks of young hardwood trees such as purpleheart, mahu, or pariko may be used as posts for housing or fencing. Once the vegetation has fully dried, it is ready to be burned. After being lit, the fire is allowed to burn until its natural cessation a day or two later. After the fire has died out, the entire plot will be naturally cleared of obstacles and covered in a thick layer of ash. The process of burning introduces essential nutrients into the soil and is understood to significantly increase the fertility of the farm.

Once the swidden plot has been burned, it must be planted. First, any charred tree stumps are dug out to create a level soil surface for planting. Next, the layer of nutrient-rich white-grey ash that covers the newly-burned plot must be worked into the soil using a hoe or mattock (*sanpa*). These implements, constructed of a metal blade attached to a hard wood handle, are used to till the soil and plough banks for planting. As relatively

³⁰ Also referred to locally as *manur*, the Wapishana term. The neighbouring Patamona (Kapon) people use the term *kayap* for communal labour (Oda Almás, personal communication, April 2015). See Chapter 5 on fermentation for further discussion of communal labour.

scarce commodities, agricultural tools including hoes, mattocks, axes, and cutlasses are often shared between kin or neighbours. Cassava soil banks (*kise imun*, literally, ‘cassava hills’) take the form of domed mounds approximately half a metre in diameter and twenty centimetres in height. Natural furrows or trenches separate the circular banks. Banks are constructed using a common technique: standing over the soil, the user of the hoe swings the blade, forcing it into the ground with a downward chopping action before drawing it back toward themselves. This action serves to both loosen the soil and form the shape of the bank by piling the soil into a mound. Owing to this technique, banks usually have one natural planting surface, into which the cassava cuttings are planted at an angle of roughly forty-five degrees, consistent with the angled plane of the soil surface.

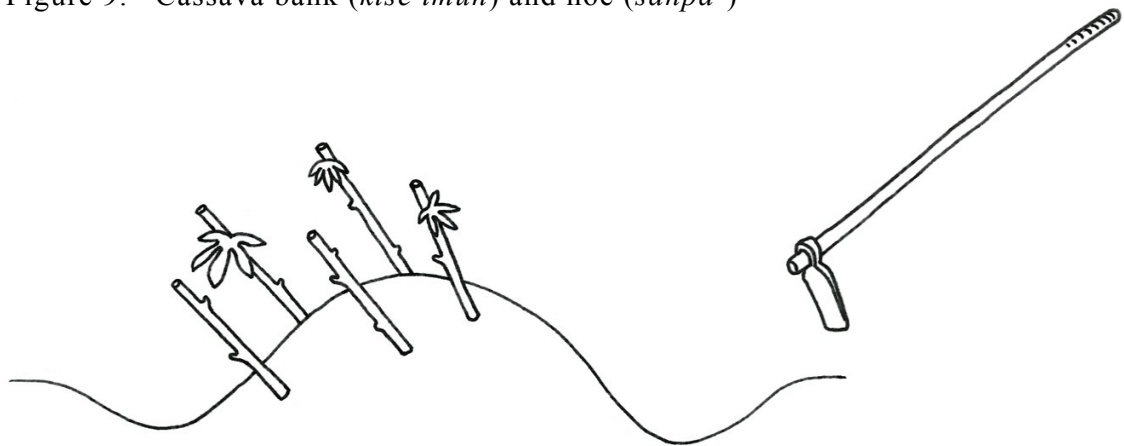
❖ Figure 8. Basic operational sequence for clearing a farm (*mîi ya’tî*)



The rapid rate of plant growth in the equatorial neotropics requires that farms and gardens must be frequently weeded (*naa*, verb. to weed). An array of seedlings begins to shoot up from the nutrient-rich soil of a newly burned farm. As intercropped spaces in which many life-forms intermingle, the growth of non-cultivated plants is permitted to a certain degree. Seedlings of fruit trees such as whitey, jamun, genip, or genipap may be identified and allowed to grow, for their future fruit-bearing potential. Volunteer cassava seedlings (*tai’purro piye’*) are often left to grow into mature plants, whereupon they will

be chopped into cuttings and replanted like their planted counterparts.³¹ Craft materials, too, may be allowed to grow if they take root. Other weeds are valued for their nitrogen-fixing potential, such as the sensitive “sleep plants” (*Mimosa* sp.), or for their capacity as natural insecticides, as with ground-covering “sweethearts” (*Desmodium* sp.). However, most weeds are removed before they grow large enough to compete with crops for water, light, and nutrients. In the early stage of the growing season, weeds are removed both by hand and by hoe, depending on how established they have become. Later in the season, once the maturing cassava trees have spread their thick foliage into a light-monopolising canopy, ground-level weeds become less of a problem.

❖ Figure 9. Cassava bank (*kîse imun*) and hoe (*sanpa'*)



The nature of horticultural practice is such that a number of technical activities may be conducted simultaneously. During any one visit to the farm, the farmer may plant some new cassava sticks or yam saplings, weed out any unwanted invasive plants, collect firewood (*keme*), and harvest some crops to bring back to the homestead for processing. The farm as a diverse space is designed so as to maximise continuity of food provision. The maturation of crops in any given farm is defined by a strategic temporal dispersion.

³¹ Farmers report that, after burning a new farm in an old fallow plot, cassava seedlings will begin to grow in the scorched earth. The heat from the fire (*apo'*) activates the germination of old cassava seeds (*kîsera ena'pî*) buried in the soil, which may have been lying dormant for years.

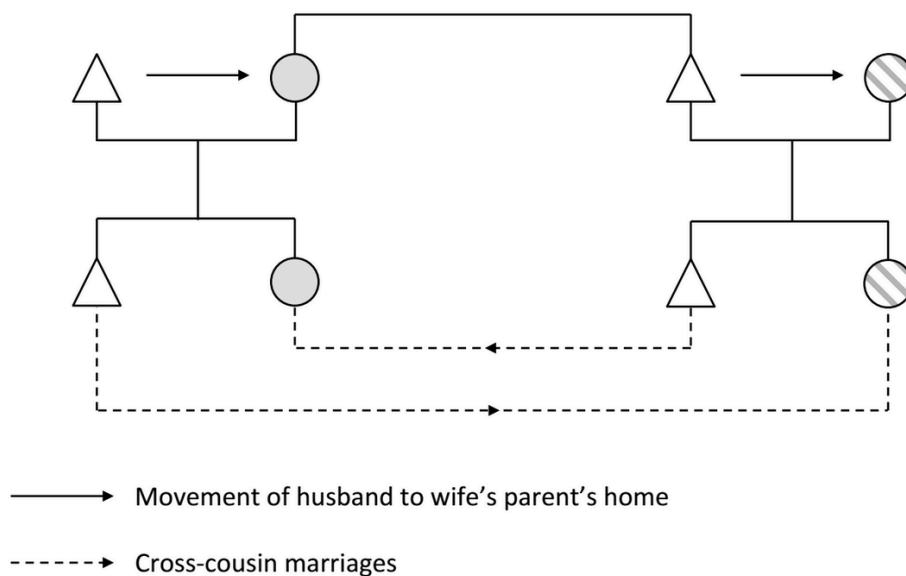
Crops are planted at varying intervals in a staggered fashion, so that at any given point in time some plants are mature enough to be harvested. This ensures the availability of food throughout the seasonal round. Farmers have an acute awareness of the maturation rates of crops, and plant accordingly so as to ensure there is always a partial yield available.

Although at times an individual pursuit, gardening is, for the most part, a social activity conducted with others. Farms and gardens as social spaces might be imagined as agro-spatial manifestations of the nuclear family and the domestic unit. Husband (*nyo*), wife (*no'pi*), children (*more yami'*), and the extended family all work together in farms, collecting firewood, ploughing banks, weeding, or harvesting crops. From elders to young mothers breast-feeding babies, it is not uncommon to see three or four generations of the same family gathered in the lean-to in the centre of their farm. The strain of horticultural labour is lightened by the convivial atmosphere that accompanies it: people collectively eat, drink, gossip, tell stories, and sleep in their farms. In this sense, the tangible products of agricultural labour – namely, crops – might be envisaged as bundles of social relations in vegetable form. The sociality of farming also has a deep temporal dimension. Farms are imbued with cultural memory and historical meaning; in this sense, they might be imagined as “fields of memories”, to borrow Virginia Nazarea’s poetic phrase (1996: 1).

Although the horticultural division of labour is gendered to a degree, practically speaking agriculture is a relatively gender-equal affair. Men and women together conduct the majority of farm work. Activities such as ploughing banks, planting cassava cuttings, harvesting roots, and weeding can be undertaken by husband or wife – and are frequently undertaken by both together. Symbolically, however, planting and tending to crops are seen as female activities. Clearing a new farm, conversely, is predominantly undertaken by men: the husband will enlist the assistance of other men from the village to conduct communal work (*mayu*). However, the work of women is still integral to this stage of the agricultural process. As mentioned above, *parakari* is the primary social incentive for

participation in *mayu*. Further, as a carbohydrate-rich drink, it serves to fuel the labour-intensive work: it is conceived of as an energising elixir that makes agricultural labour possible. And as an alcoholic beverage, *parakari* also serves to fuel the spirit of jovial sociality and conviviality that defines co-operative labour.³² Practically and symbolically, processing cassava and brewing *parakari* form women's work. Although men may assist their spouses, the complex and laborious process of manufacturing this culturally-pivotal drink is dominated by women. Thus, the male-centric act of cutting farm is made possible by the somatically and socially energising substance created via women's labour.

❖ Figure 10. The traditional kinship system of matrilocal residence.³³



There is an important kin-based aspect to the division of farming labour. Children are expected to assist their parents in agricultural work, by helping out with the planting, weeding, and harvesting. Daughters (*yensi*) may assist with cassava processing, whilst

³² See Chapter 5 on fermentation.

³³ Diagram by the author, adapted from Butt Colson (2009: 220). Makushi kinship terminology is of the Dravidian type, which is universal to Guianese Amerindian groups (Overing-Kaplan 1981: 160).

sons (*munmu*) help their fathers in heavy agricultural labour such as clearing and burning new swidden plots. The incorporation of affines into the family unit also plays a crucial role in shaping the constitution of farming practice. In the traditional system of matrilineal post-marital residence, the husband would move to the village of his wife, initially living with her family for a number of months (cf. Farabee 1924: 15).³⁴ During this period of co-residence, the new son-in-law would be expected to contribute his brideservice labour to productive activities. After this period of brideservice, the son-in-law (*payun*) would be permitted to build a house and cut a new farm adjacent to that of his father- (*yawo*) and mother-in-law (*yawo 'pî*).³⁵ As a consequence, farms are usually situated in kinship-based clusters. To some extent, this system still exists today; however, owing to the increasing trend toward temporary migration to the Gold Bush and Brazil, the cultural centrality of the traditional farming model is perceived by many to be under threat. Upon marriage, the tendency of many young men to seek paid work in gold mines or industrial farms rather than conduct brideservice labour and cut their own farms has had a direct impact on the transmission of agricultural knowledge and skills. As mentioned, elders express concern regarding the perceived inability of the younger generations to farm, itself a highly skilled activity that must be learned through continual practice and apprenticeship.

Makushi horticulture is characterised by social exchange networks in which crop landraces form the prime vegetative currency. Cultivators regularly swap cultivated plants with one another, most commonly the innumerable varieties of bitter cassava (*kîsera*), but also other crops such as yam (*karisa*), potato (*sa*), and corn (*a'nai*), as well as ornamental plants and bina charm plants (*muran*). These networks are predicated upon a horticultural ethic of experimentation and acquisition; gardeners say that they simply like to acquire

³⁴ Matrilineality was a defining feature of the cognatic kinship system found across the Guianas. Rivière (1984) has characterised Guianese societies as expressing a preference for “marrying close”, wherein the village is imagined as “a consanguineal unified and solidary whole” (1984: 32). See also Overing-Kaplan (1981: 160). In the pre-Christian period, sororal polygyny was common among the Kapon and Pemon, a system of alliance in which a man would marry two sisters (Butt Colson 1998: 118).

³⁵ In Makushi, the cognatic family group is referred to as *yonpa*, a term also used for ‘relative’.

new varieties of crop for aesthetic reasons. Plant exchange also serves to strengthen social relations between actors within these extended human-crop matrices. When visiting the farm of a family member or neighbour, a farmer may notice a variety of plant that they do not currently cultivate and ask if they can take a stem cutting. There is no requirement to immediately reciprocate on the part of the recipient; rather, at some undefined point in the future, the donor may pass through his farm and take a cutting in return. In this sense, this form of exchange accords with Sahlins' mode of 'generalised reciprocity' (1972: 194-95). Human-plant exchange networks are spread out across space geographically and through time across generations: as such, I refer to them as *spatio-temporal networks of exchange*.



Jose ploughing cassava banks in his newly burned farm | Yupukari 2013

3. 4. Forest Masters

Forest farms are dynamic spaces of inter-species engagement and cohabitation. Through the experience of being in a farm, one is left with the vivid impression of a vibrant world in which organic life interacts at all levels. Makushi farmers have a deep understanding of the life processes and symbiotic interdependencies of plants, animals, and fungi. Certain species of animal are actively encouraged into the farm, such as seed dispersing birds and pollinating insects, whilst others are deterred, such as mammalian crop pests including the agouti and labba. Not only must farmers manage the agency of animal and plant visitors, they must also oversee the presence of the multitude of “unseen spirits” that frequent the sylvan domain. Collectively referred to as *imawari*, these forest spirits exercise perpetual influence over human behaviour and productivity in the agroecological domain.³⁶

The following data on forest spirits (*imawari*) and game masters (*tamona*) derive from primary research conducted in Yupukari and Rewa during the period 2012-13. Any further information from secondary sources is referenced in the text and in footnotes. Butt Colson (1989) and Butt Colson and Armellada (1990) have published on similar themes among the Akawaio and Pemon; any convergences in the data are drawn out in the text.³⁷

The *imawari* spirits populate the forest and determine the dynamics of the sylvan ecosystem. As well as designating a specific environmental sphere – the forest – *imawari* also refers to a general category, which Butt Colson translates as ‘nature spirits’ or ‘forces of nature’ (2009a: 202).³⁸ As the most powerful forces in the environment, the *imawari* constitute the shaman’s primary allied spirits. As one elderly Yupukarian informed me:³⁹

³⁶ Dangerous forest spirits include *mariwa*’ (tree spirit) and *tipon* (bat spirit). See Appendix 7.

³⁷ Similar findings have been described by earlier anthropologists, including Roth (1915), Koch-Grünberg (1923, III), Butt Colson and Armellada (1990), and Forte (1996b) – although with certain ethnographic differences. These divergences are highlighted in the text.

³⁸ In fact, Butt Colson and Armellada go so far to state that “in its most comprehensive sense *imawari* might be glossed as “Nature” – figuratively made anthropomorphic in the term “Mother Nature”, with both male and female integral” (1990: 13). This requires more research in the Makushi context.

³⁹ See Chapter 7 on shamanism.

Imawari, they are the piaiman's spirits, his disciples, his angels. They live *in* him – they is invisible to normal people, only the piaiman can see them. They talk to him.
- Hubert Francis | Yupukari 2012

As a general, overarching category of 'nature' spirits, *imawari* includes three subsidiary categories: *imawari* forest spirits, *rato* water spirits, and *piai'ma* mountain spirits.

Rato are the masters of the aquatic realm. As Armellada describes of the Pemon, "*rato* is regarded as the great inhabitant and owner of the waters and fish" (1988: 34, n1). As my Makushi acquaintances would occasionally inform me as we travelled by river, if disturbed, *rato* manifests itself as a strong wind, a storm, or a whirlpool in the water. *Rato* – known in Creole as "watermama" – is sometimes described in anthropomorphic terms as being a giant fish, dolphin, manatee, or mermaid.⁴⁰ Any of the multitude of sub-aquatic spirits may also be categorised as *rato*. If hot pepper (*pimi*) is thrown in the water, it is said that the spirit will get "vexed" (angry) and a violent storm will ensue. People must be careful when washing their cooking utensils in the river for this reason.⁴¹ To pacify *rato*, a piece of burning wood or charcoal must be thrown into the water – only then, it is said, will the tempest subside. Menstruating women must be particularly wary of *rato*; in this state of vulnerability, the red dye from the seeds of the annatto plant can be applied to the face and body for prophylactic protection when travelling on or near to the water.

Piai'ma is the master spirit of mountains (*wi'*) and high land.⁴² Like *rato*, *piai'ma* refers to a spirit or category of spirits that also has a personified manifestation. The spirit is associated with rocky outcrops on tall mountains. Known as "bush tai-tai" in Creolese, *piai'ma* is described as being a tall, hairy human-like figure with backwards-facing feet

⁴⁰ Dangerous water-dwelling spirits include *karanau* (whirlpool spirit), *sipiptu* (water anteater), and *katoka* (cotton tiger). See Appendix 7. See also Roth on zoomorphic water spirits (1915: 241-53).

⁴¹ Hot pepper (*Capsicum* sp.) was traditionally used by the Makushi as a stimulant and as a remedy for headaches. According to Roth, small gourds would be used to insert a decoction of crushed peppers and water into the nostrils of the patient (1924: 247). The Makushi today often joke that pepper (*pimi*) can be rubbed in the eyes of "lazy" children in order to make them more "willing".

⁴² See also Butt Colson and Armellada (1990: 11). For a selection of Arekuna and Taurepan myths relating to *piai'ma*, circa 1911-15, see Koch-Grünberg (1916, II), myths 9, 10, and 26.

that inhabits caves on the tops of mountains (see Section 2.1). A predatory spirit, *piai'ma* poses a mortal threat to humans, and as such is much-feared by Makushi people.⁴³ As my research collaborator Howard once related to me,

Bush tai-tai – that's *piai'ma*, the mountain owner. He's a big hairy man; a bad giant. He carries people inside the mountain and eats them. He brings breeze, rain, thunder.
- Howard Barnabus | Kaicumbay, 2013

During my enquiries, people would usually translate *imawari*, *rato*, and *piai'ma* using terms such as 'devil', 'Satan', or 'evil spirits'. These translations seem to stem from the influence of Christian missionaries, for whom 'nature spirits' represented a distinctly anti-Christian notion.⁴⁴ As such, the terms are not commonly used by the Makushi today. Instead, spirits and monsters are collectively categorised as *o'makon* (singular, *o'ma*), a term most accurately translated as "harmful beings". This category includes any type of being which can cause harm to humans, including malevolent spirits (*mariwa'*), the souls of dead humans (*katon'pi*), underwater anteaters (*sipiptu*), and dangerous animals such as jaguars, snakes, scorpions, spiders, ants, and wasps. As Joseph Edwards succinctly put it, "*o'makon*, that is all creatures that can kill – it includes everybody". Any or all of these dangerous beings may also be referred to as "jumbies", a Creolese term of West African origin stemming from the same root as 'zombies' (see Nicholls 1999).⁴⁵

Since farms are cleared in the forest (*yu'*), the array of spirit-beings that populate the sylvan domain are of direct relevance to agricultural practice. Farmers must be acutely

⁴³ However, *piai'ma* is alternatively regarded to be a benevolent figure who helps human beings. See, for instance, Armellada (1973: 15-18) for a selection of Pemon (Arekuna) legends relating to *piai'ma*.

⁴⁴ For instance, in his *Makuchi Grammar*, James Williams lists *imawari* as "Devil, spirit" (1932: 180). More recently, Abbott's prototype Makushi dictionary lists *imawari* as "evil spirit" (2009: 13).

⁴⁵ However, the term 'jumbie' is more commonly and specifically used to refer to *kanaimís*, malevolent shamans who specialise in the art of homicide and mutilation via the manipulation of subversive *muran* (charms) and *taren* (spells). *Kanaimí* attacks are often attributed to underlying inter-tribal rivalries. In 1908, for instance, Koch-Grünberg suggested that sorcery accusations between the Makushi and Wapishana of the Rio Branco were related to animosities rooted in historical feuds (Koch-Grünberg and Hübner 1908: 10-11). See also Whitehead (2001), Butt Colson (2001), and Wilbert (2004).

aware of the idiosyncratic habits and threats of these spirits, and must appease them when utilising their forest and savannah resources. A particular category of powerful spirits, the species masters (*esak*, “owners”), promote fertility and dictate the movements of natural resources, including animals and plants. Species masters are responsible for the constant regeneration of the forest-scape and its constituent ecological actors, and as such must be propitiated by the human beings which utilise its resources. The master of each species is the “guardian” (*potori*) of their subject animals or plants, which they are said to embody (the term *esak* also meaning “body”). As Butt Colson and Armellada (2001) elucidate,

As owner-master (*esak*), the spirit of a species has dominion over the species as a whole and over its individual members, controlling movements and behaviour. As a protector-guardian (*potori*) it cares for the species as its father figure.

- Butt Colson and Armellada 2001: 30.

Most important of all *esak* are the *tamona*’, the Forest Masters.⁴⁶ These powerful beings dwell inside huge trees in the high forest and are conceived of as the owners of the bush and the masters of all the animals therein. The name *tamona*’ derives from ‘*tamo*’, “grandfather”, a derivation that indicates the ancestral nature of their relation to the forest. *Tamona*’ as a category subsumes all of the ancillary species masters, each of which has its own unique characteristics as a species-specific owner.⁴⁷ The *tamona*’ ultimately govern the movements and habits of all forest animals, including peccaries (*pinkî*), deer (*waikin*), tapirs (*waira*), jaguars (*kaikusi*), pumas (*usariwara*), and bush dogs (*ayi*’). Forest animals exist to *tamona*’ in a relation of pet to owner; thus, peccaries, bush dogs, and jaguars are

⁴⁶ *Tamona*’ are sometimes referred to as *pa’tamona*’, with the additional prefix *pa-*. Not to be confused with the neighbouring indigenous group the Patamona, who live in the upper Pakaraima Mountains. In the Patamona (Kapon) dialect, the forest masters are known as *yakonpi*, meaning relative or brother-in-law (primary data). In the language of the Arawak-speaking Wapishana people of the South Rupununi, the forest masters are collectively known as *tapik*, plural *tapikanao* (Wapichan report, 2012).

⁴⁷ These include the master of deer, the master of peccaries, and so on (see Butt Colson 2009: 261).

considered to be their pets (*yekîn*). It follows that the forest-scape is envisaged as being their domestic domain. Just as a human homestead is populated by an array of tamed pets and domestic animals, so too is the forest populated by the *tamona*'s pets and domestic animals. As Uncle Isaac once instructed me as we paddled to his farm at Mîri'ku Pai,

Everything has a master. Those masters are invisible; they move like spirits, and turn into people. You must leave offerings for them. The animals are their pets; they own the bush. When you cut a new farm, you must go to the piaiman, who talks to them.

- Isaac Rogers | Yupukari, 2012

Although *tamona*' are considered to be spirits, it is unequivocally stated that, like humans, "*they are real people*": they live in communities akin to human societies, they participate in similar cultural practices such as hunting, fishing, cooking, and shamanism, and they have human-like social structures and cultural conventions. When in their spirit modality, *tamona*' are invisible to humans; however, they have the ability to transform at will from "unseen spirits" into physical persons. Only the shaman (*pia'san*) has the ability to see the masters in physical form, by smoking tobacco with them.⁴⁸ Physically, *tamona*' are described as short, stocky, muscular people with red faces and a coat of coarse hair. It is said that they only appear in their physical manifestation when hunting a human victim. As Marcellus told me as we walked through the bush one night under a full moon, "they are persons. If your time comes to die, they will show themselves as human beings".

The *tamona*' masters are expert hunters and fishers. As the game animals and fish are conceived of as being their pets (*yekîn*), it thus follows that hunting and fishing, to the *tamona*', are equivalent to culling domestic animals. Their preferred fish is the haimara (*aimar*), a species of wolf fish (*Hoplias aimara*), and their favoured animal is the forest-

⁴⁸ The shaman has a specialised perceptual apparatus, activated through the consumption of tobacco (*kawai*), which allows him to perceive the otherwise imperceptible. See Chapter 7.

dwelling dwarf deer known as *kariyakî*. As I was told, “that tiny deer is they real food”. Consequently, an important set of ritual prohibitions exists in relation to this much-feared miniature deer.⁴⁹ If a hunter kills and consumes the deer, it is said that they will develop diarrhoea, vomiting, mania, and may potentially die. If the hunter has a young child and eats the venison, the infant will, by proxy, become very ill. The sickness is said to result from the intentionality of the *tamona*’ themselves – the meat can only be eaten by humans if blessed with *taren* spells, which in effect decontaminate it by appeasing the masters.

As keepers of the forest, the *tamona*’ must be left votive offerings by humans who utilise their forest resources, such as game or timber. After making a kill, the hunter must leave a reciprocal offering on a tree stump – for instance, a calabash of *parakari*, a piece of cassava bread, or material goods such as lighters, knives, or wristwatches. The *tamona*’ are particularly amenable to fresh black tobacco (*kawai*), to the extent that farmers may plant tobacco plants in their farms specifically for them. “They will pick it and smoke by themselves”, I was told. Similarly, when clearing a new farm in the forest, farmers may consult a shaman, who will ‘bless’ the plot with incantations known as *taren* (‘blows’) to appease the *tamona*’. The shaman may also bless the offerings of tobacco or cassava beer. As Grandpa John, an elder from Rewa, related to me:

Masters are like people, but they are spirits. Only the piaiman can see them spirits as persons – they drink tobacco juice and smoke with piaiman. The *tamona*’ have plenty of tattoos on their face and body. Those tattoos are binas, they make them bad – they use them to kill humans. The piaiman talks to them now – he says, don’t trouble our people, stop bringing illness (*paran*).

- John Edwards | Rewa, 2013

⁴⁹ This miniature deer – also called *kamo yunkun*, “father of game animals” – is yet to be scientifically identified, but is likely a regional variant of the grey-brocket deer (*Mazama gouazoubira*). The deer is said to have a “green belly”, a description consistent with the greenish underside of the brocket deer.

Tamona’ can punish humans for two connected reasons: for misusing and wasting their forest resources, and for not leaving offerings after doing so. It is said that they will stalk the hunter at night, appearing in physical form in their home. They make a whistling noise, sometimes likened to wind chimes, lending them the nickname ‘Shi-Shi’:

shi-shi-shi – shi-shi-shi – shi-shi-shi

The distinctive whistle serves as a harrowing auditory signal that the *tamona*’ are in the vicinity.⁵⁰ Upon hearing it, the human recipient must respond to the masters deferentially, explaining their intentions and asking for permission to utilise their resources – otherwise he or she will be struck down with a fatal illness in retribution. *Tamona*’ kill their human victims by attacking them with powerful bina plants (*muran*) and tattoo charms (*kansku*), or by reciting their secret spells (*taren*). Certain morbid signs indicate that a person has been attacked or killed by the *tamona*’. As one elderly Yupukarian told me:

The *tamona*’ kill by touching you with their spirit: they mark you with their magical plants, their ‘bina’. They cut out your tongue, penis, or anus. The human corpse turns very white. That’s how you know a person has been killed by *tamona*’.

- Hubert Francis, Yupukari, 2012

The mortal threat posed by the *tamona*’ was made painfully clear to me during the final days of my fieldwork. An elderly woman and her husband had been at a forest farm in the remote foothills of the Kanuku Mountains for around a month, harvesting bananas. Upon returning to the village, the woman immediately and inexplicably fell sick. After rapidly coming down with an intense fever, she entered a state of comatose which lasted

⁵⁰ A sonic index, in the Peircian sense (1940: 105). Indices *indicate*; as Peirce writes, they “show something about things, on account of their being physically connected with them” (cf. 1894).

for around three days. She turned incredibly pale and was unable to eat or speak. Local healers (*taren esak*, literally, “spell owners”) were enlisted to impart healing incantations (*taren*) upon her. Eventually, after regaining consciousness but still in a perilous state of ill health, the woman described how prior to leaving the farm, she had been confronted by a short, hairy red-faced man who emerged from the thick undergrowth and “lashed” her with magical plants. This man, she said, was a *tamona*’ forest master. Stricken by silence and unable to inform her husband or family, the woman returned to the village under a veil of normality, whereupon she fell ill. The *tamona*’, she told me retrospectively, had attacked her as punishment for not consulting the masters on her banana harvest. Banana plants, like other forest resources, are ultimately the property of the forest masters.

3. 5. Conclusion: Mastery and Embodiment

I end this chapter with a brief comment on mastery and embodiment, which serves mainly as a signpost to later discussions. The personhood of crops and the relationship of mastery between the Cassava Mother and cultivated plants form part of a more pervasive mastery complex in Makushi cosmology. In the Makushi dialect, the word for ‘owner’ or ‘master’, *esak*, is also the word for ‘boss’, as in the boss of a company or corporation. The same word also designates ‘body’, as in a human corporeal or existential unit. Thus, a complex ethno-semantic association emerges between mastery, corporeality, and embodiment, the essence of which seems to lie in indigenous conceptions of power and the constitution of the trans-specific person. Audrey Butt Colson (1989) describes this notion with clarity:

Kapon and Pemon believe that all living things possess two essential parts: a body and an indwelling vital energy. The fabric, substance, or flesh of a material body is referred to as *pön*. This word describes material of all kinds, cloth, metals, pot clay, as well as animal and plant flesh. In referring to the total body, in distinction from its

substance, *esak* is used. This latter word is in widespread use to express the idea of “dominion over” something or someone. Its equivalent in English is “owner” or “master”. Thus, anyone who is an expert in some activity and who possesses a lot of something, is the owner of it or masters it, and is therefore its *esak*... At base, *esak* seems to convey the notion of the embodiment of something, whether at a material or conceptual level.

- Audrey Butt Colson 1989: 1-2.

The constitution of the person will be explored in greater detail in the following chapters; however, here it suffices to reiterate that, first, the Makushi person is conceived as being formed of two basic elements, a physical body (*pun*) and a vital energy or soul (*ekaton*), and, second, that this notion of the person is trans-specific, that is, it is not limited to the *human* person. Soul or spirit here is not considered to be a single, holistic unit akin to the Christian conception; rather, the Amerindian vital component is multiple and fragmented, being defined by encompassment rather than a Cartesian opposition.⁵¹ The point here is that animals, plants, and certain spirits are subject to the same ontological constitution as humans, and that this condition creates the potentiality for cross-species communication. Within this metaphysical matrix of ownership, mastery becomes a relation of embodiment in which the master “embodies” its subjects. The *tamona*’ forest masters, therefore, can be said to embody (*esak*) the forest and its constituent inhabitants in the same manner as a human being may be said to embody their own mind or self, or a corporate boss embodies their workforce. The pervasive relation of mastery is similarly revealed in the taming of wild animals as pets; as noted, game animals are the “pets” (*yekîn*) of the forest masters.⁵² The all-encompassing notion of ownership and the category of the owner are pervasive in Amazonian cosmologies. As Carlos Fausto has argued, in Amazonia mastery is conceived

⁵¹ See Chapters 6 and 7.

⁵² The apparent linguistic association between pet or tamed animal (*yekîn*) and arthropod sting (*yeki*) requires more empirical exploration. See also Chapter 7, pp. 217 – on stings.

of as *a relation, not a condition* (2013: 175). In this field of intersubjectivity, everyone is related to someone else in a relation of mastery. Thus the technical and ecological aspects of Makushi horticulture can only be fully understood in relation to the pervasive notion of mastery that permeates the cosmoecological field, and which frames conceptions of cross-species personhood and biological vitality in the indigenous metaphysics.

In this chapter, I have put forth the following points. First, farms are social spaces in which convivial relations are forged and reproduced between kin. Second, gardeners utilise an array of specialised technical skills in the practice of farming, techniques that are embodied and inherently multi-specific in their constitution. Third, farms and gardens are trans-specific spaces in which the life-paths of many kinds of living beings converge; within these multispecies assemblages the potentiality for cross-species communication is ever-present. Here, cultivated plants are agentic subjects with whom farmers share social relationships of care and nurture. Fourth, forest farms are also populated by a plethora of spirits (*imawari*), which are of perpetual influence in horticultural practice. The dynamics of the living world of the farm can be thought of in semiotic terms, as a network of verbal and non-verbal messages transmitted between agents of different kinds (cf. Sebeok 1994).

In the next chapter, I examine the relationship between humans and cassava plants in all its specificity, focusing in turn on the three major components of the cassava cycle: cultivation, processing, and consumption. I trace a set of central ecosemiotic relations that transpire between human beings and cassava crops, whilst expanding upon the discussion of plant personhood and cross-species communication touched upon in this chapter.

❖ Table 1 | Some important crops

English	Makushi	Linnaean	Varieties	Further information
Banana	<i>Paruru</i>	<i>Musa</i> sp.	> 10	Cultivated for its edible fruit
Bitter cassava	<i>Kise</i>	<i>Manihot esculenta</i>	> 100	Staple crop, cultivated for its starchy tuberous roots
Coconut	<i>Koko ye'</i>	<i>Cocos nucifera</i>	5	Cultivated for its drupe; used for food, milk, and to make oil
Corn	<i>A'nai</i>	<i>Zea mays</i>	> 3	Cultivated for edible grain
Cotton	<i>Katoka</i>	<i>Gossypium</i> sp.	3	Cultivated for soft fibres (boll), spun into thread
Eddoe	<i>Na'</i>	<i>Colocasia esculenta</i>	One	Cultivated for edible corms and leaves (callaloo)
Mango	<i>Mankuro ye'</i>	<i>Mangifera</i> sp.	4	Fruit tree, cultivated for edible fruit, made into wine
Pepper	<i>Pimi</i>	<i>Capsicum</i> sp.	> 9	Cultivated for hot peppers; used as foodstuff and remedy
Pineapple	<i>Kaiwura'</i>	<i>Ananas comosus</i>	2	Cultivated for edible fruit; fermented into pine wine
Plantain	<i>Kurani</i>	<i>Musa</i> sp.	3	Cultivated for savoury fruit; cooking banana
Pumpkin	<i>Kaima</i>	<i>Cucurbita</i> sp.	One	Squash, cultivated for its edible fruit (gourd)
Purple potato	<i>Taari, kassiri</i>	<i>Ipomoea</i> sp.	> 3	Vine, cultivated for its starchy tuberous roots, purple
Sweet cassava	<i>Kaisira, ka'na</i>	<i>Manihot esculenta</i>	~10	Cultivated for its starchy tuberous roots; non-toxic form
Sweet potato	<i>Sa'</i>	<i>Ipomoea batatas</i>	One	Vine, cultivated for its small starchy tuberous roots
Tobacco	<i>Kawai ye'</i>	<i>Nicotiana</i> sp.	2	Cultivated as a narcotic drug
Watermelon	<i>Patiya</i>	<i>Citrullus lanatus</i>	One	Vine-like plant, cultivated for its large fruits (pepo)
Yam	<i>Karisa</i>	<i>Dioscorea</i> sp.	> 5	Vine, cultivated for its large starchy tubers

4. CASSAVA SPIRIT & the Seed of History



A Makushi farmer in her cassava farm (*mî*) | Yupukari, 2013

4. 1. The Cultivation of Cassava

One morning during the rainy season, while I was learning to plait *mukuru* with Uncle Isaac under the shelter of his *ité* palm roof, I asked him about Cassava Mama.¹ The poetry of his response struck me. “Cassava is a human body; it is a person. When you see the leaves waving in the farm, that is them waving at you and calling in your spirit. They have a master, an unseen spirit. It listens; that is why people talk to their cassava plants.” The crops, he explained, are the children of the Cassava Mama, the tutelary mistress of cultivated plants. “Our belief is that when the breeze is waving the leaves around, that is

¹ The basket palm (*Ischnosiphon* sp.). Makushi name, *mukuru*.

she”. This is why people never go to their farms when ill, since it is in times of sickness that the vital spirit (*ekaton*) becomes loosened from the body (*esak*). If disenchanted, the Cassava Mama can easily co-opt a human spirit, leaving only the human body to return home, where, soulless, it will inevitably succumb to sickness and even death. I had heard people talk previously about how the cassava spirit will “lash” those who go to the farm when ill or after breaking a ritual restriction or food taboo. Although its presence can be sensed, like the breeze (*a’situn*), the mistress spirit of cassava is an *unseen* spirit; only the shaman (*pia’san*) can see it. He, the specialist in cross-species mediation, can commune with the spirit in order to cure patients afflicted by its malevolent intentionality.

As discussed in the previous chapter, Cassava Mama exercises control over the fecundity of the farm and the fertility of plants. As a guardian spirit (*potori*), she protects crops, facilitating their wellbeing and nurturing their growth. Farmers speak to the spirit while planting and weeding, asking for productivity and a bountiful harvest. Libations of cassava bread or beer may also be left as propitiatory gifts. Likewise, the initiated can use charms (*muran*) and spells (*taren*) to placate the cassava mistress. Although potentially harmful to human beings, then, the cassava spirit also facilitates the growth of the most fundamental life-sustaining plant. The mistress of cassava is ambiguous in intentionality, simultaneously exhibiting the propensity to promote growth and sustain life whilst all the time threatening to harm and take it away. The relationship of mastery between the spirit and cultivated crops is a consanguineal one, akin to a parent-child bond. Cassava Mama lives among the plants, looking after them like her own children, a bond inscribed in her Makushi name, *kisera yun* (“cassava parent”). The relation between human farmers and Cassava Mama, on the other hand, is rooted in a more complex relationship, one fraught with the potentiality for danger and the requirement for constant appeasement.

This opening vignette, but a brief glimpse into the ‘animic’ principles with which Makushi agro-ecology is entwined, highlights a facet of the indigenous metaphysics that

runs throughout this chapter: the living domain is imagined as an inter-subjective field of sociality. With this realisation always in mind, and with the acknowledgement that there is no clear ideological separation between the spiritual and the economic, I investigate the central place of cassava in Makushi culture. The primary symbiotic relation addressed in this chapter is the fundamental and life-sustaining relationship between human beings and bitter cassava plants in the context of the multispecies world of the farm. I examine the three main phases of the cassava cycle: (1) the cultivation of the crop; (2) the processing of cassava roots into foodstuffs; and (3) the commensal consumption of those foodstuffs. Tracing this multispecies technical process also requires an appraisal of the relationship of mastery between human beings, their cassava plants, and the Cassava Mama spirit. As I argue, cassava cultivation can only be understood as the multiplex interaction between a host of economic, ecological, aesthetic, social, and cosmological factors.



A family processing cassava | Rewa, 2013

4. 1. 1. The Mutilated Snake

Cassava (*Manihot esculenta* Crantz) is the staple crop for all of the indigenous people of the North Rupununi.² The crop, a perennial herbaceous shrub of the Euphorbia family, is so fundamental to the Makushi way of life that it could be said to define the culture more than any other plant. Every facet of social life and the conceptual system is inflected with cassava (*kîse*),³ from its dominion over productive activities such as swidden farming and the processing of its roots into foodstuffs and fermented beverages to the social exchange networks that employ cassava cuttings as their currency.

As well as its economic importance, cassava cultivation is permeated with a deep semiotic complexity which radiates out into the broader cosmo-ecological domain. Before turning to the agro-ecology of the crop itself, the origin myth of cassava must be relayed, for encapsulated within this myth are a number of themes that will emerge throughout the chapter, including snake symbolism, inter-species relationality, the gendered division of labour, and notions of affinity and consanguinity. Cassava features in myth perhaps more than any other plant-being: in many senses, it can be considered coeval with and integral to the origins of humanity in mythical time. Like a seed of history, cassava was a primary cosmic agent during the mythic ‘beginning times’ (the *pia’ton*), the chaosmos from which the order of life first emerged. The following story describes the origin of the crop and the source of its varietal diversity, as recounted to me by Granny Madelene of Yupukari:

² Also known as manioc in Portuguese and yuca in Spanish. Whereas the name manioc is employed in much Amazonianist literature (Rivière 1987, Descola 1994, Rival 2001), I use the term cassava, since this is the denomination used by the Makushi people themselves and is the colloquial term used throughout Guyana and across the Caribbean. Etymologically, the names manioc and cassava are indigenous South American terms, manioc being derived from the Tupi word *maniot* and cassava stemming from the Arawak *cassavi*, meaning bread (Clement *et al.* 2010: 76).

³ *Wauñii* in Wapishana (Forte *et al.* 1992: 87).

m2. The mutilated snake, or, the origin of cassava

- Madelene Francis | Yupukari, 2013

A girl went to the farm where she saw a black bird. She followed the bird to its nest and found an egg inside. The girl took the egg from the nest and carried it away in her *warishi* (back-pack). As she was walking home, the egg hatched. Rather than a bird, however, a snake hatched from the egg. The snake crawled into her vagina. Soon after, the girl's mother died, and so she lived with her brothers and sisters-in-law. By this time, her belly was getting big. She was pregnant with the snake.

The girl loved to eat the fruit from the ginip tree (*maku ye'*). She would visit the tree every day, whereupon the snake would emerge from her womb and climb the tree to pick ginip fruits for her. Her sisters-in-law were jealous of the girl because she was pregnant. The girl's brothers grew tired of their wives complaining, so they decided to kill their sister's baby, unaware that it was a snake.

One day they followed their sister to the ginip tree. Watching from afar, they saw a snake emerge from her belly and climb up the tree. The snake started picking fruits for the girl. The brothers crept over and killed the snake with their cutlasses. They chopped its body up into pieces. They left the mutilated snake on the floor and went home. The girl found it. She was very sad and went home, crying all the way.

That night, the girl had a dream in which the snake came to her and said, mama, you must go and bury me. So the next day she went back to the ginip tree to bury the snake. She ploughed a long soil bank, just like a cassava bank, in which she buried the parts of the snake. After one month, she had another dream. The snake told her, mother, you must come and see how I am now.

The following day the girl went to the snake's grave. Many cassava plants were growing up from that bank; the whole bank was full of crops. That night she had another dream, in which the snake told her to pull up the cassava plants. The snake said, after you reap the cassava, make *parakari* (cassava beer). So the next day, she

harvested the roots and used them to make the drink. She called *mayu* (communal labour) to clear a big farm in which to plant more cassava. Her brothers cleared the farm for her, and ploughed many cassava banks. They cut new cassava cuttings from the harvested stems and planted them in the banks. That is the beginning of cassava. That is how we got all the types of cassava sticks.

What does this story reveal? As ever, divining the meanings of myths is a tricky business. As Koko Madelene described to me, the story explains a series of physical homologies between cassava and snakes. Firstly, cassava cuttings exude a poisonous milky sap when lacerated, likened to snake venom. Second, cuttings resemble the mutilated pieces of the snake: the stem of the harvested plant is chopped up into shorter cylindrical pieces for replanting, just as the snake's cylindrical body was chopped up by the brothers-in-law. Third, the snake was buried in a soil grave, identical in form to the ploughed banks in which cassava sticks are planted today. Fourth, cassava sticks exhibit a variety of colours depending on cultivar, like the variegated coloured patterns of snakeskin.

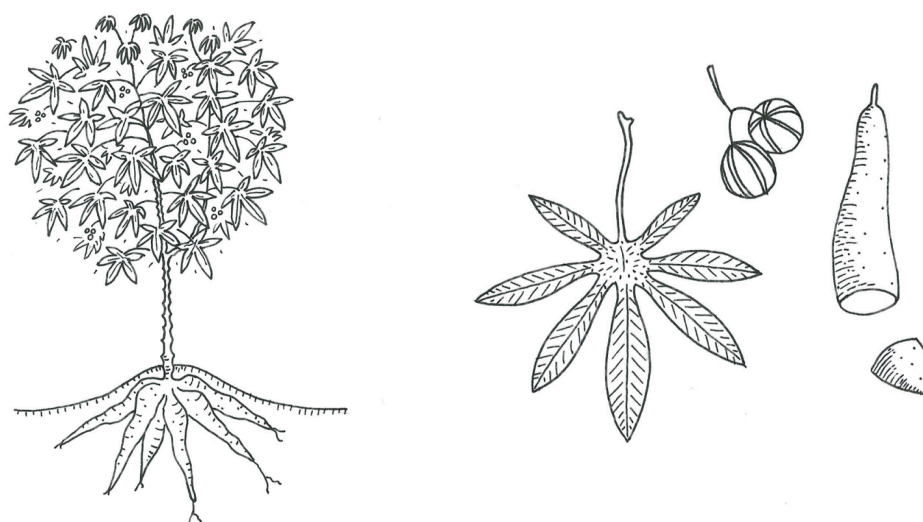
The deeper association between snakes and bitter cassava, though apparent, is as yet unclear. Both snakes and cassava are venomous or toxic (*mai*, 'bitter'), snake venom being likened to the toxic effluent of cassava roots (*kata*).⁴ Further, human interactions with both cassava and snakes involve the incorporation of an ambiguous alterity into the human domain. In the myth, the snake is corporeally incorporated into a human body (in utero), before its mutilated body transforms into the first cassava plants, which become the staple foodstuff for human society. As will be explored below, these semiotic motifs seems to suggest that cassava plants, as potentially harmful alters, must be 'domesticated' via the twin processes of cultivation and manufacture in order to be incorporated into the

⁴ The exact parameters of the category "bitter" in the Makushi sensory classificatory system require further investigation, but in general seem to accord with those in the English equivalent. Substances typically described as being bitter include tree barks, tree sap, quinine (from the quinine tree), many herbal decoctions, poisons, astringent fruits, bitter cassava roots, and strong cassava beer.

human domain. Furthermore, although serpentine in form, the mythological snake was a human-like agent capable of communicating and procreating with human persons: in the perspectivist interpretation, this may be taken as an instantiation of the common condition of humanity (i.e. subjectivity) that characterises Amazonian mythologies.⁵

As well as being rooted in mythic history, cassava also has a dynamic forward-facing orientation. The crop, as politically resilient as it is ecologically and climatically durable, has endured extreme historical vicissitudes by continuously adapting to and absorbing change in symbiotic relationships with human cultivators. These histories can be read into the crop and its concomitant food products. Cassava plants (*kísera*) constitute socio-ecological historical records, then, but not merely as inert material objects that pass through time as appendages to human activity and receptacles of meaning. Rather, they feature in Makushi life and thought as powerful, dynamic living selves, affecting and being affected by the lives of humans and other species in symbiotic relations.

❖ Figure 11. A cassava plant, and its leaf, fruits, and root



⁵ On animal myths among the Brazilian Makuxi, see Amodio (1999).

4. 2. *Kíse*: Life's Staple

Native to Amazonia, cassava (*kíse*) is an herbaceous woody shrub that is cultivated as an annual crop.⁶ Well-adapted to the low fertility, highly acidic soil types of lowland South America (Dufour 1993: 576), cassava is today the staple carbohydrate source for over 800 million people worldwide (Mühlen *et al.* 2013: 66). The crop was introduced to Africa by Portuguese traders over four hundred years ago (cf. Rival and McKey 2008: 1119), and, latterly, Southeast Asia (cf. Ellen and Soselisa 2012: 18). Cassava is clonally propagated from stem cuttings, which are known as 'sticks' in the local vernacular. The mature plant is harvested for its tuberous roots, whereupon the stem is chopped into cuttings and replanted in soil banks. Characterised by varietal 'hyper-diversity', there are thousands of known cassava landraces cultivated in lowland South America (Wilson and Dufour 2002: 50), and hundreds in Makushi farms (this study; Forte 1996b; Elias 2000; Rival 2001).

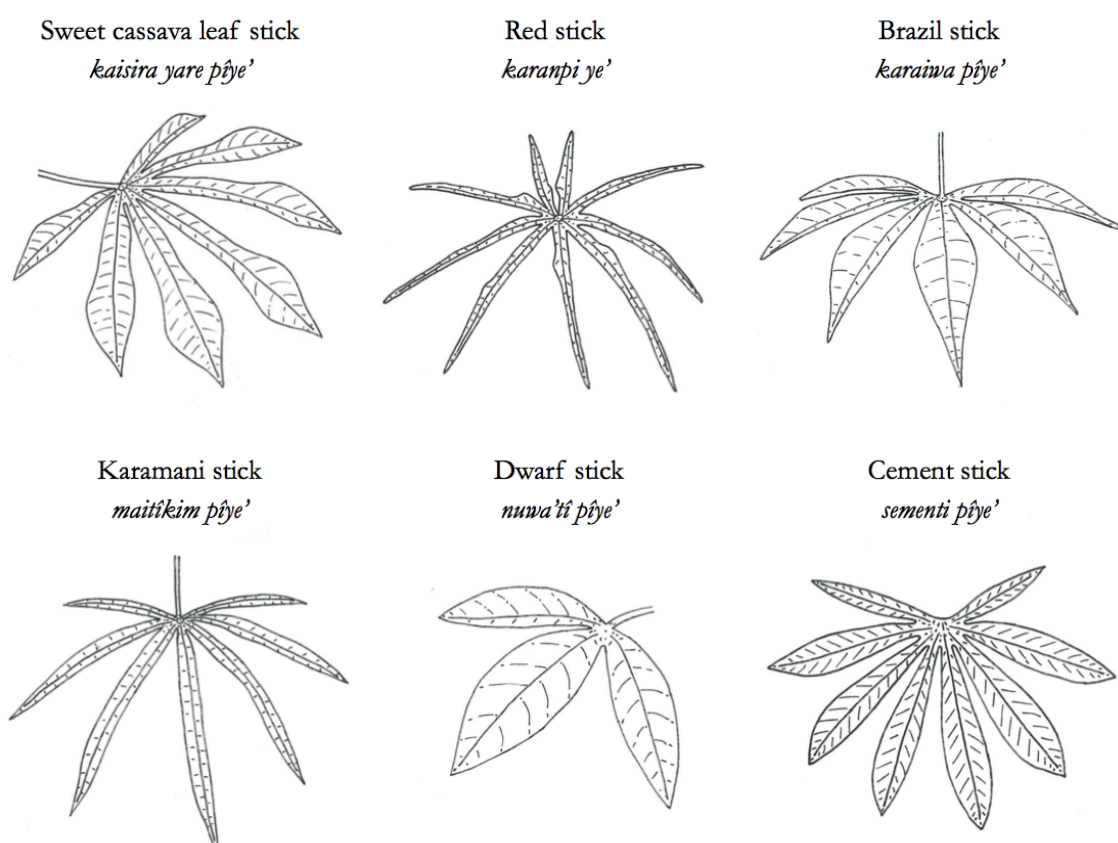
Known as *kísera* in Makushi, the cassava plant has a distinctive appearance: its large finger-like leaves adorn wiry boughs that spiral out from a central stem. Cassava plants display a great deal of phenotypic diversity. Some dwarf varieties are limited to as little as one foot in height, whereas the tallest cultivars may exceed ten feet. The palmate leaves, like giant hands, can be up to a foot in breadth. Leaves (*kísera yare*) have between one and nine fingers depending on cultivar, with five- and seven-fingered varieties being most common. The fingers, smooth-edged rather than serrated, can be thin and pointed or broad and rounded. In mature plants, the lower stem takes on a woody texture, thickening to around an inch in diameter. Some plants have a single central stem, whilst others have multiple stems branching off in different directions.

Colour, too, is variable: leaves range from light yellow-green to dark olive green; some are purple-tinged whilst certain ornamental varieties display variegated white and

⁶ The wild ancestor of the cultivated plant has been identified as *Manihot esculenta* ssp. *flabellifolia* (Clement *et al.* 2010: 76-77). Molecular analyses suggest that cassava domestication began 8-10,000 years ago, most likely in eastern Peru (Allem 2002) or Rondônia, Brazil (Mühlen *et al.* 2013: 70).

green leaves. Stems and petioles also exhibit cultivar-specific colouration, ranging from deep magenta to pale green. Some varieties have waxy leaves with glossy upper surfaces; others are matte in texture. The small flowers (*yari'ku*) are usually white, cream, or light yellow in colour. Roughly the size of acorns, the spherical green fruits (*kîsera eperu*) are sexpartite in structure. Once ripe, they dehisce, splitting along each of the six sutures to release the tiny seeds contained inside (*kîsera ena'pî*).

❖ Figure 12. Variation in cassava leaf morphology



Cassava is primarily cultivated for its starchy tuberous roots (*kîse imun*).⁷ Like the above-ground elements of the plant, the morphology of the woody roots is variable. The ideal shape of a cassava root is thick and rounded at the proximal end (the end attached to

⁷ Cassava leaves were reportedly eaten as a vegetable by the Makushi and Akawaio in the past. In order to be made edible, the leaves would be ground and boiled (see Roth 1924: 217).

the plant) and tapering to a point at the distal end (the end deepest in the ground). Small wiry roots extend from the distal end. A single plant usually produces between three and ten root tubers, sometimes more. The fully mature roots of some cultivars can grow to more than two feet in length and six inches in diameter, the average size being perhaps half this. Some roots are small and spherical, others are long, oblong, and thin. The bark-like outer skin of the roots is variable in appearance and texture: some types have thick, tough, cracked skin (such as the aptly-name ‘caiman stick’, or *karatu pîye*), others have thinner, flaky skin that is easy to remove (for example, ‘no bark stick’, *yawe’ka ye*). The dermal under-layer can be cream, yellow, red, even magenta in hue, depending on variety.

As discussed in the previous chapter, bitter cassava is typically cultivated in forest farms (*mîî*). The vegetative propagules are planted in raised soil banks or mounds. Banks are ploughed with a hoe (*sanpa*), and are usually circular in shape, around half a metre in diameter, and slightly raised above the normal level of the soil. Planted cassava banks are called *kîse imuna*; banks from which the plants have been pulled up are known as *kîse imuna’pî*, the suffix *-pî* indicating past tense.⁸ Between three and five stems (*parakon*) are planted in a raised bank, each around thirty centimetres in length. Some farmers only plant two or three sticks in each bank during the rainy season, since there is less risk of sticks drying out and dying. Most farmers insert the sticks into the bank at a slanted angle of roughly forty five degrees; according to some, however, it is preferable to plant sticks vertically in order to minimise the surface area exposed to the hot midday sun.⁹

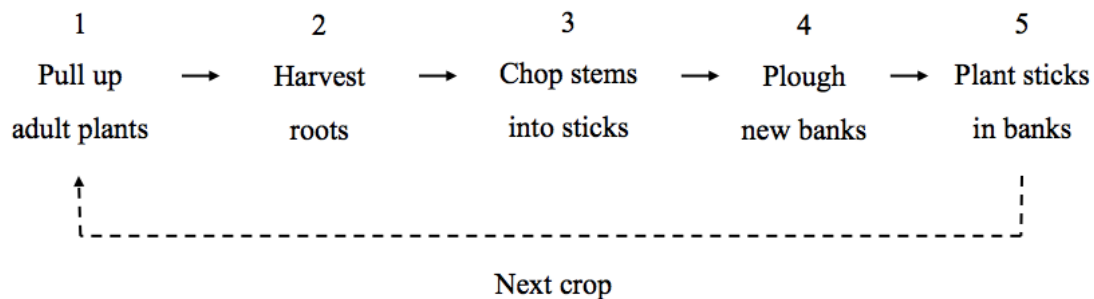
An “old time” belief dictates that one stick must always be planted facing in the opposite direction to the rest. This is for reasons of crop security: the cassava’s eye, I was told, must have a panoramic view of the farm in order to see if any pests or animals are approaching. In this sense, the crops are understood to be sentient, sensing selves: they

⁸ Stems from harvested plants that are not immediately required for planting are temporarily planted at the perimeter of the farm. Leant against a fence or tree in the shade, the stems are allowed to take root until required for planting, whereupon they will be chopped into cuttings.

⁹ Laura Rival reports that in the late 1990s, the Makushi of Rewa planted their sticks at an angle facing towards the rising sun (personal communication, February 2014).

perceive their surroundings and occupy perspectives on their immediate environments. This is why people talk to their cassava plants: they are considered to have the capacity to hear and comprehend the words spoken to them by their human nurturers.

❖ Figure 13. Basic operational sequence for cassava cultivation



The personhood of cassava plants is central to the process of their cultivation. The relationship of nurture between human cultivator and crop plant is geared not only toward ensuring the biotic or vegetative growth of the plant, but also, and concomitantly, their wellbeing. Cassava plants are *emotive*: they must be kept “happy” through constant care and nurture in order to “grow well” and bear roots. As Aunty Elsa once described to me,

Cassava is people. When you weed your farm, between them banks, the plants are happy now, waving. The weeds are like lice for the cassava, head lice – it is like that how they stay happy. Rain is the mother for the cassava; it keeps them happy. They wave now, and say “mummy coming!”

- Elsa Daniels | Yupukari, 2013

In general, cassava cuttings take around twelve months to mature and bear roots, although the maturation rate is variable depending on cultivar. There are certain extra-botanical means of enhancing their growth, such as the use of bina charms (*muran*) and

cultivation spells (*taren*). The cassava bina (*kîsera murani*) can be used to encourage crop growth and yield.¹⁰ The bulbous roots of this charm plant can be chewed and spat over freshly ploughed cassava banks and cuttings prior to planting.¹¹ During the early days of fieldwork, Jose and I visited his forest farm. I was frantically trying to record the names of the cassava varieties, but finding it near impossible to keep up owing to the dizzying array of types. Exasperated, I decided to try a different line of enquiry. Having read about cultivation charms prior to visiting Guyana, I decided to ask Jose if he had any. Not any more, he said, but he did used to have a cassava bina. “If you plant it in your farm”, he told me, “it brings music to the cassava”. The music “keeps the plants lively and happy”, he explained, “so they will grow well and bear plenty big roots”.¹²

There are a number of ecosemiotic associations relating to cassava cultivation and productivity. These poly-semiotic clusters draw relations of signification between various species of animal and plant. To reiterate, for Peirce, icons, or *likenesses*, are signs “which serve to convey ideas of the things they represent simply by imitating them” (1894: 3). As shall be seen, iconicity, or signs based on analogical relations of resemblance, is a key operator in Makushi multispecies relationality. Icons often operate in conjunction with indices, or those signs which “depend upon association by contiguity” (Peirce 1940: 108).

Certain ecological signals indicate the success or failure of a forthcoming harvest. As my friend Marcellus once told me, if a hummingbird (*tukui*) builds its conical nest in the branches of a cassava plant in one’s farm, it indicates that the crops will not grow well nor bear large roots. It follows that the farmer will suffer from hunger.

The hummingbird has a tiny nest like a cone. If it builds its nest in the branches of a cassava tree in your farm, that is a sign now. When you see it, it means that you will

¹⁰ *Eleutherine bulbosa*, of the Iris family.

¹¹ See Chapter 6 on bina plants.

¹² Cultivation charms can be used in conjunction with esoteric spells (*taren*), which serve to compound their effect. I recorded a number of cultivation *taren*, poetic formulae which invoke certain spirits in order to affect enhanced growth and fecundity in the farm. See Chapter 7.

feel hunger next time you plant – your plants won't grow, the roots will be small. The reason is that hummingbirds move around a lot from flower to flower, moving across a large distance, travelling around – it's hard for them to find their food.

- Marcellus Thomas | Yupukari, 2013

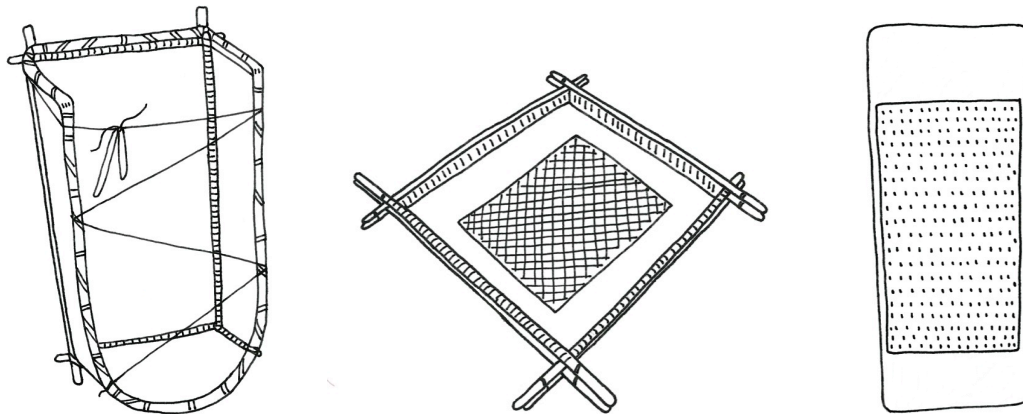
The hummingbird is perceived to be perpetually hungry (*emi'ne*), owing to its propensity to ceaselessly flit from flower to flower at high speed in search of nectar. The behaviour of the hummingbird is taken as an ecological sign that causally signifies a parallel effect in human agricultural productivity. Because the hummingbird chooses to build its nest in one's farm, its associated behavioural attributes transfer to the human host via the vector of the cassava crop. This ecosemiotic association is at once iconic (based on likeness) and indexical (based on existential correspondence) – an example of a poly-semiotic cluster.¹³

There exists a set of dietary prohibitions that refer to cassava cultivation, based on analogic relations drawn between cassava plants and other species of animal and plant. It is said, for instance, that when planting sticks a farmer must refrain from eating anything “thin” such as chicken feet or bony fish; if they do so, the roots of their crops will become “skinny” (*karawa'pan*). Likewise, while planting sticks a farmer should not interfere with any rootless plants, lest the same rootlessness will be bestowed upon their cassava plants. Conversely, if the farmer consumes the meat (*pun*) of certain animals such as the dwarf caiman, labba, or nine-banded armadillo, the roots of their crops will grow to be fat and round like those animals – a desirable trait. Here, we see a causal iconic relation between the behaviour of the farmer and the growth patterns of the crops. Put simply, *things which resemble each other can affect one another* – an eco-semiotic principle that structures the cross-species relationships between human cultivator and cassava plant in various ways.¹⁴

¹³ See Deacon (1997: 78-79) on poly-semiosis and Keane (2003: 410) on “representational economies”.

¹⁴ The logic of this causal relation also seems to reflect Frazer's theory of homeopathic or “imitative” magic, based on the association of ideas by similarity. See Chapter 2 for a discussion.

❖ Figure 14. A warishi (*rutti*), sifter (*manari*), and grater (*samari*)



Although bitter cassava is only propagated clonally, most varieties have retained their sexual fertility and can reproduce by seed (McKey *et al.* 2009: 326). Owing to the incorporation of volunteer seedlings into the stock of clonal landraces, a process of gene flow occurs between populations, serving to introduce and maintain intra-varietal genetic diversity (Rival and McKey 2008: 1119). Small seedlings are a common sight in cassava farms, growing in between the clonally propagated plants. These spontaneous seedlings (*tepuru pîye'*) are never planted deliberately, but may be left to grow into mature plants if they take root (Rival 2001: 65-66). The germination of dormant seeds is activated by fire; therefore, after clearing and burning a new plot, a host of seedlings will emerge from the scorched soil. According to Makushi farmers, seedlings produce adult plants which are no different phenotypically to their parent plants. Aside from the edible roots, then, the only perceived advantage of allowing volunteer seedlings to grow is for their use as cuttings. Thus, seedlings are not afforded any great horticultural significance by Makushi farmers.

Them cassava seeds burst from the tree and splash all around. We keep the seedlings; we let them grow. You can cut the stem into sticks for planting, and eat the roots.

- Alexis Vincent | Kaicumbay, 2013

Harvesting cassava is a straightforward affair. The above ground element of the plant (the shoot system) is removed with a cutlass (*supara*), whereupon the woody stem is chopped into short cuttings for replanting and the leaves and petioles are discarded.¹⁵ The remaining stump, the “cassava ankle” (*kise irupukun*), is used as a handle to unearth the root system of the plant. A hoe (*sanpa*’) may be used to loosen the soil and to remove any stubborn roots. The interconnected roots of each plant are detached from each other using the cutlass. Farmers make sure to collect even the smallest roots to grate with the rest; if a farmer only collects the larger roots and discards the smaller ones, Cassava Mama will be offended and punish (“lash”) them. The same principle applies to the stem cuttings, which must all be re-planted, regardless of their suitability. These provide yet further examples of the totalising influence of the tutelary spirit in cassava cultivation:

I learnt some beliefs from my mother and grandmother. Never throw away them short cassava sticks or roots. The belief is that Cassava Mama will turn around to beat you, she will lash you on the back, or arm. You must re-plant all them sticks now.

- Lisa Edwards | Rewa, 2013

After being harvested in the farm, the roots must be transported to the domestic domain of the household for processing. Roots are typically carried in a warishi (*rutti*), a traditional woven back-pack that is primarily used for carrying heavy loads of cassava or other crops.¹⁶ This item of material culture holds an important cultural significance, and like other cassava processing tools is imbued with ecological symbolism, with geometric animal motifs being woven into the basketry panels (see Chapter 5). Increasingly, nylon fertiliser bags or plastic barrels are being adopted for this purpose.

¹⁵ On occasion, some leaves may be saved for *parakari* manufacture (see Chapter 5).

¹⁶ Warishi (back-pack): *rutti* in Makushi, *panuku* in Wapishana. Warishis are plaited from mukuru (*Ischnosiphon* sp.) or nibi (*Heteropsis flexuosa*). Nibi (*munna*) is a wild bush-rope from the high forest.

4. 2. 1. The Toxic Paradox

Like many indigenous Amazonians, the Makushi distinguish between two ethno-species of cassava, ‘bitter’ (*kîse*) and ‘sweet’ (*kaisira*), which form distinct overt categories in the indigenous classification. Biologically speaking, all varieties of cassava are of the same species – *Manihot esculenta* – and form a sweet-to-bitter spectrum based on their toxicity (Rivière 1987: 179; Dufour 1993: 576). In other words, although toxicity varies between varieties, this variation is continuous rather than discontinuous. Cassava roots contain the cyanogenic glucosides linamarin and lotaustralin, which are hydrolysed to the poisonous compound hydrogen cyanide (HCN), or prussic acid, when the plant tissue is damaged (Wilson and Dufour 2002: 50). Bitter varieties are extremely toxic in their raw state and require laborious processing to be made edible; sweet varieties are less toxic and can be cooked like other root vegetables. Reflecting this, *kîse* is considered to be an extremely “bitter” (*mai*) plant, practically and symbolically.¹⁷ Owing to their lesser toxicity, sweet cassava roots do not have to be detoxified in the same arduous manner as those of bitter cassava.¹⁸ Before cooking, it is sufficient to scrape the bark from the roots, leaving the internal parenchyma.¹⁹ Curiously, then, *kîse* is valued more highly by Makushi farmers, with *kaisira* playing only a minor role as a crop, foodstuff, and exchange valuable. Bitter varieties are actively selected for and held in higher regard horticulturally, socially, and symbolically. The subsidiary role of sweet cassava is reflected in selection practices and classification: it is not even considered to be “real” cassava (see Elias 2000: 18).

This observation raises two interconnected questions: first, what are the fundamental differences between the two ethno-species in the Makushi conceptual framework?

¹⁷ See Chapter 5, pp. 188, on notions of bitterness and sweetness in the Makushi conceptual system.

¹⁸ However, the stems, leaves, and fruits of the plant are equally toxic in sweet and bitter varieties. As such, cassava leaves and stems can be used as pesticide for *akushi* ants (*Atta* sp.). Cassava leaves also form a core ingredient in the fermentation of the drink *parakari* (see Chapter 5).

¹⁹ For this reason, *kaisira* is a key ingredient of pepper pot (*tuma*), the archetypal Amerindian dish, since it can simply be boiled in the broth like potatoes or yams. Sweet cassava also forms a secondary but essential ingredient in farine (*u'wi*), the staple processed foodstuff in the Rupununi.

And second, why should farmers consciously select for more poisonous varieties of a staple crop, when there is a practical detriment in doing so? I term this conundrum the ‘toxic paradox’. When searching for an answer to this problem, my initial thought was that the food products that are so central to the Makushi economy and culture can only be manufactured from bitter cassava. However, as I was later informed, sweet varieties can also be used to make bread, farine, and cassava drinks: as I was told, ‘all the same rules apply’ for both types. The only practical explanation I was given related to the shelf-life of the roots: according to some, sweet varieties rot faster than bitter types when out of the ground. The higher concentration of prussic acid in bitter types is understood to act in a preservative capacity. However, this is of little consequence in manufacturing cassava products, since roots are usually processed on the day of harvesting anyhow.

To fully understand the toxic paradox, I propose, one must look further than utilitarian explanations in isolation. The bitter-sweet classification is framed by deep-seated ecosemiotic motifs that underpin Makushi social organisation and theories of life. The pre-eminence of *kise*, in my view, is rooted in these webs of signification, which are interwoven with the indigenous metaphysics. As shall be seen, recurring motifs emerge concerning the transformation of cassava from a toxic, potentially deadly plant into an edible, life-sustaining foodstuff. Ultimately, this practical and symbolic transformation is framed by understandings of the living properties of cassava plants, themselves situated in relation to overarching cosmological categories and ethno-metaphysical exegesis.

Sweet cassava is usually grown in kitchen gardens, or at the periphery of forest farms. The sweet form of the crop is usually referred to as *kaisira*, a term which appears to be a Creole distortion of ‘cassava’ (*macaxeira*). The “true” Makushi name for sweet cassava is *ka’na*, although this is rarely heard today (Elias 2000). When asked about the terms, the general consensus among farmers is that *ka’na* is ‘deep Makushi’ and *kaisira* is modern Makushi. In accordance with its secondary status relative to bitter cassava, only a

few varieties are cultivated in any given farm, and four or five in any village. Cultivars are not given individual names like bitter cassava, other than those roughly designating their place of origin or basic characteristics, such as ‘yellow stick’ or ‘Makushi stick’. Although nominally indistinct, varieties do display variations in morphology: one type has yellow roots, another has white; one has brown roots, another’s have purple skin.

4. 3. Botanical Hyper-diversity

Cassava cultivation in Amazonia is marked by an “overwhelming magnitude of diversity” (Salick *et al.* 1997: 6), a trait that has been termed “hyper-diversity” (Heckler and Zent 2008). This characterisation also applies to Makushi horticulture. During my enquiries, I recorded seventy-two folk-varieties of bitter cassava in Yupukari and in excess of twenty in Rewa (in a much less-detailed census).²⁰ A study conducted in 1998 recorded seventy-six varieties in Rewa, with each farm containing on average sixteen cultivars (Elias 2000; Elias *et al.* 2000: 246).²¹ In one particularly impressive farm in Yupukari, I recorded over fifty named cultivars. The average number, it must be noted, was lower than this, with most farms containing around fifteen varieties. Furthermore, I recorded five named types of sweet cassava in Yupukari, four in Rewa, and four in Kaicumbay.

❖ Table 2 | Total numbers of cassava folk-varieties

Village	Bitter cassava	Sweet cassava	Average no. per farm
Yupukari	72	5	15
Rewa	> 20	4	~10
Rewa (1998) ²²	76	Few	16

²⁰ See Table 2, at the end of the chapter. See Appendix 2 for a list of all varieties recorded in this study.

²¹ The most common types cultivated in Kaicumbay were of different varieties still.

²² Previous study: Elias, Rival, and McKey (2000: 246).

Determining definitive figures on cassava diversity would be all-but impossible. Certain varieties may have different names in different farms, or even within the same farm! Conversely, different types may share the same name: for instance, ‘dwarf stick’ or ‘Brazil stick’, generic names which may contain numerous covert sub-types. This is not to mention the mutability of folk-names: as my friends would often emphasise during my pedantic attempts to record the ‘correct’ name for each type, “the names of cassava sticks are always changing!” During my inventories, I noticed a regular trend towards under-estimation. When asked how many landraces they cultivated, farmers would invariably reply with a low number: “three or four, but we don’t know their names”. Upon entering the farm, however, I might be shown twenty-five named types, complete with exchange histories and other information. Such is the experimental nature of cassava cultivation that new varieties are being tested all the time; a farmer may acquire three new landraces one week before discarding two the following week (see below).

The figures from my surveys are far from exhaustive, but rather serve to highlight the hyper-diversity in Makushi cassava cultivation. The question as to *why* people grow so many varieties is a difficult one, requiring the consideration of a number of utilitarian and non-utilitarian factors. Indeed, when I would ask my Makushi friends why they grow so many types of cassava, the most common response was simply, “because we like to, Lewis!” No definitive reason was ever given (see also Rival 2001: 62). The appreciation of botanical diversity is, in my view, rooted in the multiplex interaction of economic, ecological, aesthetic, social, and cosmological factors – factors that can be analytically identified but in practice are interwoven to the point of being inseparable.

To my knowledge there is no single term in the Makushi language which equates to the English noun “diversity”, the state of being diverse, or multiformity. However, the concept can be expressed in Creolese using the term “plenty”, which is often repeated several times for emphasis. For instance, when describing the number of cassava varieties

growing in a garden, the farmer may emphatically state, “there are plenty, plenty sticks”. Similarly, the Makushi adjective *tu’ke* translates as “many” and is often used in the same manner. These terms are commonly employed to refer, for instance, to the abundance of plants in a farm or animals in the forest, and thus, in this usage, clearly have an ecological connotation. Diverse farms are regarded as tranquil spaces of great beauty, and people enjoy being surrounded by a multiplicity of kinds of living selves. Diversity, in this sense, cannot be reduced to utilitarian factors. Nevertheless, based on multiple testimonies given by Makushi farmers, four primary economic motivations for maintaining cassava varietal diversity can be identified: (1) yield, root size, and root number; (2) maturation time and growth rate; (3) resiliency and soil suitability; and (4) root colour.

First, most farmers state that they select for varieties with the greatest yield, that is, those that bear a high number of large roots. As Jose told me, “Amerindians try to find the sticks with the best roots, the ones that bear best”. Farmers exchange sticks with one another in order to experiment with the yield and productivity of new landraces. Varieties with small roots or lower yields may be discarded, while those with large roots and higher yields will be incorporated into the stock of the farm.

The second core motivation is variation in maturation time. Cultivators like to possess landraces with different maturation rates for reasons of year-round food security, growing short-term varieties for immediate yield and long-term types for future harvests. The ideal farm will always contain crops that are mature enough to be harvested, owing to the strategic and staggered intercropping of cultivars with different maturation rates.

Third, edaphological suitability: different landraces are suited to different soil types and environmental contexts. Some, such as karamani stick (*maitikim piye’*), grow well in well-drained laterite soils and are therefore drought resistant. Others, like *karanpi ye’* (red stick), prefer water-retaining sandy soils and are thus flood resistant. If a farmer plants a variety of cultivars with different ecological preferences, a wide range of possible

negative occurrences can be hedged against so as to provide a partial harvest in any given eventuality. For instance, if a whole crop of a drought resistant landrace is decimated by flooding, strategically-planted flood resistant cultivars will likely survive and still provide a harvest from the same farm. The intercropping of cassava cultivars also has the benefit of minimising the risk of variety-specific failure resulting from disease and pests.

Fourth, root colour. The principal characteristic by which roots are distinguished is the colour of the internal parenchyma, which ranges from white to yellowy orange. In order to make cassava bread, ideally white in colour, whiter varieties are used; for farine, ideally golden in hue, yellower varieties are selected. Yellow types, such as giant turtle stick (*warara pîye*), are referred to as ‘farine trees’; white types, such as white man stick (*paranakîrî pîye*), are classified as ‘bread trees’. These aesthetic distinctions are ideal typical. In practice, the rigidity of root colour preference is loosened. Bread can be made with yellow roots; farine can be made with white roots. Still, the ideal farm will contain a range of coloured varieties to ensure that all cassava products can be manufactured.

4. 4. *Kîsera*: The Living Gift

The varietal diversity of this clonally propagated crop is primarily maintained via the exchange of stem cuttings, which form the main currency in the social exchange networks that underpin Makushi agro-ecology. The pool of cassava varieties in any one village at any given time is in flux. Cuttings are informally swapped, gifted, and traded by fellow cultivators, friends, and kin in extended spatio-temporal networks. Intra-village exchange determines that the pools of varieties in farms are always merging to form a fluid village-wide stock. Inter-village exchange determines that the stocks of different villages merge to form a broader regional field of varietal diversity. In this human-vegetal matrix of living plant matter, the practical, social, and symbolic facets of horticulture intermingle.

Cassava cuttings, therein, are simultaneously considered property (material goods) and living beings (selves), notions which are not so separate in Makushi ontology, in which the very ideas of ownership (*esak*) of living beings and inorganic things are entangled.

The exchange of cassava stalks is in part oriented towards the acquisition of a large stock of varieties for the four economic reasons outlined above. A certain security is afforded by participating in the informal network of exchange: if flood, drought, or pests decimate a forest farm, for instance, the farmer can acquire replacement sticks from allied cultivators with relative ease. However, the socio-aesthetic drivers for varietal exchange far outweigh the purely utilitarian. Social relations are expressed and political alliances are formed in networks of exchange. In the very act of exchange, two farmers may create or solidify a social relationship or alliance which runs much deeper than mere economic trade. Farming, as the most highly valued productive activity in daily life, is afforded a great cultural importance; as such, power and prestige can be expressed through exchange praxis. Farmers that cultivate many landraces accrue prestige within the community over time, to the extent that it is said that, 'Uncle Louis [or whoever] is the best farmer, for he has the most *kîsera*'. Thus, one can become a prestigious individual by becoming a great farmer; in order to become a great farmer one must cultivate many varieties of cassava.

At the same time, varietal exchange is motivated by aesthetic factors: cultivators express an innate curiosity and desire for experimentation that characterises attitudes towards the acquisition of new folk-varieties. Farmers are curious to try out new varieties, in order to explore their varietal-specific features and characteristics as cultivated life-forms. Farms and gardens are tranquil places of ecological diversity and ideally contain many types of plants. Just as the Western horticulturalist derives pleasure from working in and perambulating through a beautiful garden, so too does the Makushi gardener.

Taking the above into account, I suggest that the economic, ecological, social, aesthetic, and cosmological indices of varietal exchange are continuous and inalienable. It

must be stressed that the varietal hyper-diversity of cassava is *not* primarily driven by utilitarian concerns: there is no direct economic benefit to cultivating over fifty landraces of the crop, when four or five resilient keystone varieties can supply the same yield.

A number of different modalities of varietal exchange can be identified: (1) casual small-scale borrowing, (2) bi-directional swapping, (3) large-scale endowment. Cuttings are almost never purchased with cash or bartered for with goods. Only very rarely will a farmer buy or sell cassava sticks or other plant materials, and if they do, it is usually only in transactions with outsiders such as coastlanders or Brazilians.

Small-scale borrowing is the most frequent, and occurs when one individual (the recipient) asks another (the donor) for a few cuttings of a variety they do not have. There is no direct return expected in such exchanges, save for the implicit knowledge that the donor may ask for a variety in return at some point in the future. In Sahlins typology, this is a form of ‘generalised reciprocity’ (1972: 14). These are casual, informal transactions, in that they occur spontaneously and with little investment from either party. Small-scale gifting usually occurs between friends, relatives, and neighbours, and is typical of intra-village exchange. If a farmer visits a friend’s farm, they can take a few sticks of varieties they do not currently possess. Likewise, if a farmer acquires a new variety from another village, friends will ask for cuttings once the first crop has matured.

When I start a new farm, I can get sticks by asking people I know. People sometimes leave bundles of sticks in mounds of soil at the edge of their farms – if they have too many. This keeps them from drying out. People can then just ask and take some.

- Felix Holden | Yupukari, 2012

Bi-directional exchange may occur when one farmer and another decide to swap two or more varieties with each other. This form of one-for-one swapping is direct and occurs with little to no delay – akin to Sahlins’ ‘balanced reciprocity’ (1972: 194) – and

thus takes on a marginally more formal character, but still retains the unassuming air of small-scale gifting. Semi-formal swapping is more likely to occur between individuals who do not know one another. Swapping is representative of inter-village trade, which may occur if one farmer is visiting another village for work or other reasons and wishes to acquire a new variety not currently cultivated in their home village.

Large-scale endowment most often occurs when a young farmer clears a brand new farm. Here, a large stock of cassava cuttings is given en masse from the donor to the recipient. Commonly, parents or in-laws supply their children with a collection of various landraces with which to begin their new crop. When Marcellus cleared his first farm, for instance, his parents-in-law gifted him a large number of sticks of the most common and productive varieties, all of which he continues to cultivate today. There is no direct return expected from these endowments; rather, they are seen as an obligation of parenthood and a natural extension of cognatic relations.

Cassava sticks might be thought of as *semiotic prisms of condensed meaning*. As they travel through time and space, these living plant materials pass through many hands and many places, accruing meaning all the while. These social meanings are inscribed in the plants themselves. The names of varieties act as socio-ecological records in that they encode physical, ecological, social, and historical aspects of their titular plants.²³

Most landraces are named after beings or things that they resemble in some way. The majority are named after animals. For instance, the roots of giant river turtle stick (*warara pîye*) are extremely yellow when grated, like the contents of turtle eggs. Tapir stick (*waira pîye*) is said to bear big brown roots, like its eponymous animal. Similarly, the roots of armadillo stick (*kaikan pîye*) ideally resemble fat armadillos buried beneath the ground. Other types are named after plants. The roots of sweet potato stick (*sa ye*), for instance, are cream-coloured and starchy inside, like the tuber of the sweet potato. The

²³ For a full list of varieties, their names, and further information, see Appendix 2 | Cassava Varieties.

roots of pumpkin stick (*koima p̄ye*’) have an orange parenchyma, like the flesh of a squash. Some cultivars are named after basic physical qualities: dry stick (*aimun ye*’) has dry, crumbly roots; conversely, sticky stick (*ki’ni p̄ye*’) has viscous roots.

Trade histories may be inscribed in the names of cultivars. Some, for instance, carry the name of their place of origin (e.g. Shia stick, Yupukari stick). Others are named after people (e.g. Mavis stick, Euburn stick), the namesake usually being the individual who transported the stick to the village from elsewhere. During languid afternoons in the farm, I would sometimes ask my collaborators, “how do cassava sticks get their names?” As they would explain, “if you bring a stick from another village and it does not yet have a famous name, they will either name it after you, Lewis stick, or where it came from, England stick”. The genealogies of exchange encoded in varietal names can reveal much about the political economic history of a place. These histories – the ‘symbiotic’ products of human-plant interactions through time – are materialised in the form of cassava crops.



A farmer harvesting roots and ploughing new banks | Yupukari, 2013

4. 5. Cassava Processing

Bitter cassava roots (*imun*) are processed into a variety of foods and drinks, including cassava bread (*ikei*), farine (*u'wi*), several fermented cassava beverages (*parakari*, *kassiri*, and *wo'*), tapioca, and casareep (see Table 3, below).²⁴ These nourishing food products are of inestimable importance in Makushi cuisine. They are eaten as the carbohydrate component of every meal, which is ideally constituted of three elements: (1) cassava bread or farine; (2) meat (*kamo*) or fish (*moro'*); and (3) a liquid broth, usually containing hot peppers (*pimi*). Emphasising the socio-economic and cultural importance of cassava and its food products, one expert farmer told me,

Cassava is Amerindians' living; it is *our culture*. We use it to make cassava bread, farine, and *parakari*. Today, we can see it to market too.

- Louis Thomas | Yupukari, 2013

Four primary ingredients can be produced from bitter cassava in one processing cycle: cassava flour (*kise poromî*), tapioca starch (*imu*), casareep (*kumasi*), and cassava water (*kata*). In turn, these products are used as ingredients to make numerous foodstuffs, including cassava bread, farine, tapioca, and pepper pot. The process of detoxifying bitter cassava is highly labour-intensive and time-consuming: manufacturing a batch of cassava bread or farine is a two or three day undertaking. Although laborious, processing cassava is not considered menial; rather, cassava work is highly valued and recognised as being fundamental to the Amerindian way of life and the constant reproduction of society.

In theory, if not in practice, the processing of cassava is women's work. Although predominantly undertaken by women (*wiriyamî*), men (*warayo'yamî*) often lend a hand at

²⁴ Fermented cassava beverages are examined in detail in Chapter 5.

various stages of the process.²⁵ Much of what I learnt about cassava processing came from men and women together, often in the domestic setting as the extended family would sit around scraping cassava and ruminating on the happenings of the day. I can personally attest to the physically gruelling and highly skilled nature of this labour, my clumsy attempts at replicating the strength and skill of local people often forming a source of amusement for my friends. As my friends often told me, no activity encourages the symbolic transition from *paranakîrî* (white man) to Makushi *pemonkon* (person) more effectively than continued participation in the convivial world of cassava work.²⁶ Cassava processing is an inherently social activity: extended families often sit under the palm-thatched roofs of their open kitchens, processing cassava and chatting. Through the shared experience of engaging in cassava work, people not only produce their staple foodstuffs, they also reproduce themselves socially. And as the commensal substances par excellence, farine, cassava bread, and fermented cassava drinks might be regarded as alimentary manifestations of and catalysts for convivial intimacy and the incubation of sociality: they perform critical roles in reproducing and maintaining the social status quo.

Conceptualisations of these vital foodstuffs are framed by cosmological notions and ‘old time’ beliefs about the shared origins of people and cassava. These motifs relate to the practical and symbolic transformation of cassava from a poisonous, deadly plant substance into vital, life-sustaining alimentary foodstuffs. How does a bitter poison (*kawi*) become the very essence of sustenance? In order to shed light on this complex question, it is necessary to examine the processing of cassava roots into the two main foodstuffs in Makushi cuisine: cassava bread and farine.

²⁵ Unlike with certain other Amazonian groups, for instance, the Piaroa (Heckler 2004: 248).

²⁶ In this sense, cassava work in the Makushi setting accords with Overing and Passes’ assertion that “the Amerindian emphasis (with regard to the world of the social) is upon the artful skills for living together in convivial *intimacy*” (2000: 7).



Koko Madelene scraping cassava roots (*imun*) | Yupukari, 2012

4. 5. 1. Cassava Bread (*ikei*) and Farine (*u'wi*)

Cassava bread (*ikei*) takes the form of large white- or cream-coloured discs, which are usually around one or two feet in diameter.²⁷ When freshly baked, cassava bread is soft and almost buttery to taste; after being left to dry in the sun the discs turn hard and brittle. In its sun-dried form, cassava bread must be soaked in soups, stews, or broths to be eaten,

²⁷ White (*aimutun*) is considered the most desirable colour – “like the moon”.

whereupon it softens. There are two types of cassava bread, the regular type, *ikei*, usually around a centimetre in thickness, and a thicker, softer kind called *ikeinan*. Cassava bread, although certainly a staple, is commonly eaten at social events: it is associated with feasts and has a festive quality. Women often bake large batches of bread for communal labour feasts (*mayu*), birthday parties, wedding celebrations, and other ceremonial occasions, to accompany commensal meals. In this sense, cassava bread symbolises commensality and the extension of communal relations into the social domain.

Historically, cassava bread constituted an important trade item for the Amerindian people of the Guianas, and its trade history in the northern Amazon has a deep genealogy. Cassava products are mentioned in the very earliest post-Columbian reports by European explorers and colonialists. After his first voyage to Guiana in 1594, for instance, Walter Raleigh wrote of trading material goods such as knives for ‘the bread of *cassavi*’ with the Arawak coastlanders he encountered there (Raleigh 1997: 153). In fact, the very name of the Arawak people seems to have derived from their word for cassava flour: according to Raleigh, the flour itself was known as *aru*, and the people as *Aru-aca* (Ibid: 153). It seems likely, then, that Aruaca (Arawak) was a nickname bestowed upon the natives by neighbouring tribes or early European traders.

The historical literature confirms that the Amerindians of Guiana were processing cassava bread in essentially the same manner as today during the first decades of the nineteenth century. As Charles Waterton, the eccentric British explorer, wrote in 1825,

They generally have a few acres in some fertile part of the forest for their Cassava, which is as bread to them... they get from the white men flat circular plates of iron, on which they bake their Cassava. They have to grate the Cassava before it is pressed, preparatory to baking; and Indians who are too far in the wilds to procure graters from the white men, make use of a flat piece of wood, studded with sharp stones.

- Waterton 1825: 109.

Even more so than cassava bread, farine (*u'wi*) is regarded as the emblematic food of the Amerindians of the Rupununi savannahs. It is eaten with almost every meal: sprinkled on top of pepper pot or fish stew, soaked with water and served with roast fish or meat, or even mixed with water and sugar to make a carbohydrate-rich drink called *siipe'*. Farine is a golden-orange granular cassava meal, the coarse grains of which are typically a few millimetres in diameter. Like cassava bread, it is very hard and dry; as such, it is usually eaten with a liquid component such as a broth. If eaten with roast fish, a dry dish, the farine must be soaked in water to soften.²⁸ Farine ideally has a slightly sour (*so'ri*) taste, owing to the addition of semi-putrefied sweet cassava pulp (“stink cassava”, *kî*) to the bitter cassava flour prior to squeezing. Unlike cassava bread, then, which is the product of sun-drying and anti-rotting principles (dryness, *aimun*), farine is partly the product of rotten cassava roots (*a'wo'ta*) and putrefaction (*akîta*). Furthermore, whereas cassava bread is associated with festive commensality, farine, which is usually consumed in private settings, symbolises the alimentary domain of the domestic unit. Thus, the two products can be conceived as symbolically divergent in certain respects.

The history of farine is interwoven with the history of ranching in the region. In the first decades of twentieth century, a number of cattle ranches were set up by British colonists in the Rupununi – notably Dadanawa in the south and Karanambu, Manari, and Pirara in the north.²⁹ Farine, being easily transportable and having a long shelf-life (up to six months), was especially well-suited to life on the savannah. Although the early ranch owners were mostly Scottish Protestants, the cattle ranching culture is for all intents and purposes Brazilian. Farine, as a Brazilian foodstuff, was adopted as part of this culture.³⁰

²⁸ During his three-month expedition to British Guiana in 1933-34, the novelist Evelyn Waugh was less than impressed with the staple foodstuff. He wrote, ‘farine is very difficult to manage. It is like coarse sawdust in appearance; a granulated, tapioca-coloured substance of intense hardness and a faint taste of brown paper’ (Waugh 1934: 54).

²⁹ See Rivière (1972) on ranching culture in Roraima, Brazil.

³⁰ Indeed, the very word farine is an Anglicisation of the Portuguese *farinha*, meaning flour. As Farabee noted in 1924, “it would appear that the Caribs and Arawaks of this region learned the manufacture of farina from the Brazilian Indians in comparatively recent times” (1924: 36).

Farine became the preferred staple of the *vaqueros*, the indigenous cowboys who were employed to look after the cattle. Once a year during the dry season, the *vaqueros* would herd cattle from the savannah ranches along the cattle trail northwards to the coast, where beef could be sold to traders in Georgetown. During the long and hazardous journey, the indigenous cowboys would subsist on little more than farine and salted beef (“taso”) for weeks on end. Farine, better adapted to the ranching lifestyle, gradually became the staple food for the peoples of the lowland savannahs, a status which it retains today.

It is unclear exactly when the Makushi made the transition from cassava bread to farine. During the 1830s, Reverend William H. Brett reported that cassava bread was the staple food of the Amerindians of Guiana, making no mention of farine at all (1853: 59). Likewise, Waterton, who travelled through Makushi territory in the 1820s, wrote that cassava bread was the sole staple carbohydrate source of the indigenous peoples. Farine first appears in the historical literature toward the end of the nineteenth century. In 1883, the Oxford-based colonial servant and explorer Everard im Thurn wrote the following:

The cassava root is eaten chiefly in the form of bread by all of the tribes except the Wapianas, Atorais, and Tarumas.³¹ These latter tribes make most of their cassava into farine. It is to be noticed that these tribes live on the frontiers of Brazil, and that this form of bread-stuff is almost universal throughout that country.

- im Thurn 1883: 263.

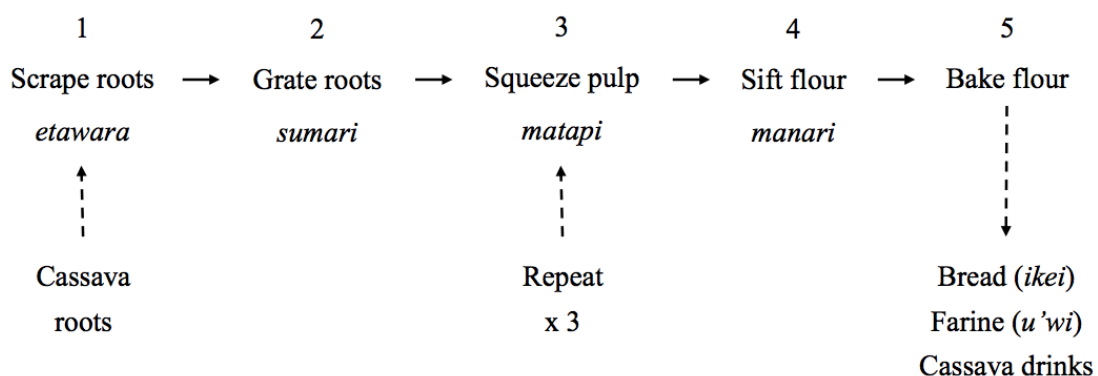
Im Thurn does not list the Makushi as farine producers, and as we know he travelled to Makushi territory in the 1870s, it can be inferred that, unlike the Wapishana, they had not adopted farine by this point. In his 1876 travelogue of the Rupununi, Charles Barrington-Brown makes mention of ‘farinha’, but only in reference to a white trader who had been

³¹ The Atorai and Taruma of the South Rupununi are today culturally extinct, having been subsumed by the Wapishana tribe. See Farabee (1918), Butt Colson and Morton (1982), and Bos (1985).

“living on farinha” given to him by a Brazilian Amerindian. The Guianese ‘Macusis’ are described as eating only “cassava and fish” (1876: 316).³² The incorporation of farine by the savannah tribes is likely to have taken place gradually during the final decades of the nineteenth century, coinciding with the onset of large-scale ranching in the Rupununi and the adoption of related aspects of Brazilian culture. By the turn of the century, farine was being routinely manufactured in Yupukari and the surrounding savannahs (e.g. Williams 1932: 178). In short, the switch to farine appears to be intrinsically linked to the adoption of ranching culture in the lowland savannahs.³³

The following section constitutes a detailed technical analysis of the laborious yet creative process of making bitter cassava edible. Since the anterior stages of the process are identical for both cassava bread and farine, I first describe the full processing of bread in detail before describing the stages that differ in farine processing. As shall also be seen, this process is imbued with ecosemiotic signification and cosmoecological signs.

❖ Figure 15. Basic operational sequence for cassava processing



³² Earlier still, based on his observations during the early 1840s, Richard Schomburgk wrote of the ‘Macusis’ as eating only cassava bread and pepper pot, with no mention of farine (1922: 283).

³³ To this day, the Akawaio and Patamona peoples of the Pakaraima highlands exclusively manufacture cassava bread (Audrey Butt Colson, personal communication, April 2015). A montane people, they had no historical involvement in ranching and thus did not make the transition from bread to farine like the lowland savannah peoples such as the Makushi and Wapishana.

Processing: Cassava bread

The processing of cassava can be divided into five stages: scraping, grating, squeezing, sifting, and baking. Each stage requires the mastery of a set of specialised techniques and a range of items of material culture (summarised in Table 4, at the end of the chapter).

After the roots have been transported to the home or workhouse, the first job is to “scrape” them using the blunt edge of a knife (*etawara*). The blade is repetitively scraped along the root’s surface, until the woody periderm and subcutaneous inner layer are fully removed. The peeled roots, now white, yellow, or cream in colour, are washed and placed in a container. The scrapings are usually left on the floor for chickens and pigs to eat.

After scraping, the roots must be washed and grated. Perhaps the most strenuous part of the entire process, grating transforms the scraped roots into a wet pulp (*kisere’na*). Most people use a manual grater-board (*sumari*), constructed of a plank of hardwood with aluminium teeth inserted into one surface. In the past, graters were made from a broad flat root, into which stone teeth were fixed using karamani resin (*maitikim ye’ku*).³⁴ The foot of the grater is placed in a container, which acts as a receptacle for the wet pulp. Today, a modified tractor tyre is commonly used; however, some still use the carapace of the giant river turtle (*warara*) as a receptacle, which is perfectly suited for the purpose.³⁵

In recent years processors have begun to adopt a new technological innovation that reduces effort and increases output in cassava grating: the bicycle grater. Originally imported from Brazil, the homemade bicycle grater consists of an upturned bicycle frame attached to a wooden structure containing a revolving grater. A rubber belt powered by the motion of the bicycle peddles acts to rotate a cylindrical cog with aluminium teeth housed inside the wooden box. The cassava roots are pushed into a chamber, whereupon

³⁴ Karamani tree (*Symphonia globulifera*). Makushi name, *maitikim ye’*. The black resin from this high forest tree is an important resource for Makushi people, being used as an adhesive for cementing arrow tips, a sealant for waterproofing dugout canoes, and a shamanic remedy for spirit possession.

³⁵ In Rewa, in particular, many families still use turtle shells as containers; less so in Yupukari. Gillin reported in 1936 that the Barama River Caribs used tree bark troughs (1936: plate 7).

they are grated into a pulp, which is collected in a container placed below. Operation of the machine requires the input of two people: one to feed the roots into the chamber, and one to provide the pedal power. Today, the incessant whirring sound of the bicycle grater forms a familiar backdrop to daily life in Makushi villages.

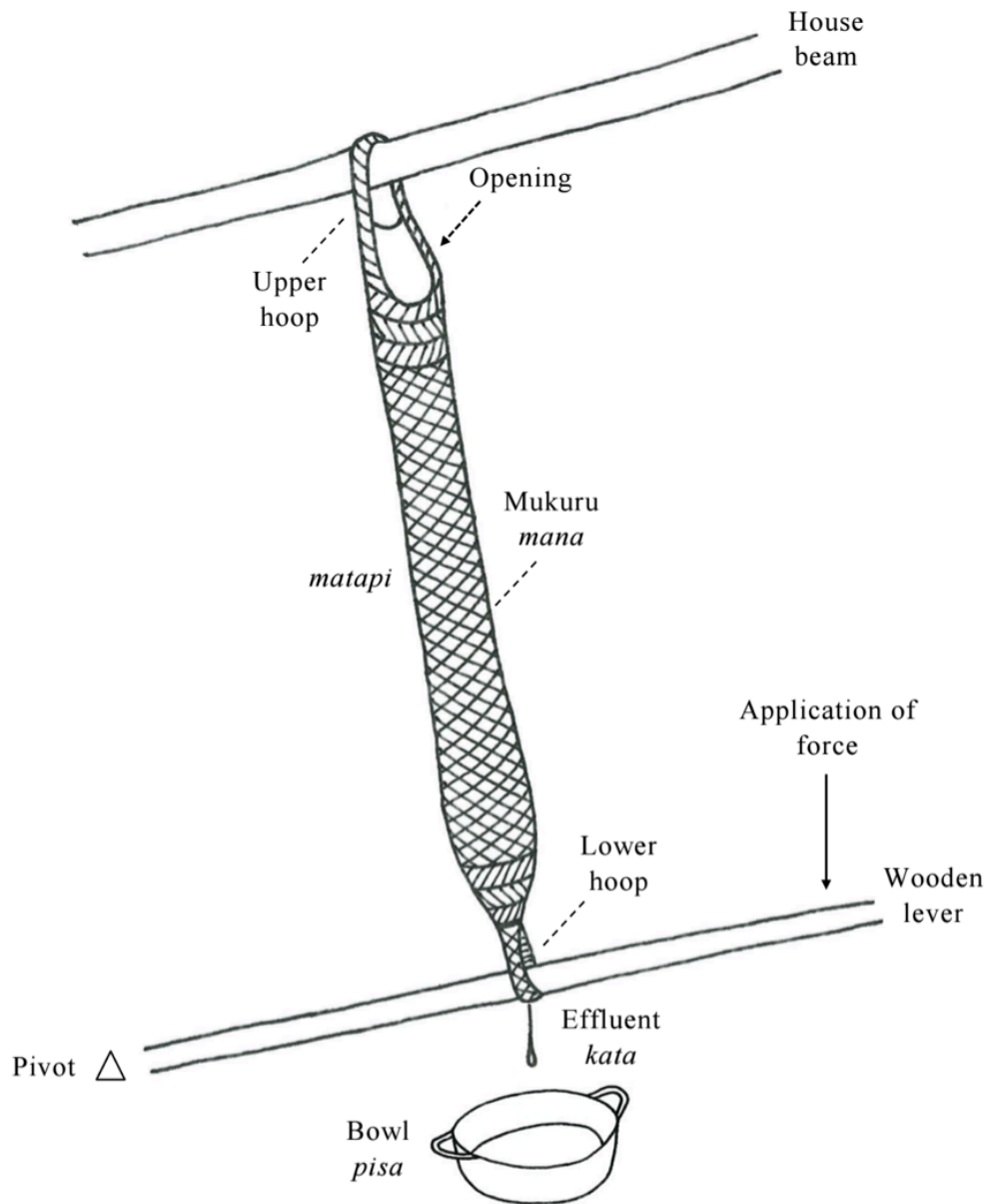
Once the grated cassava pulp is ready, it must be squeezed in the woven cassava press, known as the *matapi*. Squeezing can occur on the same day as the grating, or the following morning. If left until the next day, the grated pulp is stored in containers and covered with cloths overnight. The *matapi*, elsewhere called the *tipiti*, is perhaps the most iconic piece of material culture as manufactured by Amazonian peoples (see Figure 16).³⁶ Plaited from strips of the mukuru palm, the *matapi* is a flexible basketry tube of around five feet in length and ten centimetres in diameter, with a hoop at either end.³⁷ Use of the *matapi* involves a number of sequential steps. First, the device is slackened to increase its capacity, before being filled with the watery cassava pulp. Once full, a stopper such as a small coconut is placed in the top of the tube to prevent the contents from spilling out. The top hoop is hooked over a suitable roof beam or tree branch. Next, a lever – usually a long, straight piece of hardwood – is placed through the hoop at the bottom of the tube. The user then sits upon the lever to apply pressure, causing the tube to constrict. Like a Chinese finger trap, torsion is applied to the vegetal contents, forcing the milky effluent (*kata*) out of the woven sides of the *matapi*. The juice runs to the bottom of the tube and into a vessel placed below; today, a large plastic or metal bowl (*pisa*) is usually used for this purpose. Each pressing lasts approximately ten minutes. The process is repeated two or three times until all of the *kata* is extracted, leaving only the dry, compressed flour.³⁸

³⁶ The cassava sleeve is used by all of the Carib-speaking groups of the Guianas (Basso 1977: 13), as well as many more groups across lowland South America (see Carneiro 2000).

³⁷ Mukuru (*Ischnosiphon* sp.) is a small palm from which long canes are harvested and stripped for plaiting into woven basketry items. There are three subspecies: *mana*, forest mukuru, *moroka*, swamp mukuru, and *kísiri*, a dwarf type with jointed canes and white skin.

³⁸ The number of pressings required depends on the viscosity of the particular variety of cassava. Sticky (*iki'ni*) varieties may require three pressings; drier (*aimun*) types may only require one or two.

❖ Figure 16. The cassava squeezer (*matapi*)



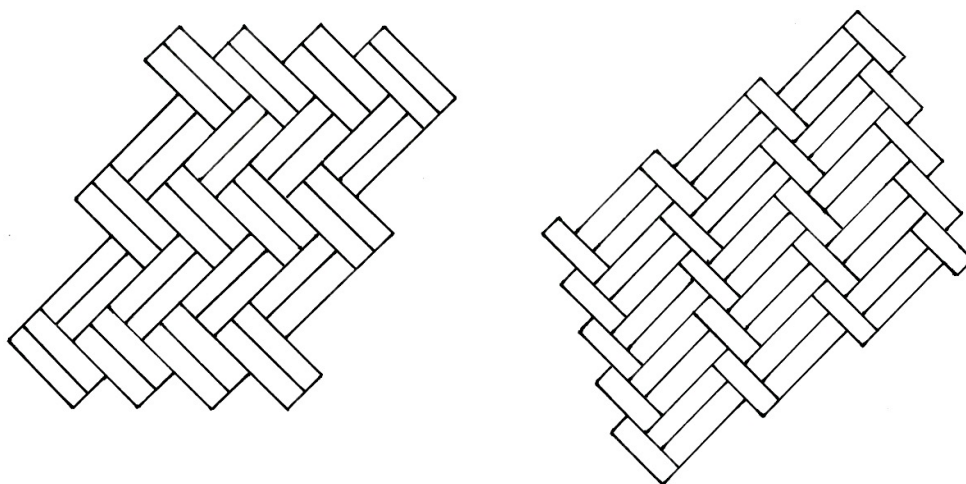
'*Matapi*' is in fact the generic Guyanese name originally derived from an Arawak term; in the Makushi language the item is known as *tínki*, the name of the anaconda. The woven object shares a set of ecosemiotic associations with the snake.³⁹ In the most basic sense, the *matapi* physically resembles an anaconda, being around six feet long, tubular, thick in

³⁹ Green anaconda (*Eunectes murinus*). The anaconda (land kamudi) has two names in Makushi: *wii* and *tínki*. This amphibious snake is considered to be extremely harmful, owing to its contaminating spirit. It is particularly dangerous for adolescent, pregnant, or menstruating women, and hungry and grieving individuals. Its terrestrial counterpart, the land kamudi (*Boa constrictor*), is equally feared.

diameter, and flexible.⁴⁰ Secondly, just as the anaconda constricts its animal prey, the *matapi* squeezes its vegetable contents. The *matapi*'s capacity to constrict may impact upon its users by a “sympathetic” relation, in the Frazerian sense (1889): it is said that if a pregnant woman leaves the pulp inside the *matapi* for too long, she will have difficulty giving birth, her womb acting like the squeezer via an iconic relation (Peirce 1940: 102).

Although all share a basic functional design, *matapis* come in a number of styles, each displaying a different plaited pattern (see Figure 17). The various weaves are named via associations of resemblance with animals. One common design is called “labba tooth” (*warana ye*), so-called because its intersecting pattern resembles the two front teeth of the small rodent.⁴¹ Another popular design, “hassar skin” (*muruta pi'pi*), is said to resemble the unique criss-crossed scale pattern of the hassar, a species of small armoured catfish.⁴² The poly-semiotic associations encoded in the woven designs of the items used in cassava processing are a further expression of the pervasive web of ecological signification that underlies Makushi multispecies technical processes and material culture (see below).

❖ Figure 17. Weaves: labba tooth (*urana irei*) and hassar skin (*muruta pi'pi*)



⁴⁰ The symbolic association between snake and *matapi* relates in some way to that between snakes and cassava, as recounted in the origin myth of cassava, above. This point requires further exploration.

⁴¹ Labba (*Cuniculus paca*). Makushi name, *urana*. Elsewhere known as the lowland paca.

⁴² Hassar (*Hoplosternum littorale*). Makushi name, *kariwo*.

Even the toxic cassava water, a by-product of the detoxification of the roots, is not wasted.⁴³ When left to settle, a fine white sediment collects in the bottom of the container. This residue, known as starch (*imu*), is collected and dried in the sun or on a warm cassava bread pan. It can be sifted and used as a fine flour to make tapioca or small bread cakes. The cassava effluent (*kata*) itself is siphoned off and boiled down to make another iconic Amerindian foodstuff, casareep (*kumasi*). Resembling molasses, casareep is a dark brown viscous condiment used to flavour dishes such as pepper pot (*tuma*) and fish broth (*moro'paru*). It has preservative properties; if mixed into a tuma pot periodically, the communal dish will remain edible for a week or more.⁴⁴ To make casareep, the cassava water must be boiled in a pan for around four hours. The liquid thickens as the water evaporates; a white residue floats to the top of the pan and is scooped off, removing the prussic acid.

Next, the cassava flour is sifted to remove any fibrous pieces (*ishko'pî*).⁴⁵ There are two main types of sifter (*manari*), which are both woven from mukuru: the cassava bread sifter (*ikei yainonka*) and the farine sifter (*u'wi yainonka*). The former has a narrow mesh sieving surface to create the fine flour required for baking cassava bread, whilst the latter exhibits larger holes of around one centimetre in diameter to allow through the clumps of coagulated flour that are required for making the granular meal. As with the squeezer and grater, the sifter is an essential piece of technology for any cassava processor.

⁴³ During my enquiries, people would often emphasise the deadly toxicity of cassava water by recounting stories of times when dogs or cows drank from a bowl of effluent before falling down dead.

⁴⁴ This is the traditional method of cooking a communal *tuma* pot, with fresh bush meat or fish being added to the broth every day. The stew would have been cooked in a large clay pot called a *tuma*.

⁴⁵ The fibrous parts left after sifting are usually fed to chickens or pigs. However, there are a number of beliefs or rites associated with them. During “smoking out” healing rituals, the shaman or local healer may burn the *ishko'pî* in a fire along with various incenses in order to exorcise malevolent spirits. The smoke is said to be “bitter”, like tobacco smoke, and thus constitutes a “spirit food”. See Chapter 7.



A woman and child with *matapi* – note, cassava effluent | Yupukari, 2013

Once the flour has been sifted and transported to the hearth on a woven flour tray (*sunpa*), it is ready to be baked into bread. Fresh flour is usually baked into foodstuffs on the same day as its manufacture. First, firewood (*keme*) must be collected. In savannah communities the marishi tree (*mîrhu ye'*)⁴⁶ is favoured as the best firewood, but other dry hardwoods such as the buruhuda tree (*amoko ye'*) can be used.⁴⁷ The fire is lit in the hearth, which is usually located in an open kitchen adjacent to the homestead. The baking process is different for cassava bread and farine. Cassava bread is baked on a round metal pan.⁴⁸ The flour is placed on the hot pan and spread into a circular shape using a palm fan (*wîriwo'*), an essential implement for baking that is also used to fan the flames of the fire.

⁴⁶ Marishi tree (*Vismia* sp.).

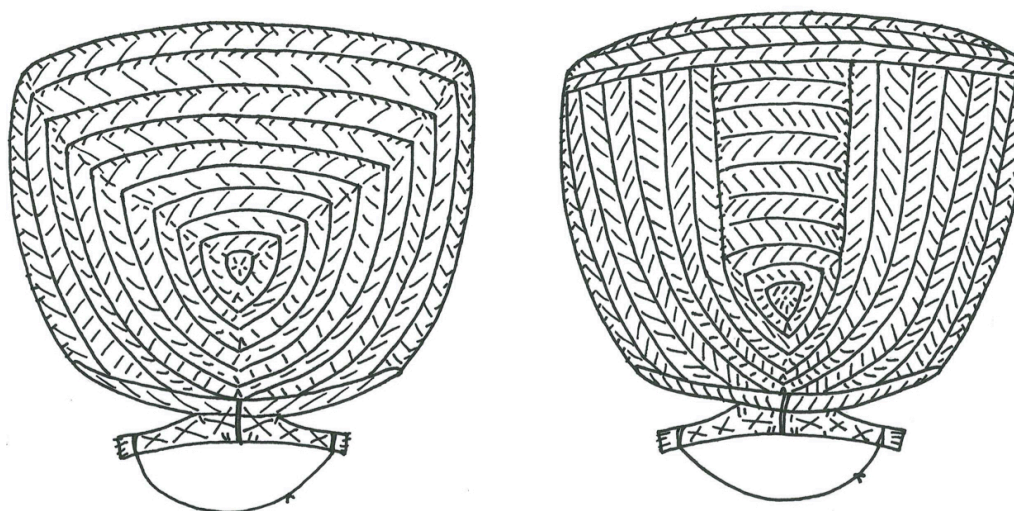
⁴⁷ The buruhuda tree (*Parinari campestris*) is desirable as a firewood for its smokeless coals.

⁴⁸ Today, metal pans can be bought from stores in Lethem for around 8,000 Guyanese dollars (\$40 USD). Prior to the adoption of metal pans, people used flat, round stones, which were found in the Mapari area of the Kanuku foothills. Farabee reports that clay pans were also used c. 1913-16 (1924: 22). One elder Yupukarian recalled that he first started to see metal pans in the village in 1963.

The *wîriwo*’ is woven from the new green shoots of the awara palm (*wara ye*’). As with the other plaited items used in cassava processing, there are various woven designs of fan, each incorporating decorative natural symbolism into its pattern and being named after the animal that it depicts.⁴⁹ Examples include the horse hoof and marudi chest, the former resembling the shape of a hoof and the latter resembling the distinctive plumage of the breast of the marudi bird (see Figure 18, below).⁵⁰

Each bread disc is baked for around five to ten minutes on either side, until lightly toasted. The freshly baked breads, often two feet in diameter, are typically placed on the thatched roof of the house to dry in the hot sun, where they harden over the course of the day before being removed before sunset. An “old time” belief decrees that the discs must not be left on the roof after the sun goes down, lest, so the saying goes, Cassava Mama will get “vexed”. Angered, she will punish the cultivator for “playing with” the cassava, bestowing rootlessness upon future crops in retribution. As Joel Samuel poetically put it, “the setting sun takes away the cassava spirit”.

❖ Figure 18. Fans: horse hoof (*kaware puu*) and marudi chest (*wora roppo ’ta*)



⁴⁹ See Figure 23, in Chapter 5, for a range of common symbolic designs woven into items of basketry.

⁵⁰ Marudi, aka the Spix’s guan (*Penelope jacquacu*). Makushi name, *wora*.

Processing: Farine

The processing of cassava roots into farine follows the same basic process as described for cassava bread, but with a few additional steps.

In order to manufacture farine (*u'wi*), a proportion of semi-putrefied cassava must be added to the fresh cassava pulp prior to squeezing in the *matapi*. The addition of the partially rotten cassava roots, known as “stink cassava” or *kî* in Makushi, is crucial for the manufacture of farine as it gives the granular meal its distinctive sour taste. To create the *kî*, a batch of sweet cassava roots must be scraped, placed in a container of water, and left to soak for several days.⁵¹ During this time, the roots begin to putrefy, turning soft and giving off a distinctive odour (*kîtun*). Once sufficiently rotten, the soft roots are grated into a mulch and mixed in with the fresh cassava pulp. The mixture is then loaded into the *matapi* and squeezed in exactly the same fashion as described above. The ratio of fresh to putrefied pulp required for a batch of farine is roughly 3:1. Sweet cassava roots (*ka'na imun*) are preferred for this purpose because they rot more quickly and are said to give a stronger flavour; in practice, however, bitter or sweet roots can be used as *kî*. The toxic effluent (*kata*) collected from the *matapi* during farine processing cannot be used to make starch or casareep, as the putrefied juices from the *kî* are deemed too ‘sour’ (*so'ri*) to use. It is usually thrown in the bushes. After squeezing, the contents of the *matapi* are sifted into coarse flour using the farine sifter (*u'wi yainonka*).

Farine is parched in large rectangular metal pans of around four feet in length, with up-turned sides to prevent spillage. As with cassava bread, the pan is placed above a lit hearth in the open kitchen or farm workhouse. Cow or fish fat is used to lubricate the surface of the pan, before loads of the coarser cassava flour are added using the *wîriwo'* fan as a spatula. The addition of fat is required, first, for lubrication, but also to give the

⁵¹ In the recent past, roots would be soaked in water-filled canoes at the riverside (Laura Rival, personal communication, March 2014); today, people predominantly use plastic buckets or barrels.

toasted meal its distinctive colour and flavour. Once in the hot pan, the flour is vigorously stirred using a large wooden farine stirrer (*parake*) until it turns golden-brown in colour; this takes around twenty minutes per pan-load. Parching farine is particularly gruelling work, owing to the extreme heat from the fire. My failed attempts at spending more than five minutes at a time stirring the meal in the pan stand as a testament to the expert skills of my mentors and the physical demands of cassava work.

Farine is primarily produced for consumption within the domestic unit. However, although it is true to state that farine production is still overwhelmingly a domestic-scale subsistence industry, there is a growing market for it, driven by the external demand from semi-urban centres such as Lethem and mining operations in the Gold Bush in Region 7. Prices are fluid, and there is no market regulation. In Yupukari, one “can” of farine (thirty litres) sells for 4,000 Guyanese dollars in the village, 6,000 in Lethem, and up to a hugely inflated 30,000 in the Gold Bush. In Rewa, the figures I was quoted were 6,000 for a can in the village, 6,000 in Annai village, and in excess of 10,000 in the Gold Bush.⁵² It is not surprising, then, that some farmers opt to manufacture farine on a larger scale for market sale. Some choose to make the long and hazardous journey to the Gold Bush to capitalise on the astronomical prices there first-hand. However, individual families cannot cultivate and process cassava on a scale large enough to make substantial profits from the market sale of farine; as such, it remains only a minor supplement to the subsistence economy.

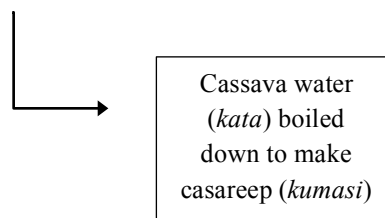
⁵² All figures quoted are prices c.2013.

❖ Figure 19. Full operational sequence for processing cassava

1	2	3	4	5	6
Day 1 am	Day 1 pm	Day 1 pm	Day 2 am	Day 2 pm	Day 2 pm
Harvest roots from farm; transport in warishi	Scrape roots using knife (<i>etawara</i>)	Grate roots using grater (<i>sumari</i>); store overnight	Squeeze pulp in <i>matapi</i> ; collect cassava water	Sift flour using sifter (<i>manari</i>)	Collect firewood for hearth

Farine (*u'wi*) – extra steps:

Day 1 pm	Day 2 am	Day 2 am
Place scraped roots in water overnight to rot	Grate rotting roots (<i>ki</i>); mix with fresh pulp	Squeeze combined pulps in <i>matapi</i>



4. 6. Conclusion: Cosmos and Commensality

In this chapter, I have described some of the technical means by which bitter cassava, a highly toxic and potentially deadly plant, is transformed into the nourishing foodstuffs that reproduce society. The ‘toxic paradox’ that characterises cassava as a staple crop can only be understood as a combined result of economic, ecological, social, aesthetic, and cosmological factors. I have shown how cassava cultivation and processing are inherently communal activities through which social relations and political alliances are forged and reproduced. Social acts, such as the varietal exchange of cassava cuttings, are essential for maintaining the state of managed diversity that defines society. Society in this view is not only, or merely, human; rather, it is a multispecies assemblage in which various cosmological actors interact. The dynamics of this interspecific field of sociality are framed by cosmological motifs and expressed via a web of semiotic transformations, including,

notably, that between bitterness and sweetness. As shall become clear in the next chapter, these semiotic transformations lie at the heart of Makushi ethno-theories of life.

Plants and people come together in productive activities played out in the living world of the farm. Human beings and cassava crops, and the foodstuffs created via that symbiotic alliance, might be considered co-historical in that they share complex mythic and socio-economic histories. Further still, crops and humans are sentient subjects united by shared selfhood: they exist in communicative, emotive relationships, forming a trans-specific dialectic which is deeply bound up in their shared history. Greater attention must be paid to the cosmo-politics of trans-specific encounters in Amazonian cosmologies. In the Makushi context, the subjectivity of cassava plants and the mastery of Cassava Mama pervade all aspects of cassava cultivation and farming practice. The cosmological agents, forces, and happenings described in mythic history and encountered in ritual prescriptions are inextricably interwoven with the socio-technical processes of cassava cultivation and processing. The three-stage cassava cycle constitutes a dynamic and interconnected whole in which a multitude of actors including human cultivators, plant-people, crop masters, animal pests, snake spirits, and meteorological and celestial forces converge. These kinds of socio-technical processes are constituted of what I term *multispecies techniques*.

Ecosemiotic flows evaluated in the foregoing discussion have centred on the non-linguistic (iconic and indexical) embodied communication that obtains between humans and their cassava plants, in the form of the technical processes of cultivation, as well as the “soul-speech” that occurs in dreams, visions, and incantations – which is conceived of as linguistic (iconic and symbolic) dialogue. In short, these semiotic modes of “likeness and contiguity” (Kohn 2013: 147) constitute the primary channels via which humans and crop plants communicate with one another. These notions will be further explored in the following chapter, in which I perform an in-depth analysis of the semiotics that inflect the processing of the cassava roots into a number of culturally-pivotal fermented beverages.

❖ Table 3 | Food and drink products made from bitter cassava

English	Makushi	Description	Use
Cassava bread	<i>Ikei</i> (normal) <i>Ikeinan</i> (thicker)	Large circular bread discs; white or cream coloured; baked from finely sifted cassava flour	Staple foodstuff; accompaniment to pepper pot, stews, or broths; eaten at festive occasions
Farine	<i>U'wi</i>	Granular meal, made from cassava flour and putrefied cassava pulp; parched in cow or fish fat	Staple foodstuff; accompaniment to pepper pot, stews, or broths; eaten with every meal
Cassava drink 1	<i>Parakari</i> <i>Kari</i>	Alcoholic cassava drink; made from cassava bread; fermented using an amyolytic mould; sealed in container for 1 week +	The most popular fermented beverage; consumed in social contexts, parties, during communal labour (<i>mayu</i>)
Cassava drink 2	<i>Wo'</i>	Thick cassava drink; made from burnt cassava bread soaked in water for 2 days	Low alcohol; consumed during communal work or festive occasions
Cassava drink 3	<i>Kassiri</i>	Traditional drink made from grated bitter cassava and purple potatoes	Boiled in water and sealed in a bucket to lightly ferment if desired
Starch	<i>Imu</i>	Fine white starchy powder; the solid residue that settles in cassava water	Toasted and used to make tapioca; also, small pancakes, flat breads
Casareep	<i>Kumasi</i>	Thick brown condiment; made from reduced cassava effluent (<i>kata</i>)	Savoury condiment and preservative; added as flavouring to stews
Cassava water	<i>Kata</i>	Toxic effluent from squeezing grated pulp; collected from <i>matapi</i>	Added to pepper pot as stock for stew or broth; boiled into casareep

❖ Table 4 | Items of material culture used in cassava cultivation and processing

English	Makushi	Use	Materials
Cassava squeezer	<i>Matapi</i> <i>Tinki</i>	Woven tube; used to extract toxic juice from pulp	Plaited from mukuru; various sizes and designs
Sifter	<i>Manari</i>	Woven sieve; used to sift coarse flour into finer flour	Plaited from mukuru; square wooden frame
Cassava bread sifter	<i>Ikei yainonka</i>	Woven sieve; used to sift coarse cassava flour into finer flour	Plaited from mukuru; smaller holes for finer flour (approximately 0.3cm)
Farine sifter	<i>U'wi yainonka</i>	Woven sieve; used to sift coarse cassava flour into finer flour	Plaited from mukuru; larger holes for coarser flour (approximately 1cm)
Grater	<i>Sumari</i>	Rectangular board with sharp teeth; used to grate cassava roots into pulp	Hardwood board; stone or metal teeth; traditionally, tree resin as adhesive
Flour tray	<i>Sunpa</i>	Large square woven tray; used to transport cassava flour, etc.	Plaited from mukuru; wooden frame; geometric animal designs
Warishi	<i>Rutti</i>	Woven back-pack for carrying cassava and other heavy loads	Plaited from mukuru or nibi; hardwood frame; tree bark straps
Fan	<i>Wirivo'</i>	General purpose fan, for fanning hearth and flipping cassava bread	Plaited from the new shoots of the awara palm; various sizes and animal designs
Farine stirrer	<i>Parake</i>	Wooden stirrer or paddle for parching farine	Carved from hardwoods such as <i>amara ye'</i>
Hoe	<i>Sanpa'</i>	Used for ploughing cassava banks; general farm work	Metal axe-head, hardwood handle
Knife	<i>Etawara</i>	Used for scraping cassava; general kitchen work	Metal blade, wood handle; commercially produced
Cutlass	<i>Supara</i>	Used for clearing underbrush in farm; general farm work	Metal blade, wood handle; commercially produced

5. THE NATURE OF SWEETNESS & the Ecology of Fermentation



Madelene parching farine (*u'wi*) in the late afternoon | Yupukari, 2013

5. 1. Symbols of Sweetness

Fermentation as a domain of socio-technical enquiry has been much overlooked in both Amazonian ethnography and in anthropological analysis more generally. In the Makushi context, fermented cassava beverages might be considered as, variously, staples of local cuisine, social catalysts, shamanic elixirs, ceremonial symbols, and emblems of cultural identity. The skills and techniques employed in their manufacture should not be regarded as the exclusive practical actions of humans upon inert materials; rather, as I elucidate herein, they are collaborative interactions occurring across species boundaries and uniting a menagerie of human and nonhuman actors, including human cultivators, cassava plants,

stinging arthropods, forest spirits, and a cultivated fungus. Herein I refer to these practical methodologies as multispecies techniques, to emphasise the trans-specific nature of their constitution. The analysis of fermentation as an inter-subjective and socio-technical field may reveal a great deal about the constitution of native Amazonian ontologies. I explore the benefits the multispecies technical approach may have for shedding light on Makushi ethno-theories of life, while attempting to elucidate native understandings of fermentation as a meaningful organic process imbued with ecosemiotic flows.

By the “ecology of fermentation”, I refer to the relational field constituted of a diversity of vegetable, animal, material, and spiritual elements which come together in the manufacture of alcoholic beverages. Fermentation, in this view, is considered at one and the same time a socio-technical system and an eco-system. The trans-specific interactions that occur therein are rife with cosmological semiotic flows; as shall be seen, notions of sweetness, bitterness, lightness, poison, and honey recur throughout the discussion. The poly-semiotic relations that emerge in fermentation praxis relate in fundamental ways to Makushi ethno-theories of life. Symbiotic entanglements evaluated herein include those between humans, cassava plants, and a domesticated species of mould; between humans and game animals in ceremonial hunting dances; and those between humans and ants in ritualised stinging and tattooing. The analysis thus has a deep-seated ecological focus: the various living beings with which human beings interact in the field of fermentation are of utmost importance to understanding its trans-specific constitution.

The chapter is divided into three sections. First, I give an overview of the range of cassava beverages fermented by Makushi people today, before describing the process of manufacture of the staple drink *parakari* in technical detail. Second, I examine the social and ceremonial roles that these drinks play in Makushi society, with a case study of the *parisara* and *tukui*’ dances. Finally, I investigate the ritual dimension of fermentation by assessing the efficacy of natural symbols in ritualised ant stinging and charm tattooing.

5. 2. Honeybee's Mother-in-Law

One morning during the long rainy season, I sat with an elderly woman called Koko Ethel in her kitchen garden in Rewa village. Whilst roasting cobs of corn (*a'nai*) on a fire, I asked her about traditional fermented drinks. Ethel began to recount a story to me.

m4. Honeybee's mother-in-law

- Ethel Edwards | Rewa, 2013

A man was cutting a new farm. It was hot and he became thirsty. A honeybee (*wan*) came flying out of the bushes. The man said, 'honeybee, go get a drink for me, I'm thirsty.' The bee flew away. Shortly after, a young woman came to the man with a bowl of drink (*wo*). He asked, 'who are you?' She said, 'It is me, the honeybee. I brought what you asked me.' The man drank the *wo*, which was delicious and sweet.

The young woman went home with the man. 'Mother, I brought a wife with me,' he said, 'but she is not a human, she is a bee.' The old lady did not respond. The next day, the bee's mother-in-law harvested some corn (*a'nai*). She wanted her new daughter-in-law to make corn wine for her. She said, 'bee, how many goobis have you got?' The bee replied, 'only two'. The old lady said, 'make two goobis of corn wine for when I return'. She left the corn cobs by the goobis, and went to the farm.

When the mother-in-law returned, she saw the pile of corn was untouched. It had not even been ground in the mortar (*a'*). The old lady was very angry with the bee. The girl was upset and said to her husband, '*wa'ni* (mother-in-law) don't like me now'. She turned back into a bee, and flew away, back where she came from.

The son turned to his mother, and said 'why did you have to send her away? She made some nice drink for you, check the goobis'. So the mother checked, and there were two full goobis of corn wine. The bee had filled each goobi right to the top using only two grains of corn. The old lady tasted it and it was sweet, sweet, sweet, just like honey. The mother called the bee back, but the bee was vexed and she gone.

This story highlights a number of central leitmotifs in Makushi mythopoetics, including agricultural labour, the fraught nature of affinal kinship relations, the capacity for cross-species communication, and bodily metamorphosis. Of relevance here are the symbols of sweetness related in the story: the honeybee, honey, sweet corn wine. In the Makushi conceptual system, notions of sweetness and bitterness form central symbolic motifs, and fermentation is one arena in which these categories are particularly visible. In common parlance, strong alcoholic drinks are described as bitter (*mai'*) and low-alcohol drinks are described as sweet (*a'ki'ku*). The sweet-to-bitter transformation occurs along a spectrum: the longer a drink is left to ferment, the bitterer it becomes. Strong *parakari*, for instance, is referred to as *parakari mai'*. Conversely, a weak batch is *parakari a'ki'ku*. Likewise, *wo'* and *kassiri*, predominantly low-alcohol drinks, are generally described as “sweet”.

A preliminary linguistic analysis reveals a set of semantic associations between bitterness, poison, fermentation, and lightness in the Makushi language. The descriptive noun for bitter is *mai'*; the verb ‘to make bitter’ is *mai'pa*.¹ The same verb, *mai'pa*, also indicates poison or poisoning. Linguistically speaking, then, to poison is to make bitter; to make bitter is to poison. Interestingly, the verb ‘to ferment’ is *mai'tanîpi*, clearly demonstrating a semantic link between bitterness and fermentation. Furthermore, these terms are also related to the word for ‘light’ or ‘lightness’, *amai'*; the verb ‘to make light’ being *amai'ta*.² Thus, a trifold linguistic association emerges between fermentation, bitterness, and lightness: to ferment is to make bitter, which is to poison, which is to make light. These semantic associations, I will argue, have a wider conceptual expression in Makushi cosmological symbolism. Fermented drinks are regarded as bitter substances, likened to poisons, which make one’s soul light. As I explore in Chapter 7, bitter plant poisons and alcohol serve as the essential catalytic substances in shamanic ritual. These substances are consumed to make the shaman’s spirit light, in order for it to detach from the physical

¹ The addition of the postfix *-ta* or *-pa* turns a noun into a verb.

² *Amai'ne'* being the descriptive noun for ‘heavy’.

body and engage in soul flight. These light substances are associated with externality and the forest domain, as opposed to internality and the domestic realm.

Sweetness and bitterness, as gustatory signifiers, relate to taste and the sensory experience of the world. Being culturally ordered, these categories are relative and do not always accord with taste classification as understood in the other cultural frameworks. Early on during my time with the Makushi, I noticed that people would often describe savoury foods as being sweet. A well-made pepper pot (a stew made with fish or meat, casareep, and hot *pimi* peppers) might be described as sweet. A well-made batch of *wo'*, a thick, starchy drink, would be hailed as being “sweet, sweet, sweet”. Likewise, Marcellus, a fishing companion from Yupukari, would often insist that the bizarre armoured catfish *kirikirimî* was ‘the sweetest-tasting fish’. Until I had eaten the boneless flesh of this ugly “iron-fish”, I struggled to understand what he meant.³ How could a salty, smoky fish taste sweet? Although certainly delicious (*ipo*), the flesh of *kirikirimî* was far from sweet, at least in my understanding of the word. I may have thought nothing more about this quirk. However, prior to leaving for Guyana, I had read an article by the anthropologist Audrey Butt Colson written in 1961 concerning symbolic classifications among the neighbouring Akawaio. According to Butt Colson, the Akawaio classify salt, along with sugar, as sweet (Butt 1961: x).⁴ This assertion struck a chord with the anecdotal observations I had made in the field. Both sugary and salty foods were regularly described as being sweet. Rather than being opposed to savouriness, the category of sweetness seemed to be predominantly opposed to bitterness. In this chapter, by tracing the technical processes of fermentation, I explore the expression of these categories in the Makushi ethnography, in order to draw some conclusions regarding the semiotics of taste in the indigenous conceptual system.

³ Raphael catfish (*Platydoras* sp.). A small catfish, also referred to as the “policeman” or “iron-fish” after its tendency to clamp its specially-adapted pectoral fins against its heavily armoured body.

⁴ The merging of salt with sweet into one term is a phenomenon also reported by Shepard among the Matsigenka of southeast Peru, and more broadly in other Amerindian languages (2004: 259).

5. 4. *Parakari*: ‘Our Traditional Way’

The Makushi manufacture an array of alcoholic beverages, including three main cassava drinks: *parakari*, *kassiri*, and *wo*.⁵ *Kassiri*, made from grated bitter cassava and purple potatoes, and *wo*, made from burnt cassava bread and sugar, are both low-alcohol drinks which are fermented via the combined action of mastication and boiling.⁶ A fourth drink, *paiwari*, renowned for being particularly potent, is rarely manufactured by the Makushi today. People also brew fermented wines from various fruits, including jamun, mango, cashew, and pineapple. Other crude home-brewed drinks include ‘tonic’, made from yeast and burnt sugar, and ‘fly’, made from purple potatoes and sugar. Bottled spirits are also frequently consumed, most commonly Guyanese rum, Brazilian *cachaça*, and other super-strength cane liquors.⁷ In general, home-brewed cassava drinks are regarded as traditional Amerindian beverages in opposition to commercial bottled spirits, which are purchased from Lethem or Brazil and imported into communities.

Parakari is the most popular fermented drink in the Rupununi today.⁸ Of all the alcoholic beverages brewed by the Makushi, it is the most highly valued in cultural and socio-economic terms, being consumed daily and forming the fundamental festive and ceremonial substance. Woven into the fabric of everyday life, *parakari* is more than a drink; it is a way of life, a cultural identity, and a political motif. When participating in the everyday acts of its manufacture, as I was often inclined to do, my friends would regularly describe the drink with a sense of pride or defiance. As Uncle Louis told me one evening as we sampled a new batch of the drink, “*parakari* is our traditional way; our culture is sheer kari”. The term *parakari* is abbreviated to ‘kari’ in the Creole vernacular,

⁵ See Table 5, at the end of the chapter, for a list of alcoholic drinks.

⁶ *Wo* meaning literally, ‘drink’. *Wo* was described to me by one friend as “Amerindian Coca Cola”.

⁷ Including ‘High Wine’ and ‘Alcool’, the latter being denatured industrial ethanol with an alcohol content of over 95% (see also Forte *et al.* 1992: 63).

⁸ For historical and ethnographic references to the production and consumption of fermented drinks among the indigenous groups of Guyana, see Brett (1853: 276), Barrington-Brown (1876: 114), Williams (1932: 179), Myers (1944: 37-38), Thomas (1982: 42), and Forte *et al.* (1992).

a term which has entered the wider Guyanese vernacular. Herein, I use the terms interchangeably, as Makushi people tend to do. *Parakari*, a thick carbohydrate-rich drink, is a mainstay of daily life for Makushi people. It is made from bitter cassava, which is baked into bread and fermented using a domesticated species of amylolytic mould (a process described below). Kari may be “sweet” or “strong”, the ethanol content of the drink being determined by the duration for which it is left to ferment. The end product is ideally thick in consistency, smooth in texture, and light brown or cream in colouration.

During my time in Yupukari, I kept a cassava garden within the farm of some friends, Jose and Clarnissia. Under their mentorship, I experimented with planting various landraces of the crop, all the while learning about the growth processes of the plants and the techniques required to harness their living agency. I would visit the garden every few days to check on the plants, weed between the banks, and plant new cuttings. Once the first crop was ready for harvest in April 2013, I decided to make a batch of *parakari* with the yield. Kari is an eminently social drink, the very essence of commensality, and thus I felt it would be an appropriate form through which to reciprocate the knowledge and skills that the community had collaboratively lent me. Jose and Clarnissia, who had been patiently teaching me to farm and process cassava over the preceding months, kindly offered to guide me through the complex process of kari production, as described below.

As my friends in Yupukari would often relate, it is in the very process of making cassava products that one becomes Makushi. Indeed, in the convivial crucible of cassava processing, I, the foreign researcher, simultaneously felt myself *becoming* more Makushi and *becoming viewed* as more Makushi by my hosts. This gradual transformation might be thought of as an instance of the typically Amazonian process of “making kin” through shared living (Vilaça 2002: 351). After my initiation as a kari maker, Isaac, a teacher and close friend, jokingly said that I had become “white-kushi”: a dual acknowledgement, at once suggesting that while I was becoming ever-more Makushi through my continued

participation in archetypally ‘Makushi’ activities, I could never become fully Amerindian because I was a *ratiko* (foreigner) to begin with. Rather, I would have to settle for being the hyphen, a familiar stranger inhabiting that liminal space between ‘white’ and ‘kushi’.



Clarnissia making *parakari* | Yupukari, 2013.⁹

The following description of *parakari* manufacture, based on the accounts of collaborators from three communities, is also informed by the first-hand experience of having made kari myself, under the tutelage of expert cassava processors. This undertaking enables me to include an invaluable experiential aspect, itself only accessible by having engaged in the tactile and sensuous process of making kari, and by learning and utilising the embodied techniques required to do so, akin to what Ingold calls ‘skills as embodied practice’ (2000: 291). Like Mauss’s *techniques du corps*, these skills are rooted

⁹ Note: kari bed at the rear, constructed of jamun leaves and banana leaves, toasted cassava bread in the red bucket, water in the white bucket, and ‘kari mama’ powder in the chrome dish.

in the somatic experience of the world; or better, these embodied techniques themselves make worlds. I regard techniques, then, as *world-making actions*. In this sense techniques, might be considered to be “emergent properties of situations” (Kohn 2002: 72) rather than *a priori* templates for practice. In Ingoldian terminology, skills are embodied phenomena that continuously unfold in the making of the world (Ingold 2000: 291-92).

The fermentation of *parakari* is completely unique in Amazonia: its manufacture is endemic to the Rupununi savannahs, with only the closely related Makushi, Patamona, and Wapishana peoples practising it.¹⁰ These three indigenous groups have overlapping territories and a general fluidity of culture; as such, it is not surprising that they share this unique mode of fermentation. As a consequence of its cultural localisation, there has been an almost total lack of focus on *parakari* production. Only one scientific study of note has been conducted on its complex fermentation, by an American mycologist working with the Wapishana (Henkel 2005). This lack of focus is indicative of a more general disregard for the production and consumption of alcoholic drinks in the anthropology of Amazonia. Passing references to the various beverages and their social and ceremonial contexts can be found in the literature, but serious attention is rarely paid to fermentation as an area of socio-technical and semiotic significance in anthropological analysis.

Unlike most cassava beers fermented across Amazonia using prolonged heating and the introduction of salivary enzymes via mastication,¹¹ *parakari* is fermented via the amyolytic action of a domesticated species of saprotrophic fungus.¹² As Terry Henkel writes, “*parakari* is the only known example of an indigenous New World fermentation that uses an amyolytic mould, likely resulting from the domestication of a wild *Rhizopus* species in the distant past” (2005: 1). The domesticated fungus appears to be a completely

¹⁰ According to Farabee (1924), the Waiwai of the deep south produced *parakari* during the first decades of the twentieth century. However, its manufacture has been largely eradicated owing to the influence of missionaries of the evangelical New Tribes Mission (see Henkel 2005: 1).

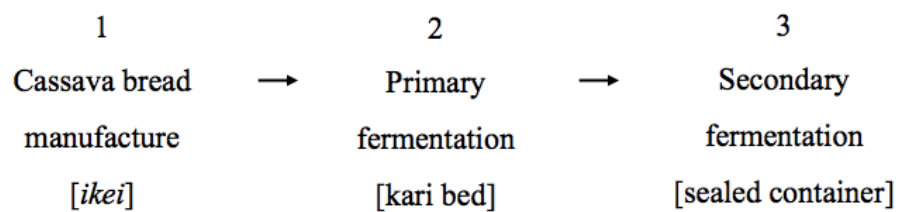
¹¹ See, for instance, Christine Hugh-Jones (1979) on cassava beer manufacture among the Barasana.

¹² In recent years, a number of ethnoecologists have begun to look at human-fungal relationships more broadly, including Arora and Shepard (2008), Zent (2008), Shepard (2011), and Tsing (2012).

unique species of the genus *Rhizopus*, and is likely new to science (Ibid: 8). *Parakari* is made from fermented cassava bread, via the addition of a catalytic plant powder which facilitates the growth of the fungal mycelium. The mould instigates the breakdown of the starches into sugars, a biological process known as amyolysis. Following the amyolytic breakdown, the sugars are fermented to ethanol by ambient yeasts.

In the following section, I describe the manufacture of *parakari*. For analytical purposes, the process can be divided into three stages: (1) cassava bread preparation, (2) primary fermentation, and (3) secondary fermentation. Stages two and three constitute a what might be termed a dual fermentation, first requiring the cultivation of the amyolytic mould in the “kari bed”, before the anaerobic fermentation in a sealed container.

❖ Figure 20. Basic operational sequence for *parakari* production



1. Cassava Bread Baking

First, bitter cassava roots (*kise*) must be harvested from the farm and carried back to the homestead, where they are scraped, grated, and squeezed in the matapi. When roots are scraped for bread or farine, the woody outer layer and the subcutaneous under-layer are both removed, leaving only the white- or yellow-coloured starchy parenchyma. However, when making *parakari* it is sufficient to remove only the bark-like outer-layer of skin, leaving the coloured under-layer.¹³ I learned this through practice during the early days of

¹³ Forte *et al.* report the same trend in cassava scraping in Wapishana *parakari* manufacture (1992: 64).

my fieldwork. When sitting scraping roots with groups of women in Yupukari, I would often find myself the object of affectionate humour due to my unconventional techniques. Cassava work requires a surprising degree of skill, and my inept scraping style would often result in the insufficient removal of the coloured subcutaneous layer from the roots. As my mentors would joke, “you is scraping for kari, Lewis, not for farine!”

Certain varieties of cassava are deemed better for making *parakari* – notably, the purple-leafed ‘kari stick’ (*parakari pîye*) – but in practice any can be used: unlike with bread (*ikei*) and farine (*u’wi*), there is little preference for root colour. Once the cylinder of dry, compressed flour is removed from the *matapi*, it must be sifted to remove any coarse fibres. Next, it is baked into extra-thick cassava bread, of around one inch in depth, on a circular pan above the hearth. Depending on its thickness, the bread should be baked for around ten minutes on each side. Unlike regular cassava bread, which is golden in hue, *parakari* bread is allowed to slightly burn until it turns a dark toasted-brown colour. Over-baking the bread is deemed necessary to achieve the distinctive taste and strength of *parakari*: it is said that the more burnt the bread, the stronger the kari will be.

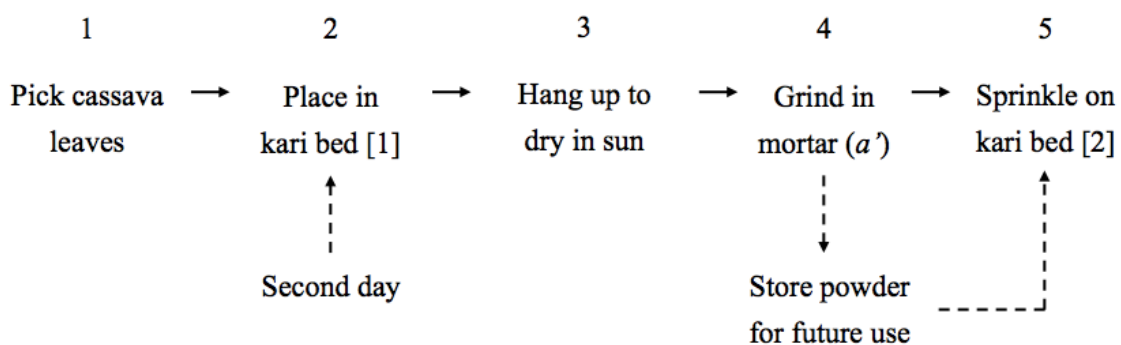
2. Primary Fermentation

Next, the “kari bed” (*parakari e’wontî*) must be prepared, a temporary structure made of leaves that serves to create a warm, sealed environment in which the amylolytic fungus can grow, inducing the first stage of fermentation. The kari bed is an incubator of sorts which fosters the growth of an agentive life-form (mould) via the interaction of associated life-forms (cassava and kari mama powder). The bed is usually constructed on the floor inside the house or under the thatched roof of the kitchen annex. It is built from large leaves such as banana, plantain, genipap, jamun, or ‘wild banana’ (*Heliconia* sp.). Layers of leaves are laid down on the floor in a rectangular shape of roughly six by three feet,

usually over a piece of plastic sheeting. Sections of the cassava bread are torn up, soaked in water, and placed on top of the leaves, forming a layered mosaic of soggy bread.

At this stage, the critical element is added to the bed: the “kari mama” powder. This green powder (*unikiya*) acts as the catalytic ingredient which induces the growth of the mycelium. The powder, made from dried cassava leaves,¹⁴ is lavishly sprinkled over the layers of wet cassava bread. Crucially, the powder is made from cassava leaves which have previously been placed in a prior kari bed before being dried in the sun and ground in a pestle and mortar (*a'*). Likewise, in the current batch, a layer of fresh cassava leaves is placed on top of the cassava bread layers; these leaves will subsequently be sun-dried and ground for use in the next batch (see below).¹⁵ The leaves are used as a carrier for the *Rhizopus* inoculum between batches (see Henkel 2005: 5): while in the bed, the cassava leaves become covered in spores of the mycelium. The powder ground from the mould-covered leaves acts as a vector for transferring the fungal spores to future batches.

❖ Figure 21. Operational sequence for kari mama production



The Makushi and Wapishana use different plants to make the kari mama powder: whilst the Makushi predominantly use the leaves of bitter cassava, the Wapishana use the

¹⁴ Some people say that the best powder is made from the folk-variety ‘kari stick’ (*parakari piye*); in practice, however, cassava leaves of any folk-variety can be used for this purpose.

¹⁵ The layer of fresh cassava leaves can be added at the beginning of the first stage of fermentation, as described above, or they may be added on the second day of the three.

leaves of *Trema micrantha*, a successional tree often found growing in fallow farm plots. Makushi women may also use this plant, to whom it is known as the “kari mother” tree (*unikiya ye*).¹⁶ The hairy leaves are said to be “itchy”, and, as Makushi women claim, “if you drink kari made with dem kari mother leaves you will get a bad, bad itch”.

At this point of the process, supplementary ingredients may be added to increase the strength or taste of the *parakari*. “Cassava bones” (*kurarama*), thin crisps of cassava, can be parched on a hot pan, before being ground and sifted into a fine brown powder and sprinkled over the kari bed. Cassava starch (as used to make tapioca) or parched corn can be added in a similar capacity. The addition of these starchy carbohydrate-rich powders is said to increase the alcoholic strength of the kari. Indeed, as Henkel has speculated, the addition of the purified cassava starch may serve as a booster for the growth of *Rhizopus* mould (Henkel 2005: 9), thus increasing the ethanol content of the final product.



1. Sun-dried cassava leaves



2. Kari mama powder

¹⁶ Kari mama (*Trema micrantha*), known as *bishawud* in Wapishana (Forte *et al.* 1992: 64).

After the addition of these various powders, the kari bed is sealed with a top layer of banana leaves and a tarpaulin or plastic covering. It must be left for two nights, before, as people often joke, it rises on the third day “like Jesus”. During this period, the contents of the structure become increasingly warm, to the extent that on the third day when the bed is opened the leaves and pungent mould-covered bread radiate a relatively high heat. As Jose instructed me, “all you need is warmth for it to ferment, to create the fungus on top”. There is an “old time” belief relating to warmth and fermentation which draws an analogic association between the *parakari* bed and the human body. During the three-day period that the kari bed is resting, the manufacturer should sleep with their hands tucked between their thighs. Just as their hands will be kept warm by their body heat, so too will the kari bed be kept warm by association, increasing the rate of fermentation.

If *parakari* is brewed incorrectly, for instance if air is allowed to enter the sealed container during the secondary fermentation period, it will develop a disagreeable “sour” flavour. Sweetness (*a’ki’ku*), as opposed to sourness (*so’ri*), is the most desirable trait in cassava beverages: good kari is described as being “sweet” and spoiled kari as “sour”. A dietary prohibition relating to this idea restricts the handling of sour substances during the manufacture of *parakari*. It is said that if sour substances are consumed while the kari is fermenting, the drink will turn sour by proxy. Sour substances include citrus fruits such as lime, lemon, and grapefruit, and, as people joke, one’s testicles (*ye’mu*). This prohibition appears to rest upon a “contagious” association drawn between the human body and the fermenting drink: actions upon the body affect changes to the drink. This association is an expression of ‘substance logic’ in Makushi cosmology, whereby the capacities of external substances can be transferred to human bodies via physical contact, and vice versa.¹⁷

During the primary fermentation phase, the fungal mycelium appears as a fluffy white mould on the surface of the damp cassava bread. By the third day, the mould begins

¹⁷ Again, this causal relation suggests Frazer’s law of contagious magic (1922: 12). See Chapter 2.

to turn black and emits a distinctive alcoholic odour; at this stage, the cassava bread is said to have turned “ripe”. As Clarnissia advised while we were making my batch of kari, “when you see the kari turn white like cotton, it is ready, it is sweet, juicy, and ripe”. The mould itself – white in colour and referred to as “cotton” – exudes a clear, sweet liquid. Makushi theories regarding the living properties of fungi requiring further investigation; however, kari mould is unequivocally afforded a special status as a catalytic life-form. Makushi people are aware that the fungus induces fermentation; it is considered to be a living agent with transformational powers. The fungus itself is understood to emerge from the cassava powder in a symbiotic relationship. According to Jose, “there is something in that green powder, something like a miracle, making the fungus grow”. Kari production, in this sense, is thought of as a multispecies technical process enacted in the triangular interaction between humans, cassava plants, and an agentive mould.

In ecosemiotic terms, the mould serves as an indexical sign that the fermentation process is underway. The mould itself might be thought of as an *agentive index*: it at one and the same time acts as the sign – or “representamen” in Peirce’s language (1940: 99) – and the “interpretant” of signs transmitted by humans. Here we see how the ecosemiotic context is perspectival, in that different actors can assume different positions in the triadic relation, depending on point of view. Both human and mould can be either sign, object, or interpretant; they are both sign-transmitters and sign-receivers. “Thirdness”, in this sense, is relative and underlies the trans-specific relations that permeate Makushi ethnoecology.

3. Secondary Fermentation

The final stage in kari fermentation involves the removal of the mould-covered cassava bread from the bed and its transference into containers, where it is sealed and left for a period of time. Today, people routinely use plastic barrels or buckets, however in the past

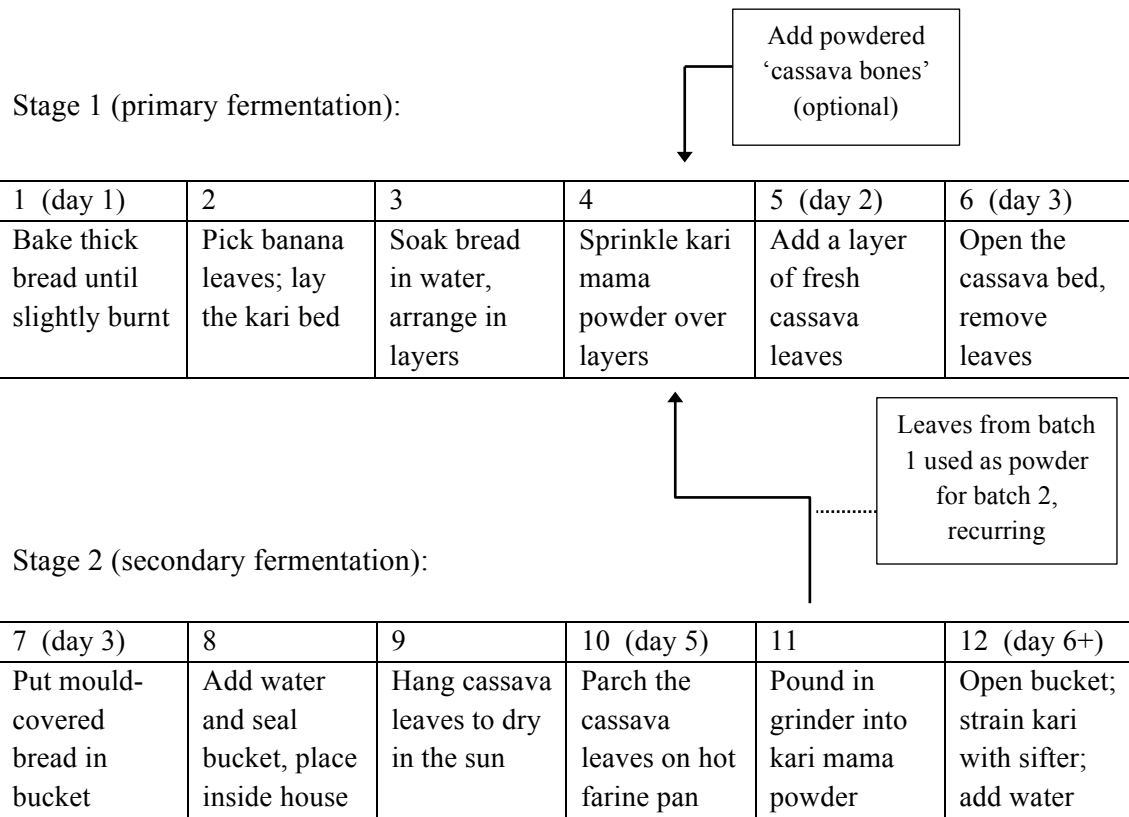
large balata goobis were used as receptacles for this purpose.¹⁸ The alcohol content of the drink is dependent upon how long it is left to ferment during this secondary phase. If left for a few days, the kari will be “sweet” and essentially non-alcoholic. If left for a week or more, it attains a high volume of ethanol, whereupon it is classified as strong or “bitter”.¹⁹

If the sealed bucket of *parakari* is left for a week or so, the contents split into two layers in a curds-and-whey fashion: a floating layer of bread-like mulch, and an under layer of thin liquid with a high alcohol content. This potent liquid is referred to as “kari juice” (*parakari su'kuro'pî*), meaning “kari pee” or urine (*su'*). The juice can be siphoned off, poured through a sieve, and served as a strong beverage on its own (‘juice’), or stirred back into the mix and combined with the mulch. At this stage the mixture is thick and lumpy; it can barely be called a liquid. Before it is ready to drink, it must be diluted and strained. This process involves taking a large empty bucket and a fine mesh sieve, and slowly combining the kari mulch with water whilst working it through the sieve into the container below. The balls of paste left over after straining, known as *parakari ye'tepî*, are discarded or fed to domestic animals. Once strained, the drink has a limited shelf life; as such, most people prefer to store *parakari* in the unstrained form, whereby it continues to ferment. The finished product is variable in colour, although it is typically creamish in hue and peppered with small dark specks. As Uncle Isaac put it, with his unique gift for analogy, “when it is finished, kari should look nice and white, like a young owl”.

¹⁸ Pots made from the latex of the bulletwood or balata tree (*Manilkara bidentata*), *puruwe ye'*.

¹⁹ It is difficult to calculate the exact ethanol content of ‘strong’ *parakari*, owing to its variable nature, but a rough estimate would be 5 to 10 per cent.

❖ Figure 22. Full operational sequence for *parakari* production



Cassava roots soaking in water | Rewa, 2013



Day 1: Laying the kari bed – note, addition of layer of cassava leaves | Yupukari, 2013



Day 3: Uncovering the kari bed – note, mould-covered cassava bread | Yupukari, 2013

5. 5. The Social Roles of Alcohol

Alcoholic beverages are not merely drinks; they are social substances that are produced and consumed in communal settings, performing crucial binding roles (Douglas 1987: 4). For the Makushi people, fermented beverages are regarded as fuels for participation in social activities and as catalysts for group cohesion and ritual action. Alcoholic drinks, it might be said, constitute the very essence of *communitas*. I can personally attest to the binding role that alcohol plays in Makushi communities: when visiting homesteads to conduct interviews during the early days of my research, people would routinely hand me a large mug of kari, whether it was morning or night. Although (possibly) hindering my proficiency at interviewing, sharing drinks with my hosts allowed me to form enduring social bonds with them, and gave me more confidence to speak in Makushi. Furthermore, my acquaintances would be more inclined to begin telling a story or singing a traditional song whilst we shared a bucket of *parakari*, such is the nature of Makushi storytelling. At no other moment did I feel more incorporated into the community than when sat around chatting and drinking kari with friends under the mango trees in the village centre.

Cassava drinks are central operators in the aforementioned system of cooperative labour known as *mayu*. When clearing a new farm or building a house, the family will bring along a large bucket of kari to accompany the work. Friends and family members will turn up to lend a hand with the workload. First and foremost, *mayu* is a social event: people simply like to get together, work, and socialise. Those who contribute labour will be rewarded with a continuous supply of food and drink. Cooked food and home-brewed drinks, then, form the primary incentives for participation in communal labour. When I asked Uncle Joel why people participate in *mayu*, he answered, “we don’t do it for money man; we just have a bucket of kari, a little fuel for the belly”. Joel’s assertion highlights an important point regarding kari: it is considered an energy-providing foodstuff, a bodily

fuel, as much as an intoxicating beverage. Thick and carbohydrate-rich, kari is consumed while conducting hard physical labour in order to provide energy and nourishment. Kari, in this sense, at one and the same time nourishes the corporeal body and the social body. As an intoxicating drink, it serves to facilitate the mood of joviality and spirit of “ludic play” (Overing and Passes 2000) that characterise the communal ethos underlying *mayu*.

Although commonly consumed in the domestic setting, *parakari* is also central to festive and ceremonial life. Today, as in the past, large-scale community celebrations are invariably accompanied by the consumption of large quantities of kari and other alcoholic drinks. Although any and all fermented drinks may be consumed on festive occasions, *parakari* stands alone as the quintessential ceremonial drink, holding a semiotic value of great significance. Historically, Amerindian drinking parties were known as “sprees”, and took the form of extended inter-community celebrations (Drummond 1977: 85).²⁰ These events constituted important occasions for arranging marriages, trading and bartering, and forming political alliances as well as for dancing, drunkenness, and revelry (Myers 1993: 37). Although parties frequently occur Makushi villages today, the ceremonial “drinking spree” culture has been largely resigned to the past, in part due to missionary influence.

5. 5. 1. The *Parisara* Dance

Historically, the indigenous groups of Guyana performed a series of ceremonial dances which served to affect changes in seasonality and ecology. Prominent examples include the *parisara* (cardinal bird) dance and the *tukui*’ (hummingbird) dance. These ceremonial dances were held to ensure the productivity of the environment and to instigate important

²⁰ The Amerindian culture of “spreeing” is rooted in a tradition of communal drinking with a deep genealogy. The earliest European explorers reported witnessing alcohol-fuelled parties among the natives during the 1600s. One of the earliest descriptions of Amerindian life in the Guianas, supplied by Walter Raleigh, depicts a debaucherous culture reminiscent of Hogarth in the jungle: “the men doe nothing but hunte, fish, play, and drinke, when they are out of the wars” (1997: 193). Later, during the 1800s, missionaries reported similar behaviour with distaste (Brett 1853: 276; Gough 1912: 139).

ecological events. The dances were highly symbolic and performative affairs, involving elaborate costumes, body paints, and an array of musical instruments. The dance feasts were accompanied by traditional music and singing, and involved the consumption of copious amounts of cassava beer. These ceremonial dances were performed by all of the Kapon and Pemon peoples, and a thorough description can be found in Butt Colson and Armellada (1990). As those authors have written:

Dance feasts traditionally took place for the purpose of uniting important aspects of the community's economy to its base in the natural environment, using conventional, symbolic media in a ceremonial setting, the realisation of which, it was believed, would lead to the acquisition of a plentiful food supply.

- Butt Colson and Armellada 1990: 44.

At the same time, these celebrations were joyful social occasions composed of dancing, singing, feasting, and drinking, and at which kin, friends, and guests would come together within and across communities. Although they served as important hunting rituals, these were not formalised ceremonies structured by strict doctrine; rather, dances feasts were occasions for coming together, for inter-village socialisation, for gregariousness and raucousness, and for fun. The celebratory spirit of these events, which would sometimes go on for weeks, was fuelled by the mass consumption of fermented cassava beverages.

As an historical ceremony that is seldom practiced today, my primary field data relating to *parisara* is based on oral narratives given by a number of elder collaborators. Descriptions were supplied by Isaac Rogers, Joel Samuel, Madelene Francis, and Elsa Daniels of Yupukari and John Edwards, Nathaniel Edwards, and Matthew Alvin of Rewa.

The *parisara* dance has been described by a number of previous anthropologists, and explorers including Barrington-Brown (1876), im Thurn (1889), and Farabee (1924) among the Makushi, Koch-Grünberg (1923, III) among the Taurepan, Simpson (1939)

among the Kamarakoto, Butt Colson (1973, 1985) among the Akawaio, and Lewy (2012) among the Pemon. The ceremony is also discussed in Halbmayr (2010). References to secondary data are included in the discussion, either in footnotes or cited in the text.

The most famous and ritually important dance performed by the Makushi was the *parisara* dance. This inter-village dance feast was held prior to hunting expeditions in the late rainy season, from August until September. According to Butt Colson and Armellada, “parishara [sic] is connected with the ripening of the palm fruits at the end of the long, intensive rains, and is sung and danced in order to attract animals, especially peccary” (1990: 49). *Tukui*’ was traditionally performed prior to the long rainy season, in April, to induce the fish to “run” from the rivers into the creeks and streams. Although traditionally separate affairs, the two dances would frequently be performed together (see below). The *parisara* and *tukui*’ dances were linked with the heliacal rising and falling of the *timi’kon* constellation in September and April respectively (Butt Colson and Armellada 2001: 34).

The name of the *parisara* dance has been something of an enigma – Butt Colson was unable to identify the bird (1973: 50), whilst Farabee interpreted it to be the Guianan red cotinga (1924: 67). However, Makushi collaborators in three separate villages stated that this interpretation was incorrect, and that the bird was in fact the red-capped cardinal (*Paroaria gularis*), known as *parisara’pî* in Makushi.²¹ Also called the “grass bird”, this small red-headed songbird is commonly seen at the end of the rainy season, when it visits the savannah to breed. It is no coincidence that this is the same time as the dance was traditionally held. The name of the bird probably is onomatopoeic, referring to its call – a shrill *p’ree sh’rah* – with the dance, in turn, being named after the bird.²² I can state from personal experience that red-capped cardinals are particularly conspicuous in villages and farmland during the period September until December. It was only after noticing the bird in garden spaces in Yupukari that I began to enquire about its name. As I was told:

²¹ Red-capped cardinal (*Paroaria gularis*), Makushi name, *parisara’pî*.

²² A significant proportion of Makushi bird names are onomatopoeic in nature, reflecting the broader “phonological iconism” that seems to pervade the Makushi language and culture (cf. Gell 1995).

The little red-headed bird, we call it *parisara 'pi*. It comes into our farms a lot, to eat the cassava. That is the grass bird – it is after that they call the dance.

- Junita Samuel | Yupukari, 2012

According to Farabee, the species of hummingbird in question was the crimson topaz (*Topaza pella*) (1924: 67, quoted in Butt Colson 1973: 50).²³ Although I was unable to identify the exact species of hummingbird, Farabee's interpretation is consistent with the descriptions given by my Makushi collaborators. Found in the forests of Guyana, this large hummingbird has vivid crimson plumage, an iridescent green throat, and a dark grey head and tail feathers (on the semiotic significance of this, see below).

Described as “the dance of our great-great-great-grandfathers”, *parisara* is rooted in deep history and is said to have been performed “since time immemorial”. During the early twentieth century, *parisara* dance feasts were common affairs, occurring frequently in the villages of the Rupununi.²⁴ However, the ceremony rapidly declined in prevalence during the twentieth century, and is rarely if ever practiced today.²⁵ Nevertheless, a deep knowledge of the dance and songs is still held by elders. Although it no longer exists as a living practice, *parisara* persists vividly in the cultural memory of Makushi people.

²³ Crimson topaz (*Topaza pella*). Makushi name, *tukui*.

²⁴ Elder collaborators recall attending dances as long ago as the 1960s, but most young people have never witnessed *parisara*. During my ethno-historical inquiries, I recorded instances of *parisara* at the villages of Annai, Kwatata, Parishara, Simoni, Touthida, Tiger Pond, Yakarinta, and Yupukari. These were all directly witnessed by older informants. I was also informed that *parisara* is still practiced sporadically in the remote South Pakaraimas, in the villages of Tiger Pond and Monkey Mountain.

²⁵ Some illuminating descriptions can be found in the historical literature. The following account is given by Barrington-Brown, who visited the North Rupununi during the 1870s: ‘On the hard sun-baked clay, in front of the village houses, thirty Macusis were dancing to the sound of drums and bone flutes, in a most solemn manner, whilst paiworie was being handed around... Besides the usual red paint and black dye on their bodies, these people had marked themselves with a white felspathic clay found in the neighbourhood... [A] lot of Indians of a branch tribe of the Macusis called Tasoulemas, came from another village to join the dance, equipped most picturesquely in headdresses, tippets, and short skirts, made of the young pale-yellow leaf of the Itah palm. Many of these were provided with long wooden tubes, painted with rings of red and black, and with flat carved ends of wood, into which they blew, producing a sort of horn-like sound. To the music of drums, bone flutes, and these wooden horns, they all danced, chanting all the while the endless accompaniment of “Hi-yáh- Hi-yáh- Hi-yáh-Hà-a-a-a,” from the time of our arrival until the next morning’ (1876: 114-15).

Cassava drinks were a central aspect of the *parisara* dance, serving not only as alimentary accompaniments to the ceremony but also as structural elements of the dance itself and catalysts for its efficacy. During the performance, men would sing and dance while women distributed the drink in large calabashes (*poosi*), itself a symbolic role acted out with a certain degree of ceremony (see below). As part of the proceedings, the women would force the men to drink vast quantities of *parakari* until they vomited. The kari was stored in a large wooden trough or dugout canoe in a hut in the village centre. The dance would be followed by a communal feast and a raucous drinking spree which could go on for days. Simply put, the ceremony could not be performed without cassava drinks, the very efficacy of the ritual being contingent upon the binding role of alcohol. The causal relations of signification underlying the ritual dance were activated by the catalytic action of alcoholic drinks. The nourishing and intoxicating action of fermented beverages acted both as a vector of and operator for the efficacy of *parisara*.

It is useful to begin the description of the dance itself with a detailed summary provided by Nathaniel Edwards, the senior pastor of Rewa village:

If you have enough cassava to make plenty *parakari*, you can have a *parisara* party. The chief invites another village to the party. If a village holds the dance, they will invite the other village to do the *parisara* dance. One time I see six ladies come, they each had a balata goobi of kari in a line. They would arrive in kokorite leaf costumes, the *parisara* dancers. They would be blowing their pipes, which would have carvings attached to the end, like wood fish, and even girls' private parts. At those parties, it was the men who would dress up and dance; the ladies stand in a line with buckets of kari, giving the men a bowl of kari one after the other. People start to vomit, they cannot drink that much liquid, it fill your belly. They sing and dance now. People are singing, "we are *parisara*". The ladies keep giving them kari, and people fall down. *Tukui*', that is the host village now, they have a leader too. They would paint up their

faces with white clay, and beat staffs with shak shaks. The two groups would dance together – the *parisara* dancers would sing, then the *tukui*' dancers, and alternate.

- Nathaniel Edwards | Rewa, 2013

The *parisara* dance was a bi-village event: to instigate a dance, the chief (*epuru*) of one community would invite the chief of another to attend, often in reciprocation for a previous dance. There was usually a political aspect to such invitations, which served to strengthen relations of alliance, appease inter-village tensions, and facilitate trade. Dance invitations could serve to build new alliances and temper past bellicosities. Occasionally, inter-village drinking sprees would result in arguments and fights based on pre-existing tensions, leading to the perpetuation of deep-seated animosities (see Myers 1993).

The performative structure of the ceremony was based on the interplay of two sets of dancers: *parisara* (red cardinal) and *tukui*' (topaz hummingbird). As Butt Colson and Armellada describe, "every aspect of the co-joined dances denotes an opposition and a complementarity" (2001: 34).²⁶ The ceremony would begin with the coming together of the two communities, the hosts in the role of *tukui*' and the visitors in the role of *parisara*. The hummingbird is a symbol of domesticity; as such, the *tukui*' dancers represented the hosts, welcoming the visitors into the community (Butt Colson and Armellada 1990: 51).

By all accounts, the *parisara* dance was a slow and sedate affair: the dancers would move around the village in a linear formation, stepping forward and backward in unison, their kokorite palm costumes rustling rhythmically all the while. Whilst walking along the designated route, the male dancers would be given calabashes of *parakari* by the women, who would encourage them to drink as they danced.²⁷ The *tukui*' dance, in

²⁶ See Koch-Grünberg (1917, I: 57) for a photograph of a 'parischer' dance in the mixed Makushi and Taurepan village of Koimelemong in Roraima, circa 1911. In the image, the *parisara* dancers, wearing kokorite palm skirts and headdresses, can be seen encircling the *tukui*' dancers within.

²⁷ There is a special drinking bina charm, which men would use prior to *parisara* feasts in order to increase their tolerance for alcohol. The drinking charm consists of the larynx of a tapir (*waira awai'i*), which the user will drink water through in preparation for the dance.

opposition, was fast and chaotic, replicating the frenetic movements of the hummingbird. According to Uncle Isaac Rogers, the *tukui*' dance was the "confusion dance": with their fast movements and flashing colours, the host dancers would attempt to "confuse" the *parisara* dancers, who surrounded them in a circle, slowly chanting and drinking.

Each dance would be performed in accordance with a set of songs (*eremu*), which took the form of chants with repetitive lyrics, often including onomatopoeic animal calls. Each party had a song leader – the "owner" (*potori*) of the lyrics – who would lead the recital. The *tukui*' and *parisara* songs would be sung alternately, in a call-and-response fashion, accompanied by the playing of instruments.²⁸ One *parisara* lyric was recited to me by Uncle Joel as follows, referring to the kokorite palm skirts worn by the dancers:²⁹

The leaves of the kokorite tree, we are wearing,

The leaves of the kokorite tree, we are wearing,

The leaves of the kokorite tree, we are wearing.

Both sets of dancers wore elaborate costumes and bodily adornments during the ceremony. The *parisara* dancers wore palm outfits made of kokorite palm shoots (*maripa yenpu*) and *tibisiri*, a fibre made from young fronds of the ité palm (*kawoi yenpu*). The dried pale-yellow shoots, which were plaited into symbolic patterns, were worn around the waist as skirts and on the crown as headdresses.³⁰ In opposition to the kokorite-clad *parisara* dancers, the *tukui*' dancers were adorned with body paints: a whitish-grey paint derived from a type of viscous clay (*tawa*), and a red dye (*sipi*) made from the seeds of the annatto plant (*kara 'ya 'pi ye*'). The dancers' ash-grey and red body paint was said to resemble the hummingbird's shimmering crimson and dark grey plumage.

²⁸ The ethno-musicologist Erich von Hornbostel transcribed and notated a number of Makushi songs from Koch-Grünberg's field data, including *parisara* and *tukui*' songs (1923, III: 425-27). See von Hornbostel's essay published as an Appendix in Koch Grünberg's volume (1923, III: 397-440).

²⁹ See also Simpson (1939), quoted in Halbmayer (2010: 190-91), for more *parisara* lyrics.

³⁰ See Roth for photographs of *parisara* costumes, including necklace and headdress (1924: plate 169).

Some of the dancers will be *parisara*, some will be *tukui*'. The *parisara* dancers have a long trumpet, made of kongo pump. They dress in kokorite leaf skirts and hats. The *tukui*' dancers have a small bamboo flute. They paint themselves with annatto. Next, them dancers all line up, drink, and dance.

- Elsa Daniels | Yupukari, 2013

The dancers played various decorated musical instruments. The instruments each had small wooden carvings of animals and fish attached to them (see in Thurn 1883: 322; McConnell 2000: 129) – effigies of the various animals that the dance referred to ritually (peccary, deer, bird, fish).³¹ The *parisara* dancers played long trumpets made from the hollow branches of the kongo pump tree (*kumai ye*') and painted with annatto.³² Each trumpet would produce a single note, but owing to variation in length, the ensemble of players created a distinctive atonal multi-pitched chorus. Some would also play animal-skin tambourines (*sanpara*),³³ which were beaten with 'shak shak' maracas constructed of hollowed-out calabashes filled with seeds or stones.³⁴ The *tukui*' dancers played panpipes made of five short pieces bamboo (*kar'tei ye*') of staggered lengths, tethered together in a slanted fashion using *karau'ya* string.³⁵ They also carried painted hardwood staffs (*teipu*), decorated with the rattling seed cases of the shak shak plant (*kiwei ye*'),³⁶ which would be rhythmically shaken and beaten against the ground. Other dancers would play bone flutes (*waitoto*), made of hollow animal bones and decorated with geometric animals symbols.

³¹ The naturalist Ro McConnell recalls that during the dance that she witnessed in Yupukari, "the trumpets all had some emblem on the end, such as a traditional fish (but one had a small Dakota plane carved from wood)" (2000: 129). I was informed me that some would even depict human genitalia.

³² Kongo pump tree (*Cecropia* sp.). Makushi name, *kumai ye*'. This pioneer species is naturally hollow, owing to its symbiotic relationship with a species of ant which lives inside the trunk and stems.

³³ *Sanpara* drums were made of skin of a variety of animals, including agouti, tapir, and jabiru stork.

³⁴ The fruit of the calabash tree (*Crescentia* sp.). Makushi name, *poosi*.

³⁵ *Karau'ya ye*' (*Ananas* sp.). String made from the stripped fibres of the *karau'ya* plant is incredibly strong, and as such is used to make bow strings, laces for warishis, and for a range of other purposes.

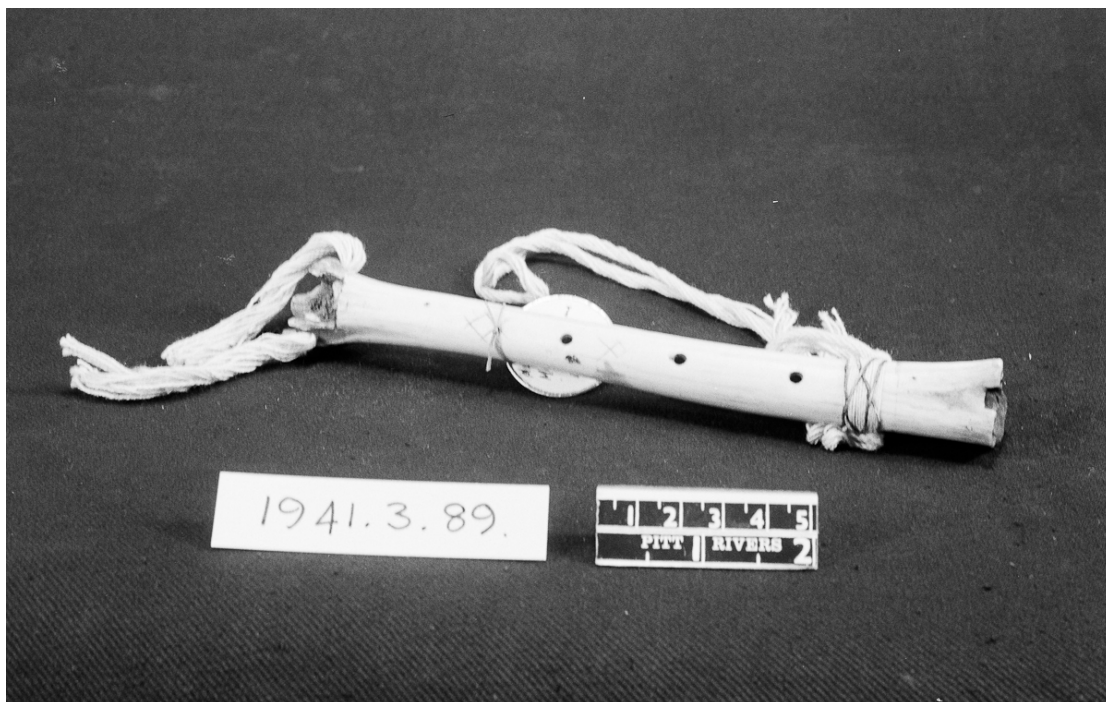
³⁶ *Thevetia neriifolia*. Makushi name, *kiwei ye*'. 'Shak shak' being the Creole term for marraka.

	<u>Host village</u>	<u>Visiting village</u>
<u>Dance</u>	<i>Tukui'</i> (fast)	<i>Parisara</i> (slow)
<u>Instrument</u>	Bamboo panpipe Wooden staff	Kongo pump trumpet Drum and shak shak
<u>Costume</u>	Grey body paint (clay) Red body paint (annatto)	Palm frond skirt Kokorite headdress

The dance was aimed at ensuring success in forthcoming hunts, and served to replicate the movements, habits, and sounds of various animals. The success of the ritual relied upon the transmission of sound signals based on human-animal mimicry (see Lewy 2012: 64-65). As a sequence of performative rites, the dance was rife with flows of signs: from the body painting and ornamentation to the sounds of the animal songs and the tones of the musical instruments, from the onomatopoeic lyrics of the chants and the rhythmic beating of staffs to the rustling and shaking of the adornments worn by the dancers. The dances, songs, and costumes drew upon a set of multi-sensory analogies between the society of humans and the society of animals that inhabit the forest realm: the sounds produced by the costumes (rattles, palm skirts) mimicked the sounds of the animals and the dance steps imitated their movements (Ibid: 65). In this regard, the dance operated on iconic relations of signification. The sonic and visual imitation of the game animals was understood to appease the powerful master spirits (*esak*), encouraging them to bring their “pets” to hunting grounds. This relation is an expression of the animic understanding of animals and their masters as being social subjects with whom human beings are able to communicate. The songs were taken from the animals, which they communicated to the humans in the primordial times (Butt Colson and Armellada 1990: 44). The performance of the animal songs was not mere *imitation*, then, but inter-specific *appropriation*.



Wooden *parisara* effigies | From Roth (1924: plate 262).³⁷



Jaguar bone flute, 1907-13 – probably from Yupukari | Collected by Mrs G. Williams.³⁸

³⁷ Carvings include, from left to right, the armadillo, heron, turtle, and caiman.

³⁸ Probably a tibia bone – note, geometric fish symbols carved into the shaft. Photograph reproduced courtesy of the Pitt Rivers Museum, Oxford.

5. 6. Substance Transfer

As Mary Douglas has posited, alcoholic beverages can be both agents in and subjects of ritual action (1987: 11). In the concluding section of this chapter, I investigate how ritual action and fermentation are dialectically related in the Makushi context. The case study of *parisara* has revealed, first, that ‘the social’ and ‘the ritual’ are continuous and mutually defining, and, second, that alcohol serves as a causal operator in activating socio-ritual reproduction. In the following, I assess not just how alcohol is a central catalyst for the ritual process, but also how ritual action is instrumental in the production of fermented drinks. In order to do so, I evaluate the application of two types of fermentation charm (*muran*): (1) arthropod stings and (2) bina tattoos. This analysis reveals how the transfer of substances is a crucial form of cross-species communication in Makushi cosmology.

5. 6. 1. Ant Stinging

Traditionally, adolescent boys and girls were ritually stung with various species of ants, and to some extent this practice continues today. Ant stinging is considered to be a ‘bina’ (charm), in both a general and specific sense. In its general usage, ant stinging is used to induce vigour and “willingness” in the initiate. Via the transference of the fiery stings of the ants, the subject will feel alert and energised. In a more targeted sense, ant stings are used as hunting and fishing charms for men and fermentation and cooking charms for women, the stings enhancing the subject’s propensity at said activity. In these cases, the sting is usually imparted by the recipient’s parents, with the father stinging his sons and the mother stinging her daughters. Parents sting their children at various important life-stages, including first menstruation and prior to participation in their first hunt. The stings

are typically administered in a formalised fashion, being periodically applied to ritually prescribed bodily areas a particular number of times (see below).

Ant stinging also occurs in informal and opportunistic contexts. I recall one such occasion: one morning Uncle Joel and I were walking through the gallery forest along the banks of the Rupununi, tapping trees for resin. Upon encountering a trail of army ants (*mîni*) crossing the path, Joel stopped and lowered his arm to the ground, allowing the aggressive predatory ants to crawl from his hand to his shoulder, stinging him repeatedly. He barely flinched. When I asked why he had voluntarily stung himself, Joel told me that it would make him more “willing” (*ari’ke*) to work hard. He suggested I try it too. In the name of participant observation, I slowly lowered my arm into the ant trail. Before I knew what was happening, the small brown ants swarmed up my arm and on to my chest and neck. Agony ensued. I immediately jumped into the river to sooth the burning sensation, much to the entertainment of Joel who stood on the bank laughing.

Various species of ant (*mi’kî*) can be used for ritual ant stinging.³⁹ Most common is *uyu’*, a large reddish-black ant which live in subterranean colonies in forested areas.⁴⁰ These ants are collected from their nests and used to administer the stings, before being returned to the colony alive. The voracious group-raiding army ants (*Eciton* sp.)⁴¹ and the arboreal wood ants known as *emenuri* (*Azteca* sp.) are also used. In the past, stings were administered from the giant bullet ant, famed for having the most painful sting in the entire rainforest.⁴² Other venomous stinging or biting arthropods may also be used for this purpose, including various spiders and, notably, scorpions (*mari’tî*).⁴³ The excruciatingly

³⁹ The Makushi recognise many ethno-species of ants. I recorded twenty during my entomological enquiries, representing only a fraction of the species found in the Rupununi.

⁴⁰ Possibly *Pachycondyla marginata*. Ant identifications were made using the AntWeb online resource, with the assistance of the entomologists Dr Brian Fisher of the California Academy of Sciences and Dr William Mackay of the University of Texas, El Paso.

⁴¹ Also known as ‘snake ants’, after their propensity to attack and dismember snakes.

⁴² The bullet ant (*Paraponera clavata*) has the most painful sting of any Hymenoptera in the world, according to the Schmidt sting pain index. Friends would tell me how the sting of this gargantuan ant can induce fever, nausea, and uncontrolled shaking which lasts for a week.

⁴³ There are two recognised species of scorpion (*mari’tî*) in the Rupununi: a brown savannah type and a black forest type. The latter imparts a more painful sting.

painful sting of the scorpion is periodically applied to both sides of the chest and to the penis, in order to enhance willingness, masculinity, and hunting ability in young men.

Ant stinging serves as an all-round cooking and brewing charm, with the effect of enhancing the technical skills required for processing cassava into foods and drinks. A number of women described to me how their mothers and grandmothers would sting them with *uyu*' ants when they were young girls: they were stung repeatedly on the top of the head, the back of the neck, under the tongue, and on their hands and arms by elder female relatives of their consanguineal kin. In general, the areas of the body to which the stings were administered corresponded to the body parts utilised in the production of the drink. In the context of *kassiri* production, the mouth, face, and tongue would be stung, since the defining stage in *kassiri* fermentation is the mastication of cassava bread. For *parakari* production, the stings were applied to the hands and arms, the bodily areas used to bake the cassava bread, build the kari bed, sprinkle the kari mama powder, and strain the kari.⁴⁴

Ritual ant stinging was traditionally conducted with the aid of a piece of material culture referred to as an "ant frame". These woven grid-like structures were constructed of interlocking strips of arrow grass (*pîrîu ye*', the same plant used to make arrow shafts). A number of ants (usually *uyu*') would be slotted into the narrow gaps between the strips, between the abdomen and thorax. The frame was applied to the initiate's body to impart an aggregate sting, which was by all accounts a hugely painful experience. The frame would be placed on the initiate's back, chest, neck, arms, legs, and even tongue. Although uncommon today, many of my elder collaborators, male and female, told me that they had been subjected to periodical stinging by ant frame in their youth.

The ritual efficacy of ant stinging seems to be rooted in a dual causality. First, the physical transfer of substance (venom) via the sting acts as a stimulant, inducing alertness

⁴⁴ The same principle applies to the application of hunting charms: adolescent boys would be stung on the areas of their hands that touch the bow and arrow (the inside of the thumb and forefinger) as well as the inside of their elbows, again demonstrating a causal link between the area of the body that the sting is administered to and the target effect of the charm.

and willingness in the recipient. Second, in a more abstract sense, the sting enhances the subject's propensity for technical skill (brewing, hunting) via an ecosemiotic association based upon an analogical relation drawn between the ant and the initiate. The poisonous stings (*yekī*) of arthropods are considered to be potent, 'bitter' substances, and are likened to strong ('bitter') fermented drinks. Thus, the capacity to produce strong alcoholic drinks is facilitated via the application of the sting. The recipient of the sting gains the lasting ability to ferment strong drinks via an iconic association with the stinging insect: the woman becomes *like* the ant by being stung *by* the ant. Again, the importance of the relationship between strong fermentation (making bitter: *mai'*) and poisoning (*mai'pa*) becomes apparent: just as the ant stings its victim, the woman produces *parakari* which "stings" those who drink it. Ant stinging therefore relies at one and the same time upon the physical transfer of substance (an indexical relation) and a metaphorical association with the stinging insect (an iconic relation). In short, the efficacy of ant stinging, as with 'bina' charming more generally, is rooted in the dynamics of an interactive poly-semiotic cluster.⁴⁵ Signs are always nested within and emerge from one another; as Sebeok writes, "signs come into being only by development out of other signs" (1994: 36).

5. 6. 2. Charm Tattoos

Historically, it was common for Makushi women to be heavily tattooed over the face and arms. These symbolic tattoos, known as *kansku*, were not merely for decoration; rather, they functioned as cooking and brewing charms which endowed women with the capacity to produce superior fermented drinks and foods. Common practice among the Makushi, Patamona, and Akawaio peoples (cf. Butt 1961: 149), charm tattooing seems to have been gradually phased out during the second half of the twentieth century; however, tattooing

⁴⁵ A point taken up in the following chapter on plant charms.

is still practiced in some more remote montane villages.⁴⁶ The geometric motifs depicted in the tattoos would refer to the same venomous arthropods and reptiles that were used in ritualised stinging: ants, scorpions, spiders, bees, and snakes. Located in the region of the mouth and chin, or on the forearms and hands, the patterns were elaborate in style and symbolic in reference.⁴⁷ The same bodily association applied as with ant stinging: mouth tattoos acted as charms for making masticated drinks such as *kassiri*; hand and arm tattoos served as charms for making *parakari*, cooking, and processing cassava.

Charm tattoos seemed to function on two related principles: one, the efficacy of the substances contained in the tattoo mixture, and, two, the power of semiotic reference. The *kansku* tattoos were made by rubbing a powdered mixture composed of the ashes of various plants into fine lacerations on the surface of the skin. As with the application of ant stings, older female kin would usually tattoo their daughters or granddaughters at the time of first menstruation. The tattoo mixture would contain ingredients of three kinds: (1) something black, (2) something sweet or bitter, and (3) a charm substance (Butt 1961: 149). The black element functioned as a pigment; the sweet or bitter element served as a charm to transmit the same quality to the drink; the third ingredient, the bina, operated as a general charm. The dye was composed of various dark-coloured plant materials, such as the ashes of burnt balata latex or the black seedpods of the mari mari tree (*ya'urei ye*).⁴⁸ The 'sweet' component could include wild honey, pineapple skin, or sugarcane.⁴⁹ I was told of one tree, the 'kari tree' (unidentified), which bears fruits that smell "just like sweet kari". Its fruits would be burnt to make a powder which was added to the mixture.⁵⁰ The second ingredient would include any number of bitter substances, including crushed ants,

⁴⁶ Makushi women no longer use bina tattoos; according to my collaborators, nowadays only Patamona and Akawaio women in the remote Pakaraima mountains have them. One woman told me, for instance, that she had met women in Paramakatoi with facial kansku. They are used for making strong kassiri, she told me, so that it gets 'bitter' (alcoholic) very quickly.

⁴⁷ See Roth on the various tattooing styles of the Amerindians of Guiana (1924: 419-22).

⁴⁸ Mari mari tree (*Cassia fistula*).

⁴⁹ Honey as an ingredient used in tattoos was also noted by Roth (1924: 421).

⁵⁰ Certain plants used in bina tattooing are still used today as fermentation charms. For instance, the same plant, the 'kari tree', can be rubbed on the hands and arms as a charm prior to brewing kari.

cassava leaves, or any of the bitter-tasting barks used as anti-malarials. The third element, the bina charm, was composed of various ‘bina’ plant charms (see Chapter 6).

The efficacy of charm tattoos also seems to emerge in part from the power of the ecological signs depicted in their designs. The abstract designs were heavily symbolic; as Butt Colson writes, “a study of the tattoo patterns leads to the realisation of an extensive form of symbolism underlying their execution” (Butt 1961: 150).⁵¹ Traditional Makushi tattoos were similar in kind to the geometrical designs that the Makushi plait into baskets today (see Figure 23, below). The tattoos depict creatures of two kinds: those associated with sweetness (*a’ki’ku*) and those associated with bitterness (*mai’*). The most common emblem of sweetness was the honeybee (*wan*) (Ibid: 151). Honey, as the sweet substance par excellence, is the prototype for sweet drinks (as in the myth of the honeybee).⁵² Other symbols, however, depict creatures which impart painful stings: ants, scorpions, spiders, and snakes. Just as the honeybee represents sweetness, these stinging creatures represent bitterness.⁵³ Venom, being the essence of bitterness, is associated with the intoxicating effects of strong (bitter) liquor.⁵⁴ The symbolic depiction of these creatures in tattoos thus had the effect of transposing their capacity for producing sweet or bitter substances to the bodies of the women wearing those tattoos. The bee symbol, then, induces the propensity to make ‘sweet’ (*a’ki’ku*) drinks, by virtue of the fact that bees produce honey (*wan*); the scorpion symbol induces the propensity to make ‘bitter’ (*mai’*) drinks, by virtue of the fact that scorpions have a painful sting (*mai’pa*).

⁵¹ See Koch-Grünberg (1923) for sketches of the symbolic designs used in Makushi and Taurepan facial tattooing and body painting, circa 1911-15 (1923, volume III: 41-44). Designs 4-14 on pp. 44 show elaborate scorpion (*kansku*) patterns tattooed across the lower face. See also Roth’s account: “At the Makusi village of Maripai I saw all the women similarly tattooed with two parallel lines running outwardly at each angle of the mouth, finally curling round, up and down, respectively, and another line below the mouth” (1924: 420-21) – describing the scorpion pattern.

⁵² Of course, it is of importance that bees, too, can sting. There are two types of honeybee: the common honeybees (*Apis* sp.) and the stingless honeybees (of the tribe Meliponini). The former type can sting whilst the latter cannot. Both are found in Guyana and both produce honey. Further research is required into local understandings of bees, or ethno-apiology, and its relation to symbolism.

⁵³ Signs “taken from nature to produce a strong drink with a kick, or sting, in it” (Butt 1961: 151).

⁵⁴ As further evidenced by the linguistic association between bitterness (*mai’*) and poison (*mai’pa*), noted above. Furthermore, a synonym for poison is *kawa*, the same word used to refer to strong drinks.

The semiotic association revealed by the *kansku* tattoos is clear: in order for the woman to produce low-alcohol (i.e. ‘sweet’) drinks, she must wear a tattoo depicting the animal which produces the essence of sweetness; in order to produce high-alcohol (i.e. ‘bitter’) drinks, she must display tattoos representing those creatures which impart potent stings. Therefore, a woman with both symbols of sweetness and bitterness tattooed on to her body gains the capacity to produce both sweet and strong drinks. Here, we thus see an explicit somatic example of the poly-semiotic web that underpins charm efficacy.



Akawaio woman with *kansku* tattoos | Photograph by Audrey Butt Colson, 1957.⁵⁵

⁵⁵ Photograph reproduced with full permission of Audrey Butt Colson. Note: scorpion-tail design.

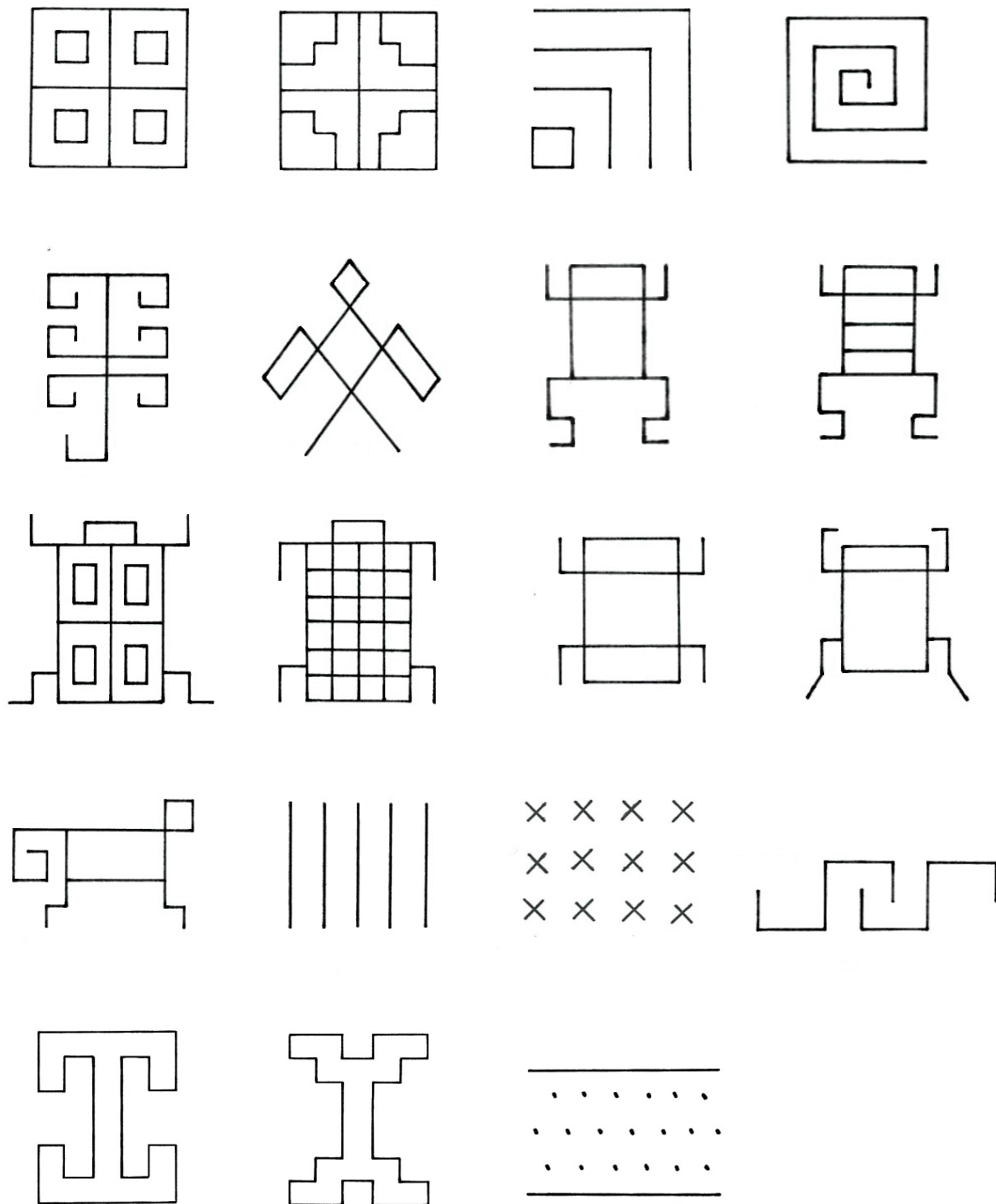
To sum up, the dual power of *kansku* charms is rooted in (1) the physical transfer of substance via the tattoo mixture, and (2) the ecosemiotic representation of symbols of sweetness and bitterness in the tattoo patterns. First, the plant powder used to make the tattoos contains both plant charms and sweet and bitter substances, which by transference to the human body via the tattoo is understood to have a lasting causal effect. Second, the tattoo patterns represent various arthropods and reptiles, creatures which either impart a painful sting (venom, poison) or produce sweet substances (honey being the archetype).

Both ant stings and *kansku* tattoos operate as charms based on multiple semiotic principles. In one sense, the ant's sting or the scorpion symbol stands as an icon for the capacity to produce strong drink: the drink is strong, *like* the sting. In another sense, the relation is existential (indexical): there is a "part-whole contiguity" (Deacon 1997: 79) in the physical transfer of substance (sting; plant powder) between the charming agent and its recipient. The efficacy of fermentation charms, in my view, is rooted in the interaction of the analogic (iconic) and proximal-causal (indexical) potency of substances.



Makushi symbolic designs carved into cow bone pendants | Yupukari, 2012

❖ Figure 23. Some Makushi geometrical designs



From top left to bottom right:

- | | | | |
|-----------------------------|-----------------------------|---------------------------------|------------------------------------|
| Anaconda (<i>wii</i>) | Jaguar (<i>kaikusi</i>) | Fish (<i>moro'</i>) | Snail (<i>kuime'</i>) |
| Scorpion (<i>mari'ti</i>) | Kite (<i>kumariya</i>) | Frog (<i>pîre'tîku</i>) | Poison dart frog (<i>konopo</i>) |
| Tortoise (<i>wayama</i>) | Turtle (<i>warara</i>) | Cockroach (<i>masariwa</i>) | Beetle (<i>masariwa</i>) |
| Monkey (<i>kuwa'ti</i>) | Rain (<i>kono</i>) | Stars (<i>siirikî</i>) | Water (<i>tuna</i>) |
| Wild nutmeg tree | Mukuru palm (<i>mana</i>) | Savannah grass (<i>wana'</i>) | |

5. 7. Conclusion: Honeybee, Revisited

Ecosemiotic flows based on iconic associations of resemblance are pervasive in Makushi cosmoecological interactions, as is the case, for instance, in the ‘bina’ charming complex. In short, things that resemble each other (by any phenomenological criterion) can *affect* one another.⁵⁶ As I speculate, the efficacy of ‘bina’ charm plants (*muran*) emerges in (1) the semiotic associations they invoke and (2) their status as powerful living selves with animating spirits (*ekaton*). Likewise, ritual incantations (*taren*) appropriate ecosemiotic relations from the external world of nature for use in the internal domain of healing (or cursing). In the remaining ethnographic chapters, I continue to explore the complex and elusive webs of eco-semiosis that underlie the Makushi charming complex.

As I discuss in Chapter 7, the notion of bitterness is equated with that of lightness in Makushi metaphysics, to the extent that bitter substances are also light. Lightness, and by proxy bitterness, is associated with the soul, spirit-food, externality, and the cosmic realm. This is demonstrated by the centrality of extremely bitter substances – bitter barks, tobacco, and strong alcoholic drinks – in shamanic ritual, wherein the shaman’s true soul (*ekaton*) becomes “light” and engages in spirit-flight. Conversely, the notion of sweetness is associated with the body, real-food, internality, the village, and the domestic realm. As seen in Chapter 4, cassava must be made edible via an elaborate process of detoxification that transforms it from a harmful (bitter) substance into a nourishing (sweet) substance – cosmically, as well as chemically. Rather than a binary opposition, then, the practical and symbolic relation between bitterness (*mai’*) and sweetness (*a’ki’ku*) might be regarded as a continuum of transformation, upon which all or any substances can be placed.

⁵⁶ This relation is also demonstrated in the field of ethno-medicine. Certain medicinal plants (*epik*) are used as cures for things which they resemble in some way. For instance, the juice of the “tree ear” plant (*ye’ pana*) is used as a remedy for earache, the succulent leaves resembling human ears. Shepard also reports the homeopathic idea that “like cures like” among the Yora of Peru (2004: 256). As discussed earlier, this association seems to accord with Frazer’s theory of homeopathic magic (1922: 11-12).

In this chapter, I have traced various lines between the socio-technical acts and embodied skills involved in the manufacture of cassava beverages and the ecosemiotic relations that underpin the socio-ritual dimensions of fermentation. As in the myth of the honeybee's mother-in-law, the case studies of the *parisara* dance, ant stinging, and charm tattooing communicate something of the nature of sweetness in Makushi cosmology. In the indigenous metaphysics, as in mythology, the categories of sweetness and bitterness seem to play fundamental structuring roles. In the *panton* recounted above, the honeybee (*wan*), the producer of the essence of sweetness, brews the sweetest corn wine for her ungrateful mother-in-law (*wa'ni*). This nourishing, sweet drink represents the essence of domesticity and cognatic relations. However, the production of human persons, I suggest, also requires the incorporation of bitter substances, here, in the form of strong beverages, which are categorised with poisons, venoms, and harmful alters (*o'makon*). The ecology of fermentation, as I have shown in the foregoing, constitutes a key arena in which these fundamental cosmological tensions come to the fore and are played out.

❖ Table 5 | Fermented drinks

Beverage	Ingredients	Method of fermentation	Method of preparation
<i>Parakari</i> , kari	Bitter cassava	Dual process: (1) amyolytic mould (<i>Rhizopus</i> sp.); (2) anaerobic fermentation with ambient yeasts	Stage 1: burnt cassava bread placed in kari bed for three days; ‘kari mama’ powder added to instigate growth of mould (‘cotton’) Stage 2: mouldy cassava bread mulch placed in sealed vat for 2 + days
<i>Wo’</i>	Bitter cassava	Mastication (salivary enzymes); ambient yeasts	Burnt cassava bread mixed with water (and optional sugar); sealed in a vat for 2 + days (optional)
<i>Kassiri</i>	Bitter cassava Purple potatoes	Mastication (salivary enzymes); ambient yeasts	Grated bitter cassava and grated purple potatoes boiled in water; sealed in a vat for 2 + days (optional)
<i>Paiwari</i> , <i>paiwa</i>	Bitter cassava	Mastication (salivary enzymes); ambient yeasts	Burnt cassava bread boiled in cassava water (<i>kata</i>); sugar and water added; sealed for 1 week +
‘Fly’	Purple potatoes Sugar	Anaerobic fermentation, added sugar	Grated purple potatoes mixed with water and sugar; sealed in container for 1 week +
‘Tonic’	Yeast Burnt sugar	Anaerobic fermentation, added sugar	Commercial yeast from sachets mixed into bucket of water with burnt sugar; sealed in container for 1 week +
Rice wine	Rice Sugar	Anaerobic fermentation, added sugar	Rice (purchased) added to bucket of water; sugar added; sealed for desired period of time, 1 week +
Pine wine	Pineapple Sugar	Anaerobic fermentation, natural sugars	Ripe pineapple fruit added to a bucket of water, sugar may be added; sealed for desired period of time
Jamun wine	Jamun fruits Sugar	Anaerobic fermentation, natural sugars	Jamun fruits added to a bucket of water, sugar may be added; sealed for desired period of time

6. BINA PLANTS

Plant People, Charms, and Cures



Elsa's *emkusma* bina plant, her guardian-protector | Yupukari, 2013

One afternoon I was sitting with Aunty Elsa beside her kitchen garden scraping cassava. I noticed a lily-like plant growing in between the pineapples and pepper bushes. Seeing it illuminated by the afternoon sun, I was struck by its prominence and asked what kind of plant it was. Elsa replied that it was a bina plant called *emkusma*. “It keeps away evil spirits and stops people from cursing me,” she said, with mild reticence. She went on to explain that the plant was her guardian, her ‘police bina’. She originally planted it in the corral adjacent to her house, where it was starved of light and space. One afternoon Elsa fell asleep in a hammock and had a dream. In the dream, the bina came to her and said, “mummy, move me out of the corral and plant me somewhere I can see all around”. So the next day, Elsa transplanted it to the centre of her kitchen garden, from where it had a

panoramic view of the homestead. From that day on, she said, it had been happy and able to protect her. She added, “the plant calls me mummy. I talk to it and it talks to me; it sees everything. It protects me like a son would his mother”. After hearing the story, I took a photograph of the plant, as I had become accustomed to doing during my ethnobotanical surveys of crops. Elsa smiled, looked at me knowingly, and said, “it saw you taking a photograph of it too”. Her bina plant, it seemed, was a person with multi-sensory powers of perception. The relation of dream-communication that she shared with it was but one manifestation of its personhood. As it was later explained to me, some plants have spirits which can detach from the physical component of the plant (which, of course, remains rooted in the earth) in order to act in the transformational cosmos. As perspectival agents, these plants can move, speak, protect, even kill. In this sense, as I came to understand, plants can be volitional subjects occupying phenomenal perspectives on the world.

In this chapter, I attempt to investigate the cross-species symbiotic relations that transpire between person and plant from both sides: not merely how humans perceive and conceive of plants, but also how plants may perceive and conceive of humans. This kind of ecological logic is emblematic of Makushi reasoning about the living environment and its constituent ecological actors. To assess these trans-specific interactions, I explore the application of an ecosemiotic approach to the phenomenon of bina plants in the Makushi ethnoecology. Eduardo Kohn has advocated “an embodied and emergentist understanding of semiosis – one that treats sign processes as inherent to life and not just restricted to humans” (2007: 3). Unlike Kohn, however, who focuses almost exclusively on human-animal relations, I explore the feasibility of applying the Peircian typology of signs to the overlooked domain of human-vegetal encounters. As cosmo-botanical agents, ‘bina’ plant charms are situated within a broader relational field, which is constituted of the dynamic interactions of different kinds of living selves: human, plant, animal, spirit, elemental, and celestial. The relationality of this ecological milieu is inherently semiotic.

To better understand the potency of bina charms in Makushi ethnoecology, fuller attention must be given to the ontological constitution of Amazonian cosmologies. How, for instance, do animic (Descola 2013) and analogic (Halbmayer 2012b) elements interact in Amerindian ontologies, and how do these interactions influence indigenous theories of life? The efficacy of bina plants seems to be rooted in their ontological status as living, volitional selves, occupying perspectives on the world. However, as I argue herein, what constitutes “life” in the Makushi cosmic field of sociality does not fully accord with the concept as commonly understood in scientific or lay-Western frameworks. Ethno-theories of life are contingent upon the complex interaction of biological and metaphysical factors, and as such, require the consideration of both ethnoecological and ontological logics.

6. 1. Bina (*muran*)

In the opening section of the chapter, I ask the seemingly simple question, *what is bina*? Answering this question requires an in-depth examination of the cultivation and use of a category of plant charms, and of their place within the indigenous conceptual system. I assess their botanical diversity and the social exchange of varieties, as well as the system by which they acquire names. With reference to the historical and ethnographic literature, I situate the Makushi case within the cross-cultural context of charm use in the Guianas.

It would not be inaccurate to state that the use of bina charms has decreased over the last century, most drastically in the last few decades. Attitudes towards the use of bina charms and spells have undergone considerable change in recent years, owing to various endogenous and exogenous forces including, to name a few, the formal schooling system, the inception of community-run ecotourism enterprises (and the resulting influx of Euro-American tourists), the impact of market economics upon subsistence livelihoods, and the related increase in rural to urban migration. Perhaps most influential of all, however, has

been the intervention of evangelical Christianity. Both the Church of Christ and Christian Brethren denominations forbid the use of bina plants, as well as shamanic practice more generally, among members of their congregations. The Anglican Church, by all accounts, has adopted a more *laissez-faire* approach to indigenous culture and belief systems over the course of its 150-year-long presence in the North Rupununi (Williams 1932).¹ Many of my elder Makushi collaborators are particularly sceptical about the future of bina at the current juncture, owing to the apparent rupture in the transmission of cultural knowledge to younger generations. However, the situation is not as simple as the familiar trope of cultural erosion may suggest: the category bina has demonstrated an inherent adaptability to contemporary contexts, as exemplified by the proliferation of so-called ‘modern’ bina charms relating to distinctly twenty-first century concerns – often, ironically, those very forces that some predict to be harbingers of the obliteration of indigenous life-ways.

One evening during my first visit to Guyana in September 2011, I had a poignant and insightful conversation with a young man from Yupukari named Howard. As we sat on an old dugout canoe by Awarikuru Lake as the sun set, Howard described a personal dilemma that in retrospect seems to be representative of the mind-set of many young Makushi people today. “I don’t know whether to believe in bina,” he told me. “They say that it only works if you believe in it. That is why it works for dem old people: they still believe in it, so their hunting and fishing charms work. I love my culture. But for young people, they don’t believe in it – they just want to work, get money, and make everything ‘shine’ – and so bina will never work for them.”² Howard had spent much of his twenties working on cattle ranches across the border in Roraima, before deciding to return to the Rupununi to clear a farm and start a family. In a sense, his dilemma stands as a metonym for the precarious status of Amerindian life-ways in Guyana today. The tension between

¹ As did, for the most part, the British administration and civil service (Ridgwell 1972: 66).

² The Creole term “shine” is here used to designate wealth and technology of the Western type, as exemplified by the zinc roofs that are replacing palm-thatched roofs in Makushi communities. The zinc roof, shimmering in the sun, has become a symbol for the shift from indigenous to modern life-ways.

cultural tradition and cultural change informs the rest of this discussion, which for the most part deals in the currency of esoteric knowledge, by its very nature hyper-traditional and ‘un-public’ – especially so at the current juncture, wherein the use of bina is coloured by a sense of culturally- and ecclesiastically-rooted shame and embarrassment.

Bina charms are plants with an extra-botanical efficacy, with power, potency, and personhood, which exhibit the capacity to influence human behaviour in various ways. Their defining feature is the propensity to charm – literally, to attract – a target object or entity toward the user of the charm. Bina plants can have many targets: there are charms for hunting, fishing, and cultivating, for cooking, brewing, and weaving, for acquiring knowledge, wealth, and love, and for cursing and killing. They may also serve to enhance certain technical skills in the user, such as firing a bow and arrow accurately, brewing the best cassava drinks, or learning a new language. In this sense, they make the user more adept at the task at hand. As the anthropologist Walter Roth described in 1915,

Binas are charms, plant or animal, which effect their purpose by enticing or attracting the particular object or desire yearned for, whatever it may be – from the capture of an animal to the gratification of a wish. The real source of the term *bín-a* is from the Arawak *bia-bina*, meaning ‘to entice, attract,’ etc., and so comes to be applied to all those things, plant or animal, which act on those lines.

- Roth 1915: 233.

Bina charms are called *muran* in the Makushi language, a term meaning ‘attraction’ or ‘things that attract’. The capacity for attraction is the defining feature of the category as a whole.³ The Creolised Amerindian term ‘bina’, of Arawak derivation, is today employed

³ The Carib-speaking Makushi, Patamona, and Akawaio refer to the category of charms as *muran* or *murang*. The Arawak-speaking Wapishana call charms *panakaru* (Forte *et al.* 1992: 12).

cross-culturally in Guyana to refer to the category of charms.⁴ The terms *bina* and *muran* are used interchangeably by Makushi people, ‘bina’ when speaking in Creolese, *muran* when speaking in Makushi. Herein, I employ the term *muran* when referring specifically to the Makushi language and culture, and *bina* when referring to charms more generally.

The term ‘bina’ has been translated by ethnographic commentators as, variously, attraction charms, magical plants, amulets, and talismans (im Thurn 1883: 94; Roth 1915: 219; Myers 1993: 41; Thomas 1982: 160). Herein, I adopt the term ‘charm’ as the most appropriate translation of *muran*, for two principle reasons. First, charm was the most common English translation used by my Makushi collaborators. When I would ask, “what are *muran*?”, people would invariably reply, “charms”. Second, charm most adequately encapsulates the innate power of attraction that constitutes the very essence of *bina*: they literally charm things towards the user. Magic, a historically loaded and contested term, is more ambiguous and less specific. Therefore, *muran*, *bina*, and charm are here used as synonyms from different languages, and are employed in the text as such. This reflects the fact that all are used by Makushi people themselves in different linguistic contexts.

Muran constitutes a heterogeneous overarching category, containing a number of subgroups of ontological type including plants, animals, tattoos, stones, and petroglyphs. Thus, *bina* charms can take a range of physical forms, from innocuous green seedlings to animal tooth pendants, from plaited palm-shoot fans to large flat rocks adorned with fish scale symbols. By far the greatest proliferation of *bina* charms exist in the botanical realm and it could be said that *bina* plants are emblematic of the category of *muran* as a whole. I

⁴ Historical sources shed light on the etymology of the term. According to the colonial botanist D. B. Fanshawe, ‘bina’ is an Arawak term, which he defines as, “bina (*ibina-hü*) medicine, charm; fleshy arum-like plant with sagittate leaves used as a good-luck charm” (1949: 60). The Arawak term entered the wider Guyanese lexicon to denote the variety of charms used by the Amerindian groups of Guyana. Thus, as with many other creolised Amerindian terms, ‘bina’ seems to have originated with the Arawak people who inhabited the coastal areas in which the Dutch and British made their principal settlements during the early colonial era. The word presumably spread with the advent of the Creole dialect in the colonial period. It can be deduced that the Makushi were referring to *muran* as *bina* as early as 1900: Williams, for instance recorded the term in his book on ‘Makuchi’ grammar. He listed ‘beena’ as *muran*, meaning “charm, enchantment” (1932: 181). The term was likely being used inter-ethnically as early as the 1830s, when the first Anglican missionaries visited the Rupununi (see Brett 1853).

have also identified three subcategories of functionality: (1) there are charms that appear to work on the basis of the physical transfer of substance, (2) those whose power emerges from semiotic relations of referentiality, and (3) those whose power emerges from their subjective agency or personhood. The latter type are certifiably *plant-people*: as living selves endowed with souls, they have the power to act in the world of their own volition. These three functionalities are interconnected in complex ways, and thus it is difficult to make one conclusive definition of *muran* as a category. Therefore, it may be more useful to classify *muran* as a heterogeneous category of family resemblances based upon the interaction of various fields of efficacy: the physical transfer of substances, the power of signification, and an animic principle. This category overlaps with the category of cures or remedies (*epik*), as well as quasi-charms such as talismans and tokens.

Bina plant charms can be used in a variety of ways, but usually with little or no ceremony. With some, it is enough to simply grow the plant in the garden or carry a leaf around in one's pocket. Guardian binas, like Elsa's *emkusma*, need only be grown around the perimeter of the house, from where they can deter harmful forces. With others, leaves are rubbed into lacerations made on the body at ritually important life-stages such as first menstruation. Charms must always be rubbed *toward* the body; if rubbed away, they will repel their target (game animal, fish, a love interest, and so on). In general, leaves of the plant are rubbed into the user's skin on the body parts that are engaged in the act at hand. For instance, hunting binas are rubbed on the hands, forearms, biceps, and shoulders: the corporeal regions used to fire an arrow from the bow. Likewise, brewing binas are rubbed on the mouth, lower face, and neck: the areas involved in masticating cassava beverages. Traditionally, charms would have been rubbed into abrasions made on the surface of the initiate's skin. These modes of application indicate that physical contact or the transfer of substance is in some way essential to the functioning of these particular bina charms.



Madelene with her *wayaya bina*, for learning languages | Yupukari, 2012

6. 1. 1. The Serpentine Bridge

In order to understand the place of bina charms in Makushi cosmology, it is paramount to consider local theories regarding their origins in mythic-history. In his 1915 account of Amerindian folklore in then-British Guiana, Walter Roth reported a myth regarding the origin of binas, as told by the Arawak people of the northwest. In Arawak mythology, all hunting binas originated from the slain corpse of a huge serpent called Oroli. The Arawak

legend, recounted below, describes how “after having been killed, the snake was carefully burnt, and that from the ashes there subsequently arose all the different plants, mostly, but not all of them, caladiums, which are now employed as binas” (1915: 284).

m5. The serpentine bridge

Walter Roth 1915: 284.

A long time ago people noticed how every now and again one of their friends would leave his house, go into the forest, and never be seen again. They accordingly made up a big party, and tracked the latest victim to two immense silk-cotton trees,⁵ and there was a huge serpent stretched across, somewhat like a bridge, from the summit of one tree to the other. They found out that from this serpentine bridge, pieces of the flesh would fall to the ground where they took on the form of dry firewood, which the innocent folk passing by, would gather up in mistake: that immediately upon just touching this dead timber the awful snake pounced down and seized its human prey. It was accordingly agreed that Oroli must be killed, a deed which they succeeded in effecting by means of blow-pipes and poisoned arrows. The carcass was then covered with bushes and saplings, and set fire to; the binas all grew out of the ashes.

The myth displays a number of parallels with the origin myth of cassava, recounted in Chapter 4. First, both stories describe how a predatory tree-dwelling snake was slain by human beings in vengeance. Both the cassava-snake and the bina-snake were a menace to human society, the former by copulating with young women, the latter by preying upon passers-by. Second, in both myths, cultivated plants (cassava and binas) grew from the corpse of the serpent. Finally, both stories describe the origin of fundamental agricultural techniques: in the cassava myth, the mutilated snake was buried in a soil grave akin to a

⁵ Silk-cotton tree (*Ceiba pentandra*). Makushi name, *kuma ye*'. Known as the kumaka tree in Guyana.

ploughed bank, from which the first cassava crops sprouted; in the bina myth, the snake's corpse was covered in vegetation and burned to ashes, from which the first bina plants grew. The first describes the method of cultivating cassava plants, the second the method of burning a swidden clearing. Thus, as these origin stories explain, the most important cultivated plants in Makushi horticulture, and their concomitant agricultural techniques, emerged from the slain corpses of predatory snake-beings in mythical times.

Although bina plants feature in a subsidiary role in many Makushi myths, I was never told an equivalent to the Arawak myth by my collaborators, nor have I come across one in the historical or ethnographic record. However, local people provide a number of alternative explanations for their origin in mythic history. When I would ask where bina plants came from, people would usually say that all of their numerous folk-varieties were created by the mythical heroes Insikiron and Anike, those two mischievous 'miracle men' who were responsible for forging the structure and constitution of the world during the primeval 'beginning times'. Some versions of the famous *wayaka ye* myth describe how bina plants originated from the giant tree of life from which all cultivated plants derive, which was felled by Insikiron and Anike.⁶ In mythological exegesis, then, *muran* charms are considered coeval with the beginning of the world and the emergence of differentiated living kinds. It is from this mythic origin that their diversity emerged.

6. 2. The Botanical Diversity of Plant Charms

The cultivation and use of plant charms among the indigenous groups of the Guianas is widespread and historically documented (im Thurn 1883: 94; Penard and Penard 1908; Roth 1915: 281; Rodway 1917; Fanshawe 1949: 60). Their use has been reported among the Akawaio, Arawak, Arekuna, Carib, Makushi, Patamona, and Wapishana in Guyana,

⁶ Myth 1, recounted in Chapter 3.

among the Wayana and Maroons in Suriname (Chapuis 2001), and the Wajãpi of Brazil.⁷ Nevertheless, there is a dearth of ethnographic literature on plant charms in the Guianas, as across Amazonia more widely (Butt 1961: 153; Forte *et al.* 1992: 12; Rival 2001: 68). Furthermore, plant charms have been practically ignored in mainstream botany, owing to their “magical” connotations (Tinde van Andel, personal communication, May 2014).

Examples exist from all corners of the botanical domain, from lily-like monocots and arrow-leafed aroids to cacti and epiphytic lianas. Botanically speaking, they come from a range of families, most commonly Amaryllis, Lily, Arum, and Iris, and include native, introduced, wild, and domesticated species. Cultivated bina plants are typically grown around the homestead, in the yard, in gardens, and in farms. They may be grown in pots or old paint cans hung from the eaves of houses, planted in flower beds, or hidden amongst the crops in the farm. Wild bina plants may be gathered from the high forest, gallery forest, scrubland, open savannah, or from riverbanks and oxbow lakes.

During my ethnobotanical enquiries, I recorded 105 distinct types of bina charm, including 70 folk-varieties of plant and 35 animal.⁸ Examples of charm tattoos, stones, and petroglyphs were also documented. The majority of these charms were described to me by interlocutors during interviews or shown to me during ethnobotanical inventories of farms and gardens. A significant proportion of them were photographed in the field. Twenty-eight of the plant charms have been botanically identified to the genus or species level (Appendix 3). Of these, most common were varieties of *Caladium bicolor* (Araceae) and *Hippeastrum puniceum* (Amarillidaceae). All animal species have been biologically identified (a significantly easier task). My sample comes primarily from three Makushi villages, Yupukari, Rewa, and Kaicumbay, but also includes secondary data from further afield, for instance, that supplied by Wapishana collaborators. I also underwent the ritual

⁷ Joana Cabral de Oliveira, personal communication, February 2015.

⁸ See Appendix 3 | Bina Plants. All Linnaean plant identifications were made with the aid of field guides and, subsequently, from my photographs with the expert assistance of Dr Tinde van Andel of the Naturalis Biodiversity Centre in the Netherlands.

application of several binas while in the field, in the form of plant charms for fishing and hunting and ant stinging for general vigour. The sample, far from exhaustive, potentially represents only a fraction of the ever-changing pool of binas in current and historic use, a pool which exhibits considerable geographic variability. To roughly classify, the charms fall into nine interconnected categories: general (luck) binas, hunting binas, fishing binas, cultivation binas, work binas, knowledge binas, love binas, guardian binas, and *kanaimi* (cursing) binas. These are explored in more detail below.

Since October 2013, I have been collaborating with Dr Tinde van Anandel, a Dutch botanist who works with Amerindian and Maroon groups in Suriname, to conduct a cross-cultural analysis of plant charms in the Guianas (Anandel *et al.* 2015).⁹ The sample of plant charms comes from our combined fieldwork data and archival sources. So far, the on-going inventory has revealed 403 folk-varieties of plant charm, of which most were hunting charms (139 records), followed by charms for protection against harmful spirits or enemies (82), love charms (64), fishing charms (34), charms for good luck (32), and charms for protection against snakes (26) (see Anandel *et al.* 2015: 4). The 403 folk-varieties come from 147 biological species, many of which have multiple landraces; for instance, *Caladium bicolor*, the most common species in the sample, which has numerous ornamental varieties. The sample contains 63 truly wild species, 51 wild species collected and cultivated in yards, gardens and farms, and 31 species that do not occur naturally in the Guianas according to the regional checklist (Funk *et al.* 2007). Introduced species have historically been imported into the Guiana region by coastlanders and Europeans; others may have been taken from the wild by local people in Brazil or Venezuela and brought back to Guyana (Anandel *et al.* 2015: 6).

⁹ Tinde van Anandel, Sofie Ruysschaert, Karin Boven, and Lewis Daly. 2015. The use of Amerindian charm plants in the Guianas. *Journal of Ethnobiology and Ethnomedicine* 11:66.

❖ Figure 24. Some sketches of bina plants.¹⁰



The most widely recorded species are plants of wild origin that are cultivated by means of vegetative propagation via tubers, bulbs, or rhizomes. Of the 147 documented species, 50 have bulbs, rhizomes, or tubers, and another 11 species can be easily grown from stem cuttings, as they quickly root at the nodes.¹¹ The bulb itself is also instrumental to the application of the charm: in many cases, the bulb, rhizome, or tuber is grated or macerated, before being rubbed into the skin or bathed with. Charm plants that can easily be reproduced by cuttings or tubers were used by a higher number of groups than plants that lacked such traits (Andel *et al.* 2015: 6). We hypothesise that the predominance of species that can be vegetatively propagated is linked in part to their ease of transport and storage. Bulbs, rhizomes, and tubers are spatially and temporally versatile, which makes them particularly suitable as exchange items (William Milliken, personal communication, June 2014). When visiting another farm, a gardener can easily put a bulb in their pocket

¹⁰ Identifications, from top left to bottom right: arowana bina (*Maranta arundinacea*), emkusma (*Hippeastrum puniceum*), catfish bina (*Xanthosoma* sp.), kami (*Aristolochia* sp.), deer bina (*Caladium bicolor*), and labba bina (*Tradescantia* sp.).

¹¹ For instance, *Portulaca* sp. and several Commelinaceae.

and transport it to their own plot; furthermore, bulbs can be stored in a state of dormancy for protracted periods of time. This hypothesis accords with the explanations of Makushi cultivators, who, when asked why so many bina plants have bulbs, would typically reply that bulbs were easy to transport, store, and plant.¹²

Owing to these botanical features, bina plants are ideal items of currency in the plant exchange networks that characterise Makushi horticulture. People regularly borrow and swap varieties of bina with one another, just as they do with cuttings of cassava. The social exchange of plant materials usually occurs along lines of kinship or socio-political alliance, with bina plants and associated knowledge being passed down vertically from parent to child and horizontally between peers. As a consequence of this intra- and inter-village varietal exchange, the pool of binas existing within and between communities is fluid. However, the social practice of bina exchange exists in tension with evangelical Christian teachings that prohibit their cultivation and use. The ‘un-Christian’ shamanistic associations attached to bina plant charms determine that their possession and use is often clandestine, especially where Christian influence is particularly strong (e.g. Rewa). Thus, many people reject their use and deny their efficacy, at least publicly.

Makushi gardeners emphasise the living nature of bina plants. As botanical life-forms, they are understood to be living *selves*: they grow, flower, seed, sway in the wind, react to light, wither in drought, and – eventually – die. Their owners spend considerable amounts of time attending to their bina plants: planting them, watering them, re-potting them, transplanting them. Further still, according to Makushi cultivators, bina plants have souls (*ekaton*), the same kind of essential component that makes human beings “alive”. In this sense, bina plants are regarded as nonhuman people and are routinely referred to in subjective terms. As sensing, sentient subjects, they perceive the world around them: they see, hear, and feel their surroundings. As conveyed in Elsa’s vignette, people and their

¹² The fragrance of bulbs may also be central to their perceived efficacy as charms. See Nádia Farage (1998) on the use of tubers in Wapishana shamanic magic. “Tubers”, she reports, “are characterised by their favourable perfume, a property that the Wapishana emphasise” (1998—my translation).

bina plants “live together” in the social space of the garden, forming commensal relations of care, nurture, and guardianship. The relation between human owner and bina plant is conceived of as consanguineal, akin to the relation between parent and child. As plant-children (*more*), they require constant care and nurture in order to grow and “be happy”. They share dialogue with their owners, who ceaselessly talk to their plants; in order for bina plants to remain efficacious, they must be kept content through verbal reassurance at every juncture. Bina plants speak back, too, usually via the medium of dreams (*we’ne*), in which they appear to their owners as small people, or homunculi. As Aunty Elizabeth of Kaicumbay once told me, “bina plants will talk to you, now. They are like little people, but invisible. They will come to you in your dreams and speak to you”.

Cultivators must propitiate their binas with offerings of “spirit food”, including fresh tobacco (*kawai*), cigarettes (*ka’ta*), cassava beer (*parakari*), and pirai bones (*arai’ ye’pi*). Antithetical to regular foods which nourish the physical body (*pun*), spirit foods nourish the soul (*ewan* and *ekaton*) and as such form key catalytic substances in shamanic ritual.¹³ The intimate bond between cultivator and crop is forged and maintained through these perpetual offerings. However, the relationship between human and plant can be fractious: certain powerful binas may grow “wild” and start killing against their owner’s will if given particularly potent offerings such as fresh tobacco leaves (*kawai yare*) or bloody meat (*pun mîn*). Those without the necessary knowledge or skills to harness their agency may be driven “mad” (*ayawî*) by their bina plants, which can coerce their owners into engaging in anti-social acts. This unrestrained potency is the ultimate expression of the ambiguous power of bina plants. Only through constant nurture can this “wildness” be tamed and transformed into a productive energy to be harnessed in the human domain.

¹³ The ultimate spirit food being tobacco, which is used extensively in shamanic praxis. See also Roth: “Since Spirits are supposed to have a peculiar fondness for tobacco, and to be continually inhaling its fumes, the smoke of the fragrant weed is largely used in their invocation” (1915: 191).

Bina plants are human beings; they are guardians, our security. In the night they turn into little children and run around. They whistle if a *kanaimi* (malevolent shaman) is near. They are spirits. We give them tobacco, cassava beer, or food like fish bones.¹⁴

- Urmellita Edwards | Rewa, 2013

Bina plants, I suggest, must be continually *tamed* (*esepani'pî*) through nurturing acts, acts which characterise both horticulture and raising a family. Broadly speaking, the Makushi model of kinship is typical of Amerindian cosmologies, in which human bodies must be continuously fabricated via the shared processes of communal living (cf. Vilaça 2002).¹⁵ Through the intimate acts of living together, persons gradually become alike, that is, literally consubstantial. The Other becomes incorporated via the gradual accumulation of bodily substance (*pun*) and essence. This process of somatic fabrication, however, can be precarious and reversed: if those fabricating acts cease, Self can switch back to Other, as exemplified by the ever-present danger of bina plants reverting to a “wild” state. The human cultivator must constantly work to ensure that their bina plants remain “tame” and socialised. Cultivation, in this frame, becomes a relationship not just of nurture and care, but also of control and domestication. This ambiguity between care and control, between kincentric relations and affinal taming relations, pervades “plant personhood” in Makushi ethno-metaphysics. In short, plant-people, like their human counterparts, must continually be socialised or “tamed” to remain like kin. This status is inherently unstable.

¹⁴ See also Roth, on the Carib bina (*Caladium*) which has the power to utter a “long low whistle” in order to wake its sleeping owner in his hammock, upon the approach of a *kanaimi* avenger (1915: 232).

¹⁵ See Chapter Two for an expanded discussion on this point.



Maripa knowledge bina, bulbs | Yupukari, 2012



Aunty Elizabeth, with various bina plants in her garden | Kaicumbay, 2013

6. 3. Types of Bina Charm

In the following paragraphs, I evaluate some core sub-categories of bina charm; namely, hunting, fishing, cultivation, and work charms. In so doing, I illustrate various aspects of their use, some modes of their application, and the system of their naming. As shall be seen, the names of bina plants are rooted in relations of ecosemiotic referentiality, with most being named after animals and plants that they resemble, affect, or interact with in some way. With reference to so-called “modern binas”, it will also be demonstrated that plant charms constitute efficacious devices for navigating cultural transformation.¹⁶

The names of bina charms in Makushi typically consist of two words, the first representing the target of the charm (e.g. the name of an animal or a fish) and the second being *murani* (charm). Thus, the hunting charm for the land turtle (*wayanmuri*) is called *wayanmuri murani*, the fishing charm for the arowana is *arowana murani*, and so on. Other binas are named after their target effect. The bina *esepani* is used for taming wild animals or people, its name meaning literally “tame” or “marry”.¹⁷ This amaryllis is used to “make wild things tame”, and is of particular value to ranchers for taming cattle and horses. The charm can also be used to “tame” human beings in various ways. If a leaf is rubbed on the legs of a baby, so it is said, they will learn to walk at a precocious age. Furthermore, *esepani* is a potent love charm: if a leaf is dissolved in perfume and worn by the user, the target of their affection will fall in love with them upon smelling the scent. “Taming” here is conceived of as an interspecific process of socialisation, of *de-wilding*, a process which applies equally to humans, animals, and plants.¹⁸

Most bina plants are named via ecological associations with other kinds of living beings. This naming complex is rooted in eco-semiotic relations of varying complexity,

¹⁶ See Table 6 at the end of this chapter for a list of some important bina plants. For the full list of bina plants documented in my survey, complete with names, uses, and mode of application, see Appendix 3.

¹⁷ *Esepani* (*Hippeastrum* sp.).

¹⁸ On the link between conjugality and taming among the Ecuadorian Jivaro, see Taylor (2001: 47).

and draws upon likenesses between the plants and their titular ecological species. These associations are primarily iconic, in Peirce's language (1940: 105), in that they operate on analogic relations of resemblance. Some, for instance, are named after other plant species owing to morphological homologies: the bina *maripa*, for example, is named after the kokorite palm (*maripa ye'*), as it looks like a young kokorite shoot.¹⁹ Others are named after animal species which they relate to in some way: for instance, the jaguar (*kaikusi*) and giant river otter (*tura'ra*) binas. These powerful charms endow their beneficiary with enhanced hunting and fishing abilities, akin to their eponymous animals: the jaguar is the apex predator of the forest, just as the giant otter is of the aquatic domain.

Fishing binas are usually named after apex aquatic hunters or the ethnospecies of fish for which they serve as a charm. The osprey bina (*tannowaka murani*), for instance, is a general fishing charm: like its eponymous bird of prey (a fish hawk), the bina endows the user with enhanced skills for fishing.²⁰ Likewise, the catfish bina is used as a charm for large species of 'skin-fish' such as the tiger fish (*kurutu*), banana fish (*paruruimi*), and the giant lau lau (*pasisi*).²¹ To apply the charm, the fisher-person must rub a leaf on their hands, arms, and fishing line, always toward him or herself and away from the hook.

The archetypal bina plants are hunting charms. The efficacy of these charms, well-documented in the historical literature (cf. Andel *et al.* 2015), is based on the general principle of attraction. Their power is described as being almost magnetic: they draw the game animals toward the hunter when in the forest. At the same time, the charms serve to enhance their user's technical proficiency at hunting, in two ways: (1) "marksman binas" improve one's accuracy and power with the bow and arrow, and (2) "hunting dog binas" enhance the capacity of one's hunting dogs to seek out and chase down prey. Some serve as general charms which attract a range of prey animals: for instance, *kami*, the multi-

¹⁹ This common bina plant (*Eleutherine bulbosa*) is a hunting charm for dogs. The shallot-like bulbs are mashed up and added to the food of young hunting dogs, which develop an enhanced capacity for hunting agouti, labba, and armadillos. Leaves may also be rubbed into the dog's nose.

²⁰ Osprey bina (*Hippeastrum* sp.). Makushi name, *tannowaka murani*.

²¹ Catfish bina (*Xanthosoma* sp.).

purpose ‘waracarbara’ bina.²² Others are highly specific, with each individual species or cultivar serving as a charm for a particular species of animal – for instance, peccary bina, armadillo bina, and tortoise bina. An ecosemiotic relation usually exists between the plant and its target species: that is, the plant and the prey species are isomorphic in some way. The relation of resemblance is most often visual (i.e. the plant looks like the prey), but the relation can also be olfactory, gustatory, or of a more abstract nature.²³



Deer bina (*usari murani*), a hunting charm for red brocket deer | Yupukari, 2013

For instance, the various ornamental cultivars of *Caladium bicolor* can be used as hunting binas for deer. The leaves are rubbed into one’s arms and bow and arrow, mashed up and added to the dog’s food prior to a hunt, or rubbed into abrasions on the dog’s nose.

²² *Kami* (*Aristolochia* sp.). This general hunting, luck, and love charm is named after the vociferous *kami* bird, known as the waracarbara in Creolese (grey-winged trumpeter, *Psophia crepitans*).

²³ On the multi-sensory character of biological signs, see Sebeok (1994: 17-19).

Each Caladium cultivar exhibits a different coloured pattern on its broad arrow-shaped leaves. Each variety resembles its corresponding prey species: the coloured pattern of the leaves corresponds to phenotypic markings or features of the species of animal for which it operates as a charm. One type with white-speckled leaves functions as a charm for the white-tailed savannah deer (*waikin*); another variety with a red pattern is a charm for the forest-dwelling red brocket deer (*usari*). The visual patterns displayed on the leaves of each plant serve as iconic signs for their target prey species, and the efficacy of the charm in some way emerges from this iconic relation of resemblance (Peirce 1940: 104). This is but one example of the more general principle – pervasive in Makushi ethno-metaphysics – that *things which resemble one another can affect each other*. This principle ostensibly accords with Frazer’s law of homeopathic, or “imitative”, magic (1922: 11).²⁴

The paradigmatic example of Caladium hunting binas represents a clear example of the ecosemiotic flow between plant and person: the leaf pattern signifies to the hunter that the plant is a charm for a particular species of game animal. The relation is one of iconicity: the plant resembles the animal in some way (in this case, visually; however, it may refer to any of the senses, e.g. scent, taste, sound). In short, the plant represents the animal for which it serves as a charm. At the same time, the leaf patterns are indexical signs for the charm efficacy of the plants themselves. The pattern serves as a visual index to the human user that the plant is a hunting charm: there is a physical contiguity between the plant and its charm potency, which resides in the substance transferred from plant to human. There exists a “physical connection” between the sign and its object (Peirce 1940: 106). Thus, again we see the emergence of a causal knot of iconicity and indexicality that pervades the charming complex. A triangular relation emerges between human, plant, and deer, which can be read as a network of poly-semiotic flows (cf. Kohn 2013: 8).

²⁴ See Chapter Two on Frazer.

However, to emphasise semiosis is not enough. If we look at how the charm plant is used, we see that the notion of substance-transfer is required to activate its efficacy. Hunting binas are generally used by being applied to the body in various ways – the leaf or bulb may be rubbed into abrasions on the hunter’s arms, or rubbed over their skin or their bow and arrow. In each of these cases, there is some kind of physical contact or contiguity between the charm and its user. Some plant charms are ingested; others may simply be grown in the garden and touched from time to time. Nevertheless, the idea that the plant affects the user by virtue of physical transfer is present. In transferring substance from plant to human, there is also a concomitant transfer of powers or capacities. The human incorporates the substance of the plant in order to gain its capacities – in this case, enhanced hunting skills for deer. In some sense, the capacities of the plant, instantiated in this case in hunting skill, are acquired by the human beneficiary through the vector of the substance. The human, in short, comes to *embody* the bina plant via bodily incorporation. Thus, in this one example, we see the combined action of signs and substances.

Of course, as I have noted, the flow of substances and the flows of signs are not necessarily separate. Substances can be interpreted as indexical signs, in that they reveal an existential or physical contiguity between signifier and signified (Peirce 1940: 107). In this example, the juice (*merepa*) of the Caladium plant is a sign that represents the charm capacities of the plant. However, in my view, this does not get us far enough. In order to look further into the ‘substance logic’ that permeates Makushi cosmology, we must look beyond ecosemiotics and towards the flows of substances and essences that occur within and between beings. In order to pay heed to both, a synthesized approach is required.

As mentioned in Chapters 3 and 4, various cultivation charms can be used in the horticultural domain. Some promote growth and instil fertility by attracting the Cassava

Mama spirit to the farm space.²⁵ Others, so-called “work binas”, are used for conducting manual labour, serving to dispel lassitude and induce extra-human strength. The axe bina (*waka murani*), for instance, is a charm for clearing swidden plots. The user must bathe with the plant each morning for four days prior to conducting the work. As with all binas, there is a risk associated with using *waka murani*. If the user of the charm neglects their work duties, they will go mad (*ayawi*) and “fight up”: the untamed power gained from the bina will be expressed in dangerous or violent ways. For this reason, work binas should not be used while consuming alcohol, owing to the increased risk of aggressive or “wild” behaviour. If the user cannot control the bina, they may lose their mind. As I was told, “you must only use *waka murani* if your spirit is strong, not if it is weak”.

Here, the relationship of alliance between cultivator and plant charm is predicated upon control. In order to utilise the charm effectively the owner must maintain a level of control over the plant through repeated acts of care, nurture, and taming lest the plant’s unrestrained potency and “wildness” cause a reversal in the relation of control, resulting in the owner turning “wild”. If the human being is unable to control the potent agency of the plant, there is a constant danger that the plant will wrest control of its owner.

6. 3. 1. ‘Modern’ Binas

As mentioned, Makushi mythic-history describes how bina charms have been used since the primordial era, when they were created by Insikiron and Anike. Indeed, the historical record confirms that plant charms were being cultivated and used in the earliest decades of European contact, and likely for centuries prior to that (Breton 1665, im Thurn 1883, Penard and Penard 1908). In the early ethnographic literature, hunting and fishing binas, in particular, were described in similar forms to those in existence today (Roth 1915: 233;

²⁵ For example, the cassava bina (*kîsera murani*). The shallot-like bulbs of the plant (*Eleutherine bulbosa*) can be chewed and spat over the cassava banks. See Chapter 4.

Williams 1932: 181; Myers 1993: 41; Fanshawe 1949: 60; Butt 1961: 152-4). Despite this historical depth, certain charms in current usage display a distinctly “modern” orientation: these include cash bina, gold mine bina, and Brazil bina. Some of these are not new binas *per se*, but rather pre-existing species that have leant themselves to new socio-economic concerns. Others appear to be new charms entirely, as suggested by the large number of introduced species in my sample. Expressing the fluid and adaptable nature of *muran* as a category, these charms relate to concerns of contemporary life that did not have relevance in the subsistence-based past, concerns centring on market economy, wage labour, rural-to-urban migration, and formal education. As the political and economic pressures of life have changed for the Makushi, so too have the target objects of bina charms.

A few examples illustrate the point. ‘College binas’ improve the performance of pupils in school by increasing mental acuity and making the child “willing”. The bina plant *esenwun* (*Xanthosoma* sp.), for instance, is used as a study charm for children, its name being related to the verb *esenupa*, meaning “study”. The bulb of the plant is rubbed on the child’s pencils and notebooks, which has the effect of encouraging the child to be “bright and brave” in school. ‘Shopping binas’ are said to reduce the cost of commodities for their user; as such, they are particularly useful for those who travel to Georgetown or Brazil, places where everything costs “plenty money”. Uncle Joel, an expert craftsman from whom I would sometimes purchase craft items, once showed me a grass-like plant growing in an old margarine tub in his yard. The plant, he told me, is a cash charm: it brings money and wealth. I asked him, “does it work for you?” He replied, with his usual acerbic wit, “well it brought you, and you keep bringing me money!”

Certain ‘guardian binas’ can provide protection from economic exploitation and ethnically motivated persecution in predominantly non-Amerindian population centres. Gold Mine bina, for example, is used as a protection charm in the hostile and vice-ridden world of the Mazaruni gold mines. Brazil bina, likewise, serves as a guardian for those

who migrate to Roraima to work on cattle ranches and industrial farms. These charms provide security and protection for people when engaging with external economic and ideological spheres. ‘Police binas’ can protect the user from prosecution by the law: it is said that if the user carries a leaf in their pocket when travelling on highways or in cities, they will be rendered literally invisible to the police and hence immune to legal troubles. This notion must be understood in relation to the perception that Amerindian people are institutionally persecuted against in Brazil and coastal Guyana. Through bina plants, then, Makushi people engage with and make sense of trans-local forces and historical change; in other words, bina plants are one medium through which people navigate the dialectic between cultural tradition and cultural transformation that underpins everyday life.

6. 4. Plant Shamans

In this penultimate section, I assess the sub-category of shamanic plant charms, the prototypical *plant-people*, in order to further explore the cosmoecological influence of ‘bina’.

Certain powerful bina plants occupy an ambiguous realm between guardianship and malevolent agentivity. Referred to as “piai-plants” in Creolese, these shamanic plant charms have subversive associations and can be used to curse (*mîi’ma*) or protect (*erasi*). Their power lies in their subjectivity: they possess animating spirits (*ekaton*) and exhibit behaviours associated with personhood as a trans-specific quality. It is said that at night their spirits walk around like homunculi, visible only to the shaman (*pia’san*) with his specialised perceptual apparatus. Although the body of the plant remains in the soil, its spirit can roam freely in the cosmos. As exceptionally powerful beings, the influence of shamanic binas transcends the basic capacity to attract that characterises most bina plants: they can kill and heal of their own accord. In general, piai-plants are grown as protective guardians to ward off harmful forces (*o’ma*). However, if the owner is so inclined, they

can utilise the charm for malevolent ends: to curse an enemy or to avenge a murder (*wîi*). As ambiguous beings, their moral directionality resides largely in the intentionality of the owner and their ability to control the unrestrained potency of the bina plant. These plants are said to transmit an undulating whistle when stalking their human prey by night.²⁶ This high whistle is taken as an indexical sound-sign that the predatory plant-spirit is nearby:

chi-chi-chi-chi – chi-chi-chi-chi

“Piai” bina plants are made efficacious not merely as appendages to human action (enhancing their abilities), but also exist as sentient, volitional beings capable of action in their own right. Human cultivators must forge enduring relationships with their piai-plants through the nurturing processes of shared living. They must tend to them, speak to them, and give them offerings of spirit-food. However, these human-floral relations are precarious and always harbour the potentiality for chaos. The power of piai-plants is such that their mere possession can lead an individual to turn “evil” or insane and start killing indiscriminately – that is, to become a *kanaimî*.²⁷ Lay-people, lacking the sufficient piai-knowledge and training, cannot reliably control the “wildness” or unrestrained potency of these plants. Only the *pia’san*, the master of esoteric wisdom, has true control over them.

The shaman shares an intimate relationship with these clairvoyant plant-people, which form his key allies in ritual healing practice. By repeatedly drinking and vomiting decoctions of these bitter plants as an apprentice, the shaman forges a deep relation of alliance with them. It is useful to think of these bina plants as shamans in their own right:

²⁶ The capacity to whistle is associated with many spirit-beings including the *tamona’*, *mariwa’*, and *kanaimî*. Each being produces a distinctive whistle, which is used as a sound sign to identify it.

²⁷ *Kanaimî* are malevolent or dark shamans. Referred to as ‘jumbies’, they are real people who master shamanic techniques of praxis for destructive anti-social ends. They use bina charms and *taren* spells to curse and kill their enemies. *Kanaimî* mutilate their victims by piercing their tongue with snake fangs and inserting an iguana or armadillo tail into the rectum. By transmogrifying into red-eyed rats and lizards (*wainîripî*), they feed on the putrefied juices of their victims’ corpses, which taste as pineapple to them and provide their life-force. On *kanaimî*, see Richard Schomburgk (1922: 251-54), Roth (1915: 320-31), Gillin (1936: 149-52), Butt Colson (2001), Whitehead (2002), and Wilbert (2004).

indeed, this is the very meaning of the term “piai-plant”. The model of their personhood corresponds closely to that of the human shaman: like shamans, they have the power to influence society in constructive or destructive ways. The shaman is defined by the ability to engage in spiritual flight, bodily transformation, and dream communication, capacities shared by his botanical equivalents. Furthermore, both human and plant shaman exhibit the ambivalent capacity to heal or harm using spiritual techniques. Thus, in characterising these powerful plants as *people*, I am emphasising a personhood closer in kind to that of the *pia'san* than the lay-person. As co-actors in the cosmic field of sociality, shamans and bina plant-people are allied as equals; during shamanic séances, bina-spirits and shaman-spirits converse on equal footing concerning cosmo-political matters.

The most commonly reported example of a piai-plant is *emkusma*, Elsa's “police” bina mentioned at the beginning of the chapter. *Emkusma*, a lily-like plant of the family Amarillidaceae,²⁸ is considered to be a powerful guardian that protects its owner against *o'makon* (“jumbies”: monsters, malevolent spirits, dangerous beings). The plant's spirit walks with its owner as an invisible presence while they are travelling alone, and protects their homestead while they sleep. If planted around the perimeter of the house, *emkusma* will keep watch like a sentry, whistling to warn its owner of any impending danger. The capacity to transmit sound signs is an expression of its personhood; as my collaborators would emphasise, “*emkusma* is a real person!” For the most part, the plant is cultivated as a guardian to ward off harmful forces. However, if the owner is so inclined, the plant can be utilised for “evil” ends, such as killing an enemy or avenging a murder. During the night, the “unseen spirit” of the plant, the seat of its subjectivity, will travel to the home of the victim and afflict them with an illness (*paran*). The owner must maintain amicable relations with the plant, lest it may turn “ugly” and start killing uncontrollably. In order to propitiate the bina, the owner must talk to it, tend to its needs, and offer it spirit-food.

²⁸ Guardian bina (*Hippeastrum puniceum*). Makushi name, *emkusma*.

Another plant, more dangerous and subversive even than *emkusma*, is known as *pana'pana*. Instilling a sense of fear by its very name, it has strong associations with “bad blow” or the malevolent work of the *kanaimi*. The plant, a forest bush-rope (*si'na*) with “plemplas” (thorns) on the vine, is said to have round leaves with a small protuberance at the base which resembles a human ear. *Pana* is the Makushi word for ear: thus, the name of the liana means “ear, ear”, or two ears.²⁹ Like *emkusma*, the plant has a powerful spirit: it is said that when the owner is walking in the forest, the protective spirit travels beside them as “a little hummingbird” (*tukui*).³⁰ The owner must smoke tobacco (*kawai*) in the vicinity of the plant to appease it and safeguard its protective tendencies. Only then may its productive energy be harnessed for human ends.³¹

In Makushi ethno-pathology, sickness of the physical body is always understood as being caused by a prior intentional agent or force, most commonly a harmful spirit or human enemy. Some bina plants possess divinatory powers, and can be used to foretell the causality of illness. For example, in Rewa, I was shown a piiai-plant called *suwa ye'*.³² If an individual suspects they have been cursed by an enemy, they must bathe with leaves of this succulent ornamental shrub every morning for one week. The plant possesses the perceptual capacity to *see* the blow-person that imparted the curse. This extra-spatial and -temporal capacity to perceive is a defining characteristic of the human shaman; as such, the plant is described as “a kind of piaiman”. *Suwa ye'* communicates this information to its human owner, projecting an image of the perpetrator in a dream or vision. In order to enact revenge, the owner must cut a hole in the fleshy stem of the plant and place a drop

²⁹ I have reason to believe that the plant is *Uncaria guianensis*, a type of liana that exhibits ear-shaped thorns below each leaf. Andel also lists the same species as having the name “panapana” in Carib, without any further information (2000: 303). This is a speculative identification.

³⁰ See Chapter 7, on the close association between the shaman and the hummingbird.

³¹ Other examples of ‘bad binas’ include *kaikusi*, the jaguar bina, *kwaraima*, the wild horse bina, and *ropaapi*, named after an species of small cat. Named after much-feared animals of the forest and water, these powerful charms exhibit predatory characteristics akin to those of their titular animals. The jaguar bina was described to me as “a real person, like a tiger; it walks in front of you and chases *o'ma* away”.

³² Revenge bina (*Dieffenbachia paludicola*). Makushi name, *suwa ye'*.

of their own blood (*mîn*) inside. Upon the owner's command, the plant will strike down the enemy with a fatal illness, which manifests as malaria or a severe fever (*ekomi'ma*).

Another example of a revenge bina is the 'moco moco' plant,³³ a common arrow-headed arum that grows along the margins of rivers, creeks, and swamps. It is said that if a cursed individual puts their blood in the fleshy stem of this extremely itchy plant, the perpetrator of the curse will begin to itch. Gradually, their whole body will swell up and become covered in sores which worsen until they die in agony. Both moco moco and the suwa plant are toxic irritants. The capacity to cause physical itching seems to be a core feature of revenge binas, a quality transmitted via spiritual means to the target individual. As I was informed, "the spirit of the plant makes the person itch". These oracular revenge charms do not conform to the basic definition of *muran* as attracting charms; rather, they constitute more complex shamanic agents, combining clairvoyant abilities with the power to enact vengeance through extra-physical means, across time and space.

In sum, the aforementioned piai-plants are understood to be spirit-laden subjects with the dual-capacity to protect and to kill. A fundamental condition of their personhood is the capacity for communication, which is made possible by possession of soul (*ekaton*). Under normal conditions, only the shaman or his malevolent mirror-image the *kanaimî* can perceive these vegetal spirits. However, the spirit can visit its human owner during dreams and visions, appearing as a plant-person, in order to impart important information.

6. 5. Conclusion: What is Life?

One afternoon in the long dry season, I went to visit Aunty Flora to talk about bina plants. Flora, a Makushi woman in her early 40s, had spent some time in Brazil during the late 1990s training to be a piai-lady. Although she had not yet completed her training, instead

³³ Moco moco (*Montrichardia arborescens*).

moving back to Yupukari to start a family, Flora retained a strong interest in the cosmic agency of plants and the intricacies of shamanic practice. As we sat under the old mango tree in her yard, while the children played with their pet howler monkey in the garden beyond, I asked Flora how bina plants could be human-like people. She began to explain.

My binas are people. During the daytime those binas look just like plants. But to the *pia'san*, they are real people. When he beats leaf, the *pia'san's* spirit goes up, and all his binas come down. They are his servants; they change into little people. If he came here, he would see my binas as people.

- Flora Francis | Yupukari, 2013

What did Flora mean, when she said that her bina plants are people? What may it mean to say that a plant has a soul? Is a plant soul equivalent to a human soul? How can a human and a plant be related to one another as kin? These kinds of questions, perhaps ultimately unanswerable, nevertheless require further attention. In drawing this chapter to a close, I wish to ruminate on some core notions that have recurred in the foregoing discussion, including taming, wildness, plant personhood, and cross-species communication. These notions, in my view, lie at the very heart of Makushi ethno-theories of life.

In this chapter I have highlighted the diversity of the category *muran*, or attracting charms, which incorporates a multiplicity of forms and functionalities grouped together in the indigenous classification via a set of family resemblances. Within the bina charming complex that permeates Makushi cosmology, certain interactional modes of signification can be drawn out, including the analogical relation of resemblance (iconic), the physical transfer of substance (indexical), and the power of geometric representation (symbolic). The efficacy of bina plants, in my understanding, lies first and foremost in their status as living agents of semiosis which possess vital souls. First, as plant-beings, bina charms are *alive*: they grow, flower, seed, reproduce, and die. Bina plants, like over cultivated plants,

react to the dynamics of their living environments; they transmit signs to other life-forms in the very processes of being alive (Kohn 2013). Second, certain plant charms exhibit an extra-botanical power or efficacy, which is rooted in their status as soul-laden persons or subjects. These plants, I have proposed, are communicative subjects with whom human beings share bilateral social relationships. Like human beings, their perspectival capacity (their subjectivity) seems to emerge from the complex interaction of the physical or biotic element and the spiritual or soul element of the plant.

The idea of making wild things tame (*eranmara*) is an important one in Makushi cosmology, and is related to the pervasive notions of mastery and ownership. The myriad ecological actors that inhabit the living landscape are all subject to mastery by one owner or another, most commonly the tutelary spirits (*esak*) that govern the movements of their subject species. I have argued that human cultivators must maintain relationships of care and control over their bina plants, which must be constantly tamed (*esepanî*) through the nurturing acts that characterise both horticulture and raising a human family. Through the intimate processes of shared living, cultivator and bina plant become consubstantial to the extent that they are considered consanguineal kin. Via the repeated acts of horticultural nurture, cultivators forge relationships of alliance with their plant subjects: these are taming relations, perpetuated through socialising acts, acts which also characterise the conversion of wild animals into pets (*yekîn*). However, these are not unilateral relations of power; rather, plant and human are imagined as co-actors in the cosmoecological matrix, engaging in dialogue and protecting one another against external forces, as exemplified by powerful plant shamans. The imposition of control via taming is never absolute: if the human cultivator is unable to control the unrestrained potency of the plant, the plant can revert to a wild state and cause havoc in the domestic field of human sociality.

I have argued that the power of bina plants, manifested in the capacity to attract, is rooted in their ascribed personhood, a capacity which itself emerges from their status as

soul-laden living beings. Understanding this status requires an appreciation of the living properties of plants in Makushi eco-cosmology. However, ecological modes of reasoning are contingent upon indigenous theories of *what it is to be alive*, which are in turn framed by overarching cosmological categories. What constitutes a living being is by definition an ontological question, and can only be understood via a sophisticated exploration of the dynamics of the cosmic whole within which those life-forms are symbiotically situated. In other words, we must pay heed to ethno-theories about what constitutes ‘life’, in all its complexity and ambiguity – for these ultimately underlie all socio-ecological relations.

For Gregory Bateson, to be alive was – precisely – to relate, to communicate. As he stated, “we live in a world that is only made of relationships”.³⁴ Equally, I argue, for the Makushi, to be a living self is to be able to communicate with others. Bina plants, as I have shown, are communicative selves. Ultimately, the capacity to communicate emerges from the possession of the true soul, or *ekaton* – the vital essence which “brings life to all things”. These charm plants, as I was repeatedly told, have *ekaton*, and thus are sentient selves. Human beings and bina plants are thus together embroiled in the “subject-webs” (Uexküll 1934) that constitute the domain of life for the Makushi. The notion of subject-subject relationality lies at the heart of both Kohn’s ecosemiotics and Ingold’s relational phenomenology; this Batesonian notion, in my view, also accords with Makushi exegesis.

The idea of life, in Makushi ontology, is also bound up with notions of body and soul that differ in fundamental ways from equivalents concepts in the naturalist model of biology associated with Western ontology (Descola 2013: 172; Foucault 1970: 175). The Makushi soul is multiple, in that the unitary *ekaton* encompasses many ancillary souls, or *ewan*, which inhabit the various bodily cavities, organs, and substances. The *ewan* meta-souls are not confined to the body, but, rather, disperse into the multi-layered macrocosm temporarily during dreams, visions, and sickness, and permanently at the point of death.

³⁴ Quoted in the film, *An Ecology of Mind*, 2010.

Bodies (*esak*) are inherently permeable and constituted of myriad substances incorporated from various others. The human person, in this frame, is conceived of as a composite of multiple corporeal and subjectival influences (cf. Santos-Granero 2012). Plants, as I have shown, constitute key somatic influences in the formation of human persons.

The “ontological” debates emanating from Amazonian anthropology have all-too-often obfuscated the importance of plants in indigenous cosmologies. However, as I have argued in this chapter, certain plants are considered to be volitional subjects occupying points of view on the world, points of view that are not necessarily inferior to those of humans or animals, fellow actors with whom they cohabit the cosmic field of sociality. In order to investigate the notion of “plant personhood” further – and to better understand Flora’s assertion that her bina plants are people – I turn to the quintessential perspective-shifting multi-natural agent: the shaman (*pia’san*). For, it is in the field of shamanism that the personhood and cosmic agency of plants most explicitly comes to the fore.

❖ Table 6 | Some common bina plants

Makushi	English	Linnaean	Type	Method of application
<i>Emkusma</i>	Police bina, guardian bina	<i>Hippeastrum</i> sp.	Shamanic charm, for protection or cursing	Plant in garden, yard, or homestead; carry a leaf in pocket
<i>Ereuwe</i>	Black fly bina	<i>Portulacca grandiflora</i>	Hunting charm for dogs	Mash up leaves and feed to dogs; rub into abrasions on dog's nose
<i>Esepani</i>	Taming bina	Amarillidaceae	Taming charm, love charm	Put leaf in coconut oil or perfume, apply to target animal or person
<i>Kami</i>	Grey-winged trumpeter bina, waracarbara	<i>Aristolochia</i> sp.	Hunting charm, love charm	Crush up leaves and rub on body; place leaves in hair oil or perfume
<i>Kurutu murani</i>	Catfish bina, tigerfish bina	<i>Xanthosoma</i> sp.	Fishing charm, for catfish	Carry leaf in pocket when fishing; rub leaf on bow and arrow or fishing line
<i>Maripa</i>	Kokorite bina	<i>Eleutherine bulbosa</i>	Hunting charm for dogs	Add leaves to dog food for five days prior to hunt
<i>More rem'tu</i>	Childbirth bina	<i>Hippeastrum</i> sp.	Charm for delivering baby	Bath with leaves, rub on belly; drink root as tea
<i>Pana'pana</i>	Ear bina, ugly bina	<i>Uncaria guianensis</i>	Shamanic bina, for cursing	Very powerful; plant in farm or garden
<i>Pinkî murani</i>	Peccary bina	<i>Caladium bicolor</i>	Hunting charm for peccaries	Carry in pocket; rub on bow and arrow; rub leaf on arms
<i>Siri'ku</i>	College bina, learning bina	<i>Eleutherine bulbosa</i>	Knowledge charm, language learning charm	Grate leaf and root, drop juice into eyes; bath child with leaves
<i>Tura'ra murani</i>	Giant river otter bina	<i>Hippeastrum</i> sp.	General fishing charm	Rub leaves on arms, bow and arrow, fishing line
<i>Waikin murani</i>	Deer bina	<i>Xanthosoma brasiliense</i>	Hunting charm for deer; love charm	Rub leaf on arms, and bow and arrow; put root in oil or perfume and rub in hair

7. UNSEEN SPIRITS & the *Pia'san's* Eye



A *pia'san*, “beating leaf” during a healing ritual | Yupukari, 2012

In the photograph above, the Makushi shaman (*pia'san* in Makushi; “*piaiman*” in Creole) is performing a healing ritual in front of a mural which reads, “biodiversity is our best security”. The mural depicts an ideal sylvan scene: monkeys and sloths swing from the towering *mora* trees and lianas whilst otters and fish swim in the clean, healthy river. The mural was made by children in the Yupukari secondary school as part of an initiative to promote awareness of the importance of biodiversity and environmental responsibility. To me, this photograph strikes a dual resonance: the community of animals interacting in their forest habitat is certainly a core image of the conservation paradigm. Here, nature is seen as a resource for mankind that must be protected, rather than extracted, in order to

provide security for the future. This brand of environmental message is promoted in the North Rupununi through formal schooling and the presence of international conservation organisations and initiatives.¹ At the same time, and in a fundamentally different way, the trans-specific network of the forest-scape is the very foundation on which shamanism in Amerindian cosmologies is based. Cosmo-ecological diversity is the precondition of the Makushi shaman's capacity to act; in other words, the essence of shamanism is rooted in the cross-species interactions that constitute the cosmic field of sociality. Shamanism, as multi-naturalist mediation, is based on the instrumental relations of alliance and mastery which unite humans, animals, plants, and spirit-beings in webs of causality. The shaman is, in short, the arch-navigator of the interactional field of subjectivity that constitutes the cosmic "ecology of selves" (Kohn 2013: 117).

As cosmo-ecological mediator, the Makushi shaman engages with a wide variety of human and nonhuman agents in everyday and ritual practice. Aside from lay-humans such as his patients, the *piaiman* can communicate with allied shamans, both alive and dead, via visions and ritual séances. Most important of all are the *piaiman*'s relationships with the spirits of the forest (*imawari*), the water (*rato*), and the mountains (*piai'ma*), and the with the powerful species masters (*esak*). By engaging in shamanic trance and reciting esoteric invocations (*taren*), he is able to speak with and control various animal and spirit subjectivities. Some of the most foundational and powerful nonhuman actors with whom the Makushi shaman interacts, however, are *plants*.

My goal herein is to evaluate shamanism through an ethnobotanical lens, with the intention of conveying how plants are central to shamanism in a way often overlooked by anthropologists. To begin, I provide a general overview of Makushi shamanism, whilst highlighting its precarious status in the contemporary context. Next, I assess the use of entheogenic plants in shamanic training and ritual. Some of the shaman's most powerful

¹ For example, WWF Guianas, Conservation International (CI), Global Canopy Programme (GCP). See also Janette Forte on Amerindians and conservation in Guyana (1996: 21-40).

interlocutors are plant-beings, and I examine how these enduring human-vegetal relations are forged via shamanic training and practice. First, I describe the portfolio of bitter barks which are ingested during shamanic training. These plants constitute the key helpers upon whom the shaman calls during curing rituals. Second, I examine the narcotic consumption of tobacco (*kawai*), the primary catalytic agent in shamanic ritual. Rather than mere ‘tools for action’, I shall argue, these plants are agentive subjects with whom the shaman forges working relationships of alliance, mastery, and control. Throughout, semiotic and somatic associations arise between people and plants, linking bodies, substances, and capacities.

In the latter part of the chapter, I investigate the set of poetic invocations known as *taren*. *Taren* are powerful esoteric spells used for a range of purposes, from healing to cursing, and as such constitute key tools of the shaman. Through their ritual recitation, *taren* formulas invoke and harness the cosmic agency of an array of nonhuman subjects. By analysing a number of *taren* formulas, I delineate aspects of their structure and convey how they constitute a further tool of the shaman as cosmoecological operator.

Symbiotic encounters evaluated herein include those between the shaman and his embodied spirit-helpers, which include plants (tobacco, bitter-barked trees, incense trees) and animals (hummingbird, swallow-tailed kite, jaguar), and between the shaman and the various nature spirits (*imawari*) and ancestral forces (*pia*) summoned via *taren* spells. As I shall conclude, shamans are able to harness the species-specific capacities and skills of those nonhuman *piai*-beings that they come to “embody” via processes of physical and subjectival incorporation. The shaman is thus an amalgam of trans-species substances and subjectivities; he is a living embodiment of the diverse society of *piai*-beings.

7. 1. Shamanism: Past, Present, Future

In the following remarks, I assess Makushi shamanism as it exists in the North Rupununi in the second decade of the twenty-first century. Shamanism designates a complex field of thought and praxis that permeates all cosmo-centric life to a greater or lesser degree. However, it would be misrepresentative to suggest that shamanic practice is as common as it was in the pre-Christian era, just as it would be to imply that it has not changed considerably with the vicissitudes of history.² Shamanism in the Rupununi exists in a complex interaction with a range of socio-economic, ecological, and cosmological forces of change, including, to name but a few, the market economy, labour-based migration, the conservation paradigm, Christian evangelism, and biomedical healthcare. The latter, still limited in its availability, is often cited by Makushi people as being a major factor in the decline of shamanic practice. “Piaimen are rare now”, one elderly resident of Rewa told me bluntly; “before medicine, they used to be common”.

Consequently, the methodologies of my engagement with shamanism, a domain that is by its very definition esoteric, differ in kind from my more conventional methods of ethnographic enquiry. Much of what follows was communicated to me by elders and specialists, in particular “piai-people” themselves (*pia'sans* and those who had undergone shamanic training to varying degrees) and traditional healers (*taren esak*). During the first period of fieldwork, I was lucky to meet a Makushi shaman from the village of Karasabai, Mr Herman Marcello, who invited me to attend a series of healing rituals. Later, in 2013, I interviewed two elderly piaimen, from the villages of Quatata and Kaicumbay. In Rewa village, I worked closely with the two elderly sons of one of the most revered *pia'sans* in living memory, Mr Nicholas Edwards.

² See also Butt Colson (2009: 200, n95) on the Akawaio, and Diniz (1971) on the Brazilian Makuxi.

The relationship between shamanism and Christianity in the Rupununi is complex and defies generalisation, being the product of the historical interactions of numerous orthodox and evangelical denominations with various indigenous tribes.³ The coexistence and mutual influence of shamanic and Christian conceptual systems has been on-going in Guyana for two hundred years, and it would be simplistic to suggest that these changes are the result of a unilateral relationship by which indigenous beliefs and practices are replaced by their Christian equivalents via sustained missionary activity.⁴

Such is the holistic remit of the shaman's office that any changes to the socio-political or religious status quo infringe upon his field of responsibility to some degree. Consider the following statement made by Rudy, the manager of Rewa ecolodge.

The *pia'san*, he is our connection with the natural world. He is interconnected with other species; he is connected to the plants and animals. He was our conservation, but that is being lost in the modern way of living, with the medical centres, eye clinics, family planning, and church. People used to go to the *pia'san*, now they go to family planning. In the past, nobody used to get sick from cancer, hypertension, all that. It is a result of modern living. The *pia'san* would cure all people with *taren*.

- Rudy Edwards | Rewa, 2013

The fluctuation between present tense and past tense in Rudy's statement is indicative of a deep-seated anxiety concerning the uncertain future of shamanism in a rapidly changing world. People often link the perceived increase in degenerative diseases and ecological degradation to the decline in shamanism. The notion that traditional life-ways are being lost and supplanted by "the modern way of living" is a salient one, and one which is often

³ See Luzar and Fragoso (2012: 300).

⁴ Take, for example, Alleluya, the indigenous religion which developed in the Rupununi in the late nineteenth century before spreading to the upper Mazaruni, where it continues today. As has been discussed at length by Butt Colson and others, Alleluya formed via a complex syncretism of shamanic and Christian ideas and practices (see Butt 1960, Staats 1996, Butt Colson 1998).

expressed by many of my Makushi acquaintances. When I would ask young people about shamanism, I would typically be told, “that is the way of our ancestors”, or “only old time people know that now, ask the elders”.

Despite this attitude, shamanism is nevertheless a living practice with universal relevance, particularly with reference to illness and mortality. Perhaps counterintuitively, the conceptual and ritual core of shamanic practice has remained remarkably resilient in the face of 250 years of external contact. During my fieldwork, it was clear to me that the figure of the *pia'san* is still conceptually important and practically relevant. I can say with certainty that all of my closest collaborators in Yupukari, young and old, have consulted shamans since the beginning of my enquiries in 2012. Although there are currently no working shamans in Yupukari or Rewa, they visit from time to time, being commissioned by families to conduct healing and divination rituals.⁵ During my time in Yupukari, for instance, a shaman from Karasabai visited to conduct a series of séances, and since my departure in October 2013 there have been at least two further visits by regional piaimen. Both villages also host a number of *taren esak*, or “spell owners”,⁶ local healers who use shamanic techniques including *taren* without holding the full status of shamans *per se*. Increasingly, residents of Makushi villages travel to the Brazilian border towns of Bonfim and Normandia to consult shamans.⁷

The reported decline in shamanic practice in the North Rupununi does not appear to result primarily from a lack of *demand*, but rather a lack of *supply*: there are simply not many people around with the necessary knowledge and training to practice anymore. Many of my elder teachers bemoaned the loss of shamanic knowledge, stating that young

⁵ According to my sources, there are practicing *pia'sans* in the Makushi villages of Karasabai and Tiger Pond in the South Pakaraimas, Monkey Mountain, Quatata, Annai, Kwatamang, Surama, and Crash Water in the North Rupununi, and in the Brazilian border towns of Bonfim and Normandia.

⁶ See also Armellada on Pemon *taren esak*, “the owners of taren” (1972: 13).

⁷ Brazilian Makuxi shamans seem to have adopted syncretic elements of Catholicism into their ritual praxis, for instance, the notion of direct contact with the Holy Spirit and the use of crosses and church candles as shamanic tools. This interaction is outside of the scope of the current discussion, but warranting future ethnographic research, ideally conducted in Brazilian Makuxi communities.

people do not want to undergo the intense training process required to become a *pia'san* in light of other opportunities for employment, including ranching and gold mining. For the majority of young people, the office of the shaman is simply not an attractive vocation in today's socio-economic climate. As a consequence, most *piai*-people today are elderly men. By all accounts, shamanism was traditionally a hereditary male occupation, passed down from father to son (im Thurn 1884: 334; Roth 1915: 333). Today, however, both the kinship and gender prescription of the transmission of shamanic office have slackened in importance. Most *piaimen* are indeed still male, but female shamans also practice in the region. *Yupukarians* regularly travel to the Brazilian border towns to consult these so-called '*piai-ladies*'. In fact, one close collaborator has undergone training with a *piaiman* in Normandia, with the hope of becoming a fully-fledged *piai-lady* in the future.⁸

The services of the shaman have become commercialised to a degree. Unlike in the past, when the *piaiman* was a structurally-incorporated community figure with a range of social obligations, shamanism today has become characterised by individual payment for services. As I was told by one elder in Rewa, "you can't find old time *piaimen* now. Money is involved: to get a *piaiman*, you have to pay him". Payments are typically made in cash, although they may also be made in material goods such as knives or cutlasses, or substances used in the rites themselves, such as tobacco or liquor. The scarcity of *piaimen* in the region dictates that their services must often be sought from other villages, with payment being offered as an incentive for making the often-lengthy journey to perform a healing ritual. In such cases, payments may take the form of full board for the duration of their stay with the client's family, with the possible addition of further payments in cash.

⁸ For the purposes of this discussion, I refer to shamans using male pronouns since the vast majority, historically speaking and in the present day, were and are male. In 1971, Diniz reported to have "no knowledge of the existence, past or present, of female shamans" among the *Makuxi* of Roraima (1971: 68—my translation). On the gender aspect, see also Luzar and Fragoso (2013: 299, n1).



Two girls getting ready for church on a Sunday morning | Yupukari, 2013

7. 2. The Makushi Shaman

Shamanism, as a form of spiritual knowledge, power, and practice, is a core structuring feature of indigenous Amazonian animist cosmologies. As such, it has been extensively studied in South America (Lévi-Strauss 1963; Reichel-Dolmatoff 1975; Chaumeil 1983; Crocker 1985; Wilbert 1988; Langdon and Baer 1992; Plotkin 1993; Townsley 1993; Hugh-Jones 1994; Fausto 1999, 2004; Kopenawa and Albert 2013; Wright 2013; Taylor 2014) and, more broadly, in the pan-American and Siberian contexts (Eliade 1951, Lewis 1971, Atkinson 1992, Thomas and Humphrey 1994, Jakobsen 1999, Pedersen 2014). It goes without saying that shamanism exhibits a great deal of ethnographic diversity and as such is not easily pigeonholed; however, a number of commonalities have been drawn out in comparative pan-Amazonian studies (e.g. Rivière 1999).

It is well established that, as “brokers of alterity” (cf. Taylor 2014: 96), shamans have the capacity to mediate between the Self and Others. Put simply, the shaman is an expert in the art of mediation and translation (Conklin 2002: 1051), having the capacity to facilitate trans-cosmic communication between different types of actors, as well as having the power to control them. He has the capacity to travel between levels of the multi-tiered cosmos: the underworld, the terrestrial plane, and the celestial plane. As I shall show, the shaman mediates not only between planes of the cosmos, but also across social-ecological boundaries between different living beings. The efficacy of Makushi shamanism emerges from the synergistic interactions between various *piai*-beings, including plants, birds, and the *imawari* spirits. As I shall posit, the shaman comes to embody – i.e. “own” – beings that he internalises through ingestion. The Makushi language reveals a series of linguistic homologies relating to embodiment and mastery: *esak*, the word for body, also designates master, owner, and boss. Thus, as shall be seen in this chapter, to embody something is to master it, which is, crucially, to take on its species-specific capacities and skills.

For Mircea Eliade (1951), the defining characteristic of shamanism was the use of “techniques of ecstasy” such as drug-induced trance. It is beyond the scope of this thesis to go into the ecstatic aspects of shamanic plant use (on this, see Luna 1984b). It suffices to point out that the Makushi today do not use psychotropic substances such as ayahuasca in shamanic ritual. The primary narcotic used in inducing trance is tobacco (see below).

The Makushi shaman is known as the *pia'san*.⁹ The name itself relates to the term *pia*, referring to ancestors. Shamans are also mythologically related to *Piai'má*, “the great ancestral magician, creator of the first shamans” (Furst 1993: 398). In Creole, the term

⁹ Elsewhere in the literature given as *piaizan*, *piatsang*, and *piai'chang* (cf. Butt Colson 1977). These variations may be attributed to inter-tribal linguistic differences, intra-tribal differences in dialect, as well as interpretation on the part of the anthropologist. A review of the historical literature indicates that the Creolised term “*piaman*” was in use by colonists as early as the 1820s. One of the first English references is given by Waterton, who in 1825 wrote that “the Guianese Indians... have a kind of priest called a Pee-ay-man, who is an enchanter. He finds out things lost” (1825: 110). In the 1830s, Brett wrote of “sorcerers called by the colonists *piai*-men” (1853: 285). In the 1870s, Barrington Brown described his encounter with “a famed sorcerer, or *peaiman*” in a village on the Rupununi River (1876: 139-141). A decade later, im Thurn detailed his meeting with a Makushi “*peaiman*”, whose role he interpreted as being “both doctor and priest... he deals with body and spirit” (1883: 334).

‘piaiman’ is used, a hybrid word formed via a contraction of the Carib prefix ‘piai’ and the English ‘man’ (Roth 1915: 327). The shaman is the mediator of all things: part-oracle, part-healer, part-killer, he is able to harness the forces of creation (*pia*) in order to travel through space and time communicating with and influencing the multifarious beings that populate the cosmos. The social roles of the shaman are multiple: he might be considered to be a doctor, priest, prophet, ecologist, food propitiator, community guardian, political spokesperson, and, potentially, a killer. Thus, the remit of the *pia’san* is holistic, and his power pervades the entire macrocosm.¹⁰ This power, or shamanic “strength”, is known in Makushi as *meruntî*, the same word used to refer to physical strength (Abbott 2009: 24).

It must be emphasised from the outset that the shaman is an ambiguous figure. As Rivière writes, “for the Amerindian power tends to be an ambivalent quality. The power to cure is also the power to kill; accordingly shamans as well as being curers are killers. The basic principle being: our shaman good, your shaman bad. This, in turn, fits with a wider view of the ambivalent nature of the spirit world” (1999: 72).¹¹ In line with this view, the Makushi shaman can exercise his powers to kill and destroy as well as heal and protect. This is the dark flip-side of shamanism: the *pia’san* is a master of the forces of darkness (*ewaru*) and well as the forces of light (*a’ka*). This is most clearly seen in the case of the *kanaimî*, the “dark shaman” or assault sorcerer who utilises shamanic skills and techniques of praxis to attack and kill human victims (see Whitehead 2002).

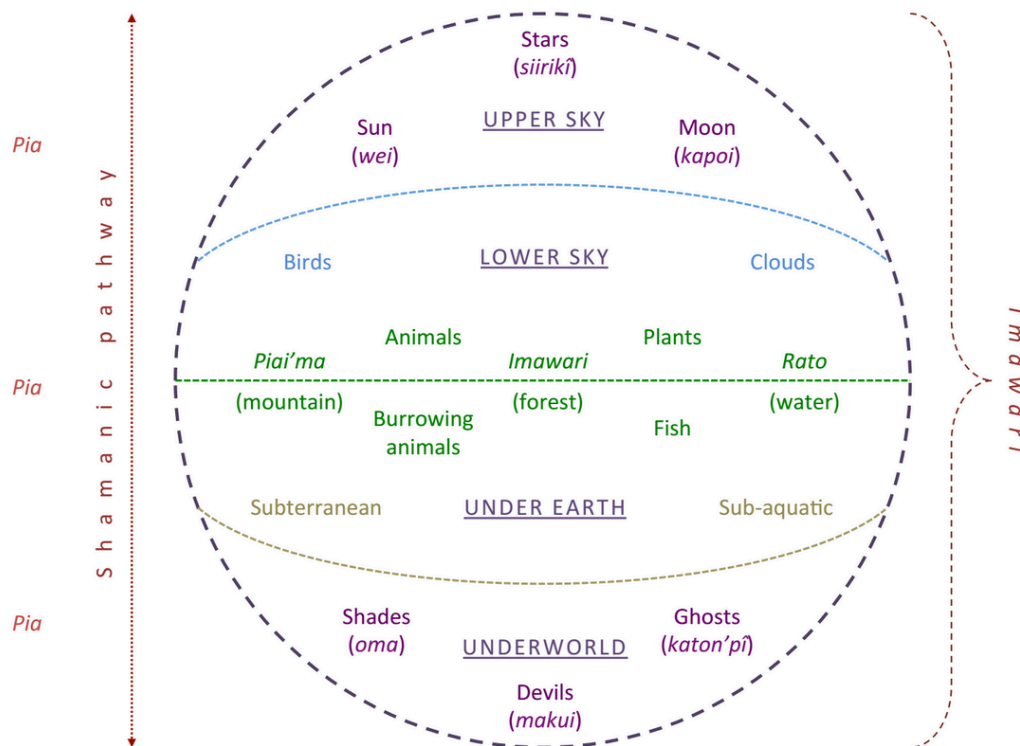
The shamanic sphere of action is the multi-layered cosmos, which is essentially composed of three levels: (1) the terrestrial plane, on which humans, animals, and plants live, as well as the spirits of the forest and savannah (*imawari*), the water (*rato*), and the mountains (*piai’ma*); (2) the celestial plane, which itself consists of an upper layer (stars, sun, moon) and a lower layer (clouds, weather, birds); and (3) the underworld, consisting

¹⁰ As Roth observed, “there was very little that the medicine-man could not do in the natural or supernatural sphere” (1915: 343). See also Furst (1993: 393-94) on this holistic remit of the shaman.

¹¹ This accords with Fausto’s observation that in Amazonian, there is no “clear-cut opposition between good and bad” (2004: 172). Morality is relative – to oneself, to one’s community, to one’s species, etc.

in its shallow reaches of subaquatic and subterranean animals and in its lower reaches of the souls of the dead (*katon'pî*) and the harmful spirits referred to as *o'makon* (monsters; malevolent beings) or *makûi* (“devils”; shades). The various spirit-beings that inhabit the cosmos are collectively referred to as *imawari*, a term best translated as “nature spirits” or “forces of nature” (cf. Butt Colson 2009). *Imawari* as a pervasive category intersects the multiverse and encapsulates the shamanic parliament of influence (see Figure 25, below). As previously discussed, the entire multiverse is infused with light energy (*a'ka*) and dark energy (*ewaru*), the dual complementary life-forces contained within all things. In order to navigate this cosmic field, the *pia'san* must utilise shamanic power and wisdom.¹²

❖ Figure 25. The shamanic multiverse.¹³



¹² On the tripartite structure of the Makuxi cosmos, see also Santilli: “The Macuxi universe is basically composed of three planes superimposed in space that meet on the horizon” (2004, online).

¹³ Diagram by the author, with elements from Butt Colson and Armellada (1990: 78).

A central principle of Amazonian shamanism is the inalienable dialectic between knowledge and power. This relation has been discussed by Robin Wright (2013) among the Arawak-speaking Baniwa people of the Northwest Amazon. The Baniwa *pajé* “is said to “own” (keep or hold) or “be a master of” a specific kind of knowledge accompanied by certain powers” (2013:6). Knowledge and power complement each other, forming “a nexus of (religious) power and knowledge in Baniwa society. The idea of a “nexus” refers to the interrelationship among these bodies of knowledge and power” (2013: 7).

The same general principle applies to Makushi shamanism, wherein the body of knowledge associated with shamanism – plant medicine, *taren* spells, ritual chants, “deep Makushi” language, etc. – exist in an inextricable dialectic with the gamut of shamanic powers, *meruntî* – soul-flight, clairvoyance, sickness curing, transformation, summoning the *imawari* spirits, etc. Shamanic knowledge activates the capacity for shamanic power, and vice versa. Thus, the powers of the shaman are intertwined with his mastery of paths of spiritual knowledge, which have been passed down through the generations, and are ultimately rooted in the original forces of creation (*pia*). Via the extended trials of his apprenticeship, the shaman comes to “own” – that is, to embody (*esak*) – this knowledge, and thus comes to embody shamanic power (*meruntî*).

Graham Townsley has written that “shamanism resides primarily, not in a type of thinking nor in a set of facts known, but in a condition of the body and its perceptions” (1993: 456).¹⁴ This embodied condition is best conceived of not as a pre-existing cache of information but as a portfolio of “techniques for knowing” (Ibid: 452). Shamanic ways of knowing are rooted in the mastery of a set of strategies and techniques that are ultimately seated in the body as a super-sensory unit. By engaging in a range of somatic actions, the shaman is able to activate pathways of knowledge to access a world of information. The

¹⁴ This is reflected in Makushi ethno-semantics. There does not seem to be an equivalent word in Makushi to the English noun ‘knowledge’. Rather, the verb *epu ’tî* translates closer to the English verb ‘to know’ – suggesting that for the Makushi, knowledge is not an object but a process. Knowing for the Makushi also seems to incorporate a sensory, affective aspect – for instance, the prototype Makushi dictionary lists *epu ’tî* as ‘know, understand, *feel*’ (Abbott 2009: 9—my emphasis).

idea that shamanism constitutes a set of techniques for knowing is poetically highlighted by the following analogy, related to me by Uncle Isaac Rogers, one of my chief advisors on all matters “*piai*”:

The *pia'san* is something like a computer. When you are sick, he can find out what is wrong with you by beating leaf. Just like when you on a computer, you can find out any information. The computer is the white man's *piaiman*.

- Isaac Rogers | Yupukari, 2013

In the broadest sense, then, the Makushi shaman is one who makes connections; he is the arch-navigator of the field of shamanic wisdom. Isaac's analogy neatly encapsulates this capacity: like a computer connected to the internet, he can access a world of information – in theory, all information contained within the entire cosmos – in order to perform the tasks that define his office. Put simply, the *pia'san* is omniscient. His enhanced ability to *perceive* and *know* is rooted in his ability to harness the forces of creation (*pia*). These ancestral forces constitute the raw material of shamanic power (*meruntî*). The Yanomami shaman Davi Kopenawa describes the same basic principle among his own people:

The shamans' thought spreads everywhere under the ground and under the water, beyond the sky and in the most distant regions. They know the innumerable words of these places and those of the beings from the beginning of time.

- Kopenawa and Albert 2013: 381.

Shamanic ways of knowing are bound up with shamanic ways of perceiving. One evening during the latter stages of my fieldwork, I sat with Isaac on the laterite rocks that adorn the riverbank beside Yupukari Landing. I asked him a rather direct question: what, exactly, is the *piaiman*? “The *pia'san*,” he replied, “is a detector – he is one that detects

things that others cannot decipher”. As I came to understand, the shaman has heightened powers of perception, which he is able to utilise via a specialised repertoire of techniques. His enhanced super-perceptual abilities enable him to “detect” what lay-people cannot: he can see the unseen world, he can hear the voices of spirits, he can speak to the spirits in a secret dialect, he consumes “bitter” plant substances, he smokes fragrant herbs. Using his special multi-sensory faculties, the shaman can discern when someone has been attacked by a *kanaimî*, or if a dying person has been “spoiled” by the *mariwa*’ spirit, or where the peccaries (*pinkî*) are distributed in the vast expanse of the forest. In order to communicate with and control the society of *piai*-beings, the *pia*’*san*’s sensory apparatus necessarily transcends that of lay-people. In this sense, the shaman is a *super-phenomenal agent*.¹⁵

One aspect of this is the shaman’s clairvoyant visual capabilities; in other words, he can see what others cannot (Rivière 1999: 72; Chaumeil 1983). As John Edwards of Rewa once told me, “*the piaiman can see invisible things*”.¹⁶ He has the power to *see* the hitherto *unseen* world, which appears to him in dazzling luminosity. Invisible spirits and forces reveal themselves as incandescent presences. During séances, the shaman can see his *imawari* spirit helpers and the harmful *o’ma* beings that cause sickness in his patients. Ritual curing is based upon the shaman’s ability to detect the invisible *waawî* darts, which are the main cursing tools of blow-people. These invisible projectiles, undetectable to lay-people, are often likened to tiny “winged marbles” containing blood and smoke:

Waawî is a tiny crystal, like a marble. It looks like an arrow, but with macaw feathers.

The piaiman speaks to it; it shoots up in the air like a missile, like star-light. But it is invisible to us. That arrow shoots into your chest and kills you straight away.

- Isaac Rogers, Yupukari 2012

¹⁵ Glenn Shepard’s (2004) paradigm of “sensory ecology” is of relevance here. For Amerindians, he posits, the living forest-scape constitutes “an organic network – a sensory ecology – of interactions between plants, animals, humans, and spirits, all mediated by *sensation*” (2004: 255, my emphasis).

¹⁶ Echoing this sentiment, Michael Taussig has written of the Putumayo Indians of Colombia that “the shaman is said to be the one who truly *sees*” (1987: 198).

This supra-visual ability – “the *pia’san’s* eye”, to quote Uncle Isaac – stands as a metonym for his enhanced sensory apparatus as a whole; all of his senses are heightened. Of particular importance is aurality: the shaman can decipher the arcane language of the spirits, and has the ability to *speak* back to them in kind. This is of particular importance in Makushi cosmology, which displays an enhanced “sensitivity to the acoustic domain” (Gell 1995: 234). Further still, the shaman has the unique capacity to transcend the usual confines of space-time: he can see and hear over great distances, as well as back in time to the *pia’ton* or forwards to augur future events. The *pia-* prefix in *pia’san* relates to the concept of *pia*, the forces of creation. In short, *the pia’san is the one who embodies pia*.¹⁷ Indeed, Armellada refers to Venezuelan Pemon *pia’sans* as “descendants of the ‘*piá*’” (1972: 17). Being connected to the *pia’ton*, the shaman is able to harness the white light-energy (*a’ka*) that infuses the cosmos and brings life to all things.¹⁸

The shaman is “a specialist in relationships with other beings” (Lenaerts 2006: 16). According to perspectivist logic, the shaman is able to transit points of view at will, manipulating the spiritual (subjective) unity of all human and nonhuman beings to do so. In this sense, he is the multinatural agent par excellence, having the capacity to shift and absorb alternate points of view (cf. Rival 2005b: 107). As Viveiros de Castro has written:

Only shamans, multinatural beings by definition and office, are always capable of transiting the various perspectives, calling and being called ‘you’ by the animal subjectivities and spirits without losing their condition as human subjects.

- Viveiros de Castro 1998: 483.

¹⁷ On the etymology of *pia’san*, see also Koch-Grünberg (1916, I: 8) and Roth (1915), the latter of whom surmises that the “*piái*” pre-fix derives from the Carib word *piache* or *puiai* (1915: 327). In 1911-13, Koch-Grünberg travelled through Makushi, Taurepán, and Pemón territory and recorded a number of shamanic songs (1917, I; see also volume III). On Koch-Grünberg's contribution to our understandings of shamanism in the circum-Roraima region, see the commentary by Furst (1993).

¹⁸ See also Butt Colson (1989) on the Akawaio.

This ability to adopt perspectives of others is clearly expressed in the capacity for transformation. Points of view are seated in the body; thus, via bodily transformation the shaman is able to take on the perspectives of others in order to socialise with them for various ends. The Makushi shaman can shape-shift into various other beings, including, importantly, apex predators such as jaguars, anacondas, and harpy eagles (see Roth 1915: 341).¹⁹ These predators are sometimes described as being shamans in their own right. By adopting the bodily form of the jaguar, the shaman is able to take on its perspective, and thus its habits and dispositions. Trans-specific socialisation by way of transformation is a critical aspect of shamanic action and cosmo-politics. One evening, Uncle Joel and I had a conversation which alerted me to the affinity between shamans and jaguars:²⁰

Jaguars are piaimans. They have their own special binas. It is no joke, man – they can switch into a *pia'san* now. They are dangerous somebodies, dem piyai-people.

- Joel Samuel | Yupukari, 2012

However, shape-shifting into jaguars seems to be a lesser feature of Makushi shamanism than in other Amazonian cosmologies (e.g. Reichel-Dolmatoff 1975: 44). That nonhuman beings can be shamans is common (e.g. bina “plant shamans”); however the capacity for bodily metamorphosis is less often reported. This is a point requiring of further research.

Makushi people emphasise the shaman’s mastery of dreams (*we'ne*).²¹ It is during dreams that a person’s soul detaches from their body and roams the universe, the visions recalled being simply memories of these soul journeys. Dreams, to borrow a phrase from Descola, are “peregrinations of the soul” (1994: 76). As Fausto has written, “dreaming is

¹⁹ Indeed, by some accounts, the shaman has the power to shed his bodily clothing entirely and become himself invisible at will, as was reported by Barrington Brown, referring to an alleged event at a Makushi village on the Karakarang River in the early 1870s (in Roth 1915: 341).

²⁰ The cosmic affinity between shamans and jaguars is well documented in Amazonia (e.g. Reichel-Dolmatoff 1975; Overing 1996; Fausto 2004; Kohn 2013: 1-25; Wright 2013).

²¹ Roth made the same point in 1915, writing, “the piyai’s reputation as an interpreter of dreams was second to none: he was both dreamer and seer” (1915: 341). Similarly, Furst has written of shamans that “they are cartographers of the sacred geography and the movements of the soul” (1993: 393).

a form of interaction with all the entities in the cosmos in their condition as persons – that is, as subjects endowed with intentional agency and perspective” (2004: 161). Dreaming, put in different terms, is memory of perspective shifting. Only the shaman has the ability to fully control dreams; he can also interpret their meanings as clairvoyant omens (*paani*). He may augur future events, or see visions of enemies. As Uncle Joel explained to me:

Dreams have plenty meaning; they are signs of the future. The piaiman knows in his spirit if something is wrong, if somebody wants to attack him. He will see that person in their dreams. They dream the future.

- Joel Samuel | Yupukari, 2013

Makushi shamanism is rooted in the beginning of time (*pia'ton*). The mutability of bodily form and the unconfined nature of the soul are defining features of Amazonian “constructional cosmologies” (Santos-Granero 2009: 4). This capacity for transformation is a relic of the original common condition of humanity that characterised the primordial world, and is therefore a core motif in mythology (Viveiros de Castro 1998: 471; Descola 2013: 131). The *pia'san* is a common character in mythological stories (*panton*), and the ancestral brothers Insikiron and Anike are themselves considered to be proto-shamans, or “miracle men”. In many stories, especially those detailing the forging of living kinds from the chaosmos at the birth of the world, humans, animals, and spirits ceaselessly transform into and procreate with one another, and bodily mutilation and death are reversible states. The shaman, ultimately, develops the capacity to access this primordial epoch of limitless transformation and harness the power of *pia*.

7. 3. The Beating Leaf Ritual

The shaman's powers of detection are made possible only by his alliances with various important plant-beings. This is seen most clearly in the central healing ritual of Makushi shamanism, known in Creole as "beating leaf" or "shaking bush".²² My understanding of this ritual, which is typically carried out to diagnose and treat severe illnesses (*paran*) in patients, is based upon multiple accounts given by collaborators, as well as the first-hand experience of attending several such sessions myself. In the descriptions below, I include aspects from these personal experiences. Beating leaf rituals can be lengthy affairs. Each session that I attended lasted for around two hours; however, if the patient's sickness is particularly severe, the *piaiman* may beat leaf all night long (see im Thurn 1883: 336).²³ Séances are usually attended by the family of the patient, who play an active part in the ritual by asking questions to the implicated spirits using the shaman as a medium. Each of the sessions that I witnessed was attended by around fifteen to twenty people.

The term "beating leaf" accurately describes its central rite: during the séance, which must be held in pitch-black darkness, the *pia'san* rhythmically shakes bundles of leaves while chanting and channelling various spirits. The *piaiman*'s spirit interlocutors include a multitude of beings, such as the hummingbird, kite, *powis*, jaguar, bina plants, and the spirits of allied shamans, past and present. According to Roth, the most powerful of all is the tiger, which "devours" the disease afflicting the patient (1915: 349). The leaf-shaking and chanting, combined with the consumption of tobacco and alcohol, enables the shaman to enter a state of trance, during which his spirit detaches from his body and ascends to the upper layers of the multiverse, a cosmic journey known as "soul flight".

²² According to the Brazilian anthropologist Edson Soares Diniz, the Makuxi of Roraima also use the same term – "*bater folha*" – to refer to the curing ritual (1971: 67).

²³ See Koch-Grünberg (1917, I: 51) for an account of a shamanic healing séance in the mixed Makushi and Taurepan village of Koimelemong. According to this account, the shaman chanted and shook leaf bundles for around two hours. He also gives phonetic descriptions of the shamanic chants.

While travelling the cosmos, the *pia'san's* spirit negotiates with the parliament of allied *piai*-beings, including, notably, the *imawari* nature spirits and the game masters.

The shaman's chants are a form of direct communication with the *imawari* spirits, and as such are pregnant with ecosemiotic flows. He invokes the various *piai* beings by repeating their secret *piai*-names in a rhythmic meter.

The language employed in the shamanic chants is referred to as “deep Makushi”, ‘deep’ denoting the distant past, the beginning, the time of the ancestors (*pia'ton*). Unlike the normal Makushi dialect, deep Makushi is hyper-traditional and esoteric (*ama'*), to the extent that it is almost incomprehensible to lay-people (and anthropologists).²⁴ During his training, the prospective shaman develops his own inimitable terms of ritual reference, epitomised in the poetic language of *taren*, those healer-specific invocations of which the *pia'san* is the master. This form of ritual language may be termed hyper-traditional in that it employs sound symbols that invoke cosmological figures and forces from the beginning times. The efficacy of these chants resides in their incomprehensible or arcane quality: owing to their secret formulation, others – in particular, rival or enemy shamans – cannot fully understand what the *pia'san* is saying, and thus cannot replicate their spells for their own use or, worse still, interpret, intercept, and enervate them.

In Makushi ethno-pathology, all illness and death is understood to result from the agency of a prior malevolent intentionality.²⁵ The idea that death results from a ‘natural’ process of bodily degeneration is superseded by the notion that a human life, in principle

²⁴ Further research is required to better understand the coded messages being communicated in the chants. The esoteric and semiotically complex character of “deep Makushi” seems to accord in many ways with “the abstruse metaphorical language of shamanic song” described among the Yaminahua of eastern Peru by Graham Townsley (see 1993: 457).

²⁵ Traditional Makushi mortuary practices were aimed at eradicating the memory of the deceased, in order to exorcise dead souls (*katon'pi*) from the world of the living. As Williams wrote of the Makushi circa 1910, “after a death they often adopt the sanitary expedient of burning down the house” (1932: 6). This accords with Philippe Descola’s observation that, in Amazonia, “the recently dead are supposed to disappear as soon as possible from the memory of the living, and if anything of them does remain for a while, it is in the form of more or less malicious spirits whose company is to be shunned” (2013: 332).

immortal, can only be extinguished by a homicidal agent.²⁶ This notion is not necessarily incompatible with biomedical explanations of disease causality. A sick individual may be afflicted with malaria, but the question remains, why were *they* bitten by *that* malaria-carrying mosquito, on *that* particular day?²⁷ This conception of etiology is indicative of a broader Amazonian tendency toward cosmic predation. As Eduardo Kohn expounds:

This idea that death is only caused by volitional aggressors is a logical corollary of a system of classification, prevalent throughout Amazonia, whereby all beings are considered either predator or prey. Humans are immortal and as such they are predators. If they die it is because they have become prey. That is, they have succumbed to a violent death at the hands of a predator.

- Kohn 2002: 368.

Volitional agents which prey upon humans are numerous, and may include human enemies (*veyaton*), dark shamans (*kanaimî*), aquatic spirits (*rato*), forest spirits (*piai'ma*), the spirits of dead people (*katon'pî*), and the spirits of “ugly” bina plants (*muran*). These agents attack the soul of the victim, with physiological symptoms being expressions of this spirit-damage. Death is ultimately considered to result from the total detachment of the vital soul (*ekaton*) from the body (see Chapter 6).²⁸ The shamanic treatment for soul-loss may involve the removal of *waawî* spirit darts from the patient's body,²⁹ or the lifting of a curse bestowed by an enemy using *taren* and *muran*. In general, shamanic curing is aimed at restoring the vitality of the true soul (*ekaton*).

²⁶ Roth made a similar observation a century ago, writing that “disease or death is not a ‘natural’ phenomenon, so to speak, but is usually due to one of two agencies. It may be the work of some Spirit, perpetrated either judicially or of mere malice, as some affirm, or through the importunity of a votary” (1915: 346). See also Thurn (1882: 7), and Rivière on the Trio (1970: 248).

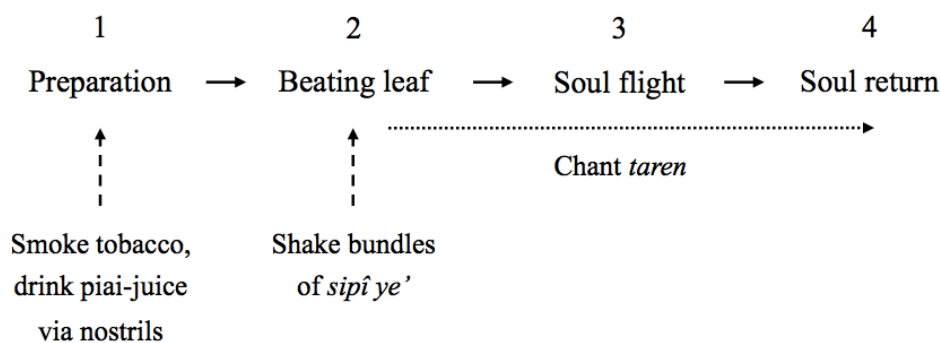
²⁷ See also Hallowell (1960) on Ojibwa ‘personalistic’ conceptions of illness causality, wherein “*who* did it, *who* is responsible, is always the crucial question to be answered” (1960: 43).

²⁸ Something that makes one sick is referred to as *paran'tia* (*paran* meaning sickness), for instance, walking through a graveyard and being exposed to the spirits of the dead (*katon'pî*).

²⁹ See also Farabee (1924: 72) on the Guianese Makushi and Diniz (1971: 68) on the Brazilian Makuxi.

In the following paragraphs, I delineate the structure of the ritual, which can be divided into four sequential phases, for analytical purposes: (1) the preparatory stage, (2) beating leaf, (3) soul flight, and (4) soul return.

❖ Figure 26. Sequential phases of beating leaf ritual



Phase 1: Preparation

The preparatory stage occurs immediately prior to the commencement of the ritual. The main object of this phase is for the shaman to enter the trance-like state necessary for soul flight via the consumption of narcotic substances: namely, tobacco and alcoholic elixirs. First, the pi'aiman must set out his stage, the shamanic theatre of mastery. Traditionally, the shaman would have had a toolkit of paraphernalia consisting of a rattle (*marraka*) filled with seeds or quartz crystals, a stool carved with geometric animal designs, and a 'pegall' basket containing tobacco cigars, bina plants, tree resins, and *waawi* spirit darts (see Figure 27).³⁰ The most important tools used in the ritual are leaf bundles of a variety of haiawa gum tree called *sipi'ye'* (*Protium guianense*). This ritually significant incense tree is used for a variety of purposes: as a resin for smoking out patients, for exorcising

³⁰ See Richard Schomburgk (1922: 329-31), Brett (1853: 285-86), and Roth (1915: 329). According to Gillin, the pieces of quartz "represent certain classes of spirits" (1936: 147).

spirits, as a protective body paint, and, most importantly, for “shaking bush”.³¹ The leafy bundles are composed of freshly harvested branches of the *sipî* tree, bound together with string. Prior to the commencement of the performance, the piaiman assembles a number of these bundles in a semi-circle around his wooden stool.³² During the first session that I attended, I counted twelve bundles, each containing three or four branches of *sipî ye’*.

In order to achieve the necessary state of trance, the piaiman imbibes in two key narcotic substances: tobacco and alcohol. He smokes hand-rolled cigars of black tobacco and drinks a viscous elixir known as “piaiman juice”, a decoction of black tobacco leaves (*kawai yare*) dissolved in water or high-strength spirituous liquor.³³ Both the cigars and the decoction must be “blessed” in advance using *taren* spells. The treacle-like piai-juice is consumed nasally; the head is tilted back and the black juice is poured into the nostrils. The narcotic effect of consuming tobacco in this fashion is overwhelming, and allows the shaman to enter a state of trance. Owing to its extreme narcotic potency, the shaman must gradually learn how to consume vast quantities of tobacco as a trainee; it is dangerous for the uninitiated to drink the powerful piai-potions, to the extent that shamanic apprentices may occasionally die by overdose.³⁴ For this reason, I was advised against trying the piai-decoction in this fashion by Herman Marcello. All the while, the piaiman blows the thick, fragrant tobacco smoke (*kawai ere’î*) into the air and spits the piai-juice over the bundles of *sipî* leaves, serving to exorcise spirits from the space and consecrate the paraphernalia.

³¹ The group of trees known locally as haiawa gum trees are medium-sized trees of the genus *Protium* (Burseraceae). Haiawa is an Arawak term that has passed into the Guyanese vernacular, describing a number of related incense-producing trees (Andel 2000: 191). The hard resins (*ye’ku*) of haiawa trees are also used in ‘smoking out’ healing rituals, wherein they are burned in the room of a patient, often directly underneath their hammock. Combined with *taren* spells, the fragrant smoke is understood to exorcise any dangerous spirits (*o’makon*) inhabiting the space or the patient’s body.

³² In the absence of *sipî ye’*, other incense trees such as *maruwa ye’*, *moraipa ye’*, as well as bow wood (*mara ye’*), whitey (*Inga* sp.), and guava (*kanun ye’*) may be used. In 1971, Diniz reported that the Makuxi of Roraima used the ‘mororó’ tree (*Bauhinia forficata*), also known as ‘cow foot’ (1971: 67).

³³ As Richard Schomburgk noted of the piaiman in 1847, “a brew of tobacco leaves is his drink” (1922: 331). Likewise, im Thurn, who was himself treated by a Macushi shaman, writes of tobacco leaves “steeped in a calabash of water, which was then placed on the ground” (1883: 335). Koch-Grünberg also reports that viscous tobacco juice was consumed nasally by Taurepan shamans (Furst 1993: 400).

³⁴ Roth also reports that the shamanic apprentice “had to submit to a chance of death by drinking a decoction of tobacco in repeated and increasing doses” (1915: 338).



The *pia'san* smoking tobacco cigars during the preparatory phase | Yupukari, 2012

Phase 2: Beating Leaf

The second phase consists of the commencement of the primary technique of the Makushi shaman: *beating leaf*. It is at this point that the ritual proper begins, the atmosphere in the room shifting from one of joviality to one of tenseness. For the ritual to be efficacious, it must be conducted in total darkness (*ewaron*) – a state of “anti-luminosity”. As I recall of the first session that I attended, the darkness was so absolute that it seemed as if not one photon of light inhabited the space. Upon arrival, I was instructed to turn off my camera and microphone by the husband of the sick woman, for, as I was told, the LEDs on the devices would interfere with the performance. The shaman, he whispered, must work in complete darkness, lest the ritual will be ineffective. To the *pia'san*, the pitch-black ritual arena appears as a luminous maelstrom of spirit-activity. In his trance state, the hitherto invisible spirits that enter the room are incandescent presences. If a lay-person were even

to glimpse these spirits, they would die, hence the requirement for total darkness.³⁵ The ability to see the spirits in an otherwise pitch-black space is yet another expression of the shaman's super-sensory powers of perception. During the first session I attended, the ill woman – the subject of the ritual – was lying in a cotton hammock (*atta*) in front of the shaman's stool. As im Thurn reports, the patient must be in a hammock suspended above the ground, for evil spirits would congregate on the floor of the room (1883: 335).

In essence, the *pia'san* beats leaf in order to “lift his spirit up”: by shaking the *sipî* branches, his soul is able to ascend the spirit ladder and fly out to the celestial plane. In the smoke-filled darkness, he begins shaking the leaf bundles in the air and hitting them rhythmically against the floor, all the while chanting his *taren*. The bundles must be held tightly, lest the evil spirits grab them and wrest control of the ritual. The leaves are beaten against the ground in a specified manner, in tandem with the recitation of chants; as it was reported to me by a collaborator who had undergone *piai*-training, the leaves must be beaten alternately with crossed and uncrossed wrists.³⁶ The bundles are periodically lifted up in the air and shaken up high, before crashing back down against the floor.

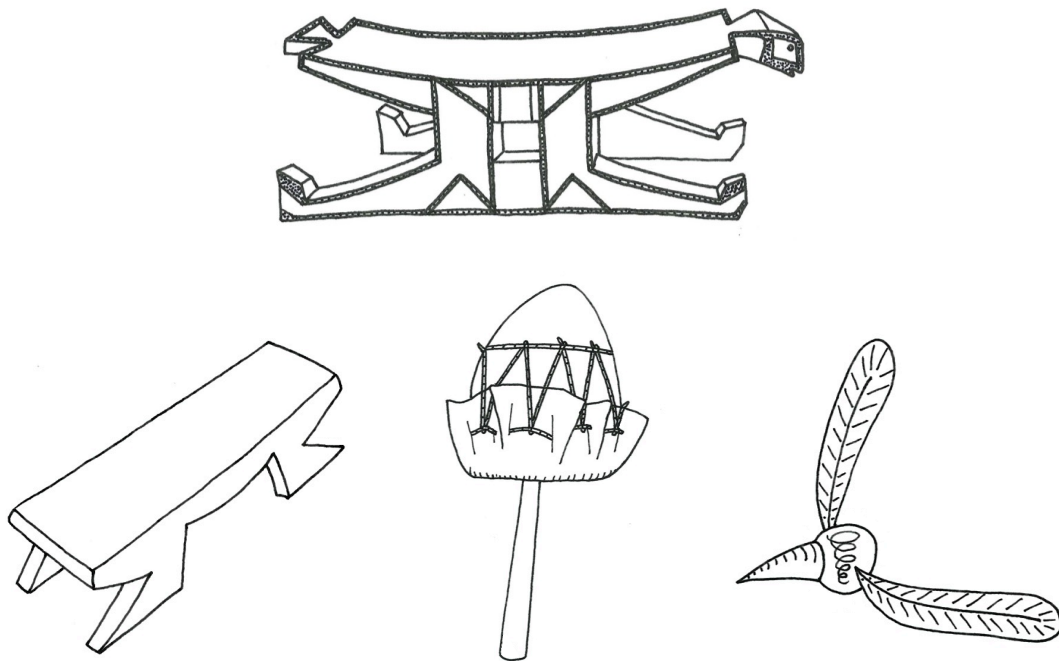
The beating of the leaves serves to attract the shaman's spirit helpers to the ritual arena. Traditionally, shamans would have also shaken a rattle (*marraka*) constructed of a hollow calabash (*poosi*) filled with seeds or quartz crystals and decorated with geometric symbols. Via the recitation of repetitive chants and the rhythmic shaking of the bundles, the shaman encourages his spirit auxiliaries to descend from the cosmic plane and enter the ritual space to engage in dialogue. These *piai*-spirits are numerous, but may include the hummingbird (*tukui'*), the swallow-tail kite (*kumariya*), the marudi (*wo'ra*), and the spirits of his allied bina plants (*muran*). Attracting these helpers, which are referred to as

³⁵ Also reported by Diniz (1971: 69). See also Lewy on Pemón shamanism: “The place of performance had to be dark. A human being without supernatural capacities would drop dead the very moment he or she made eye contact with a spirit. Little children were instructed to close their eyes” (2012: 58).

³⁶ To my ear, the rhythmic beating corresponded to a 2/2 time signature, at a moderate tempo of around 110 beats per minute. The continual beating serves to induce a trance-like state in those present.

the piaiman’s “angels” or “disciples” in Creolese, is the ultimate goal of beating leaf. It is of note that the majority of his spirit-associates are birds, the archetypical “light” beings.

❖ Figure 27. Shamanic paraphernalia: stools, rattle, *waawi* spirit-dart.³⁷



Phase 3: Soul Flight

The third stage consists of “soul flight”, during which the shaman ascends to the celestial plane to engage in cosmic diplomacy with the *piai*-spirits. Instrumental to this phase are his alliances with a number of *bina* plants. First, the shaman invokes one of his key allies,

³⁷ The depiction of the *waawi* spirit dart is based on a consultation with John Edwards, an elder from Rewa who had undergone a degree of shamanic training as a young man. John told me that he had fired and extracted invisible darts himself, and was thus well acquainted with their form and appearance. He described the “marbles” in detail, drawing a number of sketches, from which I made the illustration above. It consists of a spherical marble with a swirl of smoke inside, with a sharp beak-like appendage attached to the front, and feather wings which allow it to move like a hummingbird. The ornate stool is based on a depiction by Roth (1915); the second stool is a modern Makushi shamanic stool.

the “monkey ladder” liana (*karaiwa ye*).³⁸ The spirit of this wavy bush vine functions as his “spirit ladder”, a bidirectional channel between the terrestrial and celestial planes. As the chanting intensifies, the *pia’san*’s soul leaves his body, which remains in the room beating leaf in a sort of ‘auto-pilot’ mode; at this point, it is said, footsteps can be heard ascending through the palm-thatched roof. Accompanied by the spirits of his allied bina plants and his *waawî* spirit darts, the *pia’san* travels across the celestial plane, searching for the *imawari* spirits and the souls of allied shamans, past and present. Upon locating them, he opens negotiations, asking them to assist in diagnosing and treating the patient.

At this point, the patient and their family relay questions concerning the causality of the illness to the spirits, using the shaman as an oracular medium. During this trans-cosmic dialogue, the family are able to converse with the perpetrator of the curse, asking why they targeted their loved one, and what might be done to appease them. In response, the voice of the alter is channelled back through the shaman’s body. The *pia’san*, acting as a cosmic translator between the family and the spirits, attempts to divine the causality of the illness and broker a strategy for curing it. This may involve the lifting of the curse or the removal of the pathogenic *waawî* darts from the patient’s body, the same animated arrows that he fires into the bodies of enemies during spirit-warfare.

Phase 4: Soul Return

After its cosmic journey, the *pia’san*’s soul descends from the celestial plane and down the spirit ladder back into the ritual arena, where it re-joins his body. As the soul re-enters the body through the skull, the beating of the leaf bundles begins to slow and the ritual phase comes to a close. The shaman’s chanting and frenetic gargling slowly cease, being replaced by measured breathing and mundane speech. As the light is switched back on,

³⁸ Monkey ladder liana (*Bauhinia* sp.). Also known as the tortoise step, or *wayamuri nokupî ye*, this wavy undulated bush-rope grows as an epiphyte on hardwood giants in the high rainforest. Also reported by Koch-Grünberg, circa 1911-13 (see Furst 1993: 399).

the atmosphere shifts back to joviality and the attendees begin to converse, ruminating on the events of the séance. Alcoholic drinks such as kari and rum may be shared between those present. If the session has been successful, the causality of the illness will have been ascertained and a treatment devised. Further séances will be held to treat the ailment.

7. 4. Shaman-Plant Alliances

During his apprenticeship, the trainee *pia'san* forms enduring relationships with a society of spirit-beings, who tutor him in the ways of *imawari* (the forces of nature) and *pia* (the forces of creation). These spirits, referred to as his 'binas', become his primary aides and advisors, appearing to him as persons in visions and assisting him in ritual praxis. In the following paragraphs, I take a closer look at some of the key plant-people with whom the shaman shares these intersubjective relations.³⁹ In doing so, I pay particular attention to the period of training during which the apprentice *piaiman* fosters relations with a host of plants, including a portfolio of bitter tree barks (*mai' pi'pi*) and cultivated black tobacco (*kawai*). These powerful "piai-plants" have a dual application. First, they are entheogenic substances consumed via a range of methods (oral drinking, nasal consumption, smoking) in order to alter states of consciousness in ritual contexts. Second, they are 'plant-people' with whom the shaman forges enduring relations of alliance, tutelage, and mastery. The *pia'san* literally *embodies* these plants: he is an amalgam of cosmo-botanical relations.⁴⁰

³⁹ See Appendix 5 | Shamanic Plants for a full ethnobotanical list.

⁴⁰ The shaman, as the master of bina, has the ability to control – or “tame” – those “wild” bina plants mentioned in the latter part of the previous chapter. He is said to consume leaves of those plants as tea, in order to embody and thus “own” them. It is through this relation of mastery that the shaman is able to harness the subjectival agency of those powerful bina plant charms.

7. 4. 1. The Bitter Barks

Shamanic apprenticeship, by all accounts a punishing experience, requires that the young *pia'san* is put through a series of gruelling trials aimed at the acquisition of knowledge and the strengthening of will. These include fasting, abstention from sex, the observation of dietary prohibitions, and a period of seclusion deep in the forest. During this extended seclusion,⁴¹ the apprentice, under the tutelage of a master shaman, is familiarised with the spirits of the forest (*imawari*), mountains (*piai'ma*), and water (*rato*), as well as the array of “spirit-helpers” of central importance in shamanic practice, including animals, plants, and elemental forces. As Furst (1993) has written, in relation to Koch-Grünberg’s data on Taurepan and Pemon shamanism, “animals play an important role as spirit helpers, as do plants, especially different species of pepper, as well as such natural forces as wind, rain, thunder, and lightning” (1993: 406-7). The most fundamental of all plant-helpers are the bitter barks (*pi'pî mai'*), a portfolio of barks of various species of tree and liana found in the remote high forest, the domain of alterity in which shamanic training takes place. It was difficult for me to obtain botanical identifications of these secret and highly guarded plants; however, a few examples include the monkey ladder liana and the maipaima tree (*mai'ye'*, literally, ‘bitter tree’), a hardwood giant which grows only in the mountains.⁴²

These secret plants are regarded as being “teachers” and “helpers” of the shaman, and they assist and tutor him in his acquisition of skills and knowledge during his period of training and during shamanic rituals. These “plant teachers” (Luna 1986b), which are consumed orally in bitter-tasting broths, are said to educate the apprentice in the ways of shamanism. The vegetal-human relationship is therefore a pedagogical one, based on the transmission of knowledge from the plant teacher to the apprentice shaman.

⁴¹ Reportedly up to six months. According to Richard Schomburgk, the Makushi shaman’s training takes place in “the most remote recesses of the forest” and takes “a few years”. The novice shaman returns from this period of seclusion “more like a skeleton than a human being” (1922: 331).

⁴² Others include *aiua ye'*, *unapa ye'*, *taruka ye'*, and *susua ye'*. As yet I have been unable to identify any of these plants by virtue of not having seen them. See Appendix 5.

The piai-plants share the distinction of being incredibly bitter – people sometimes describe them as being “bitter like gall”, referring to bile (*sere’ku*), the bodily substance considered to be the archetype of bitterness (*mai’*). The bark of each plant is harvested from the high forest, macerated, and boiled to make a tea. The trainee piaiman must drink large quantities of these decoctions, before repeatedly vomiting the bitter liquid back up again. By all accounts, the consumption of these bitter potions provokes a violent bodily reaction and, in turn, a heightened mental state which is described as “spirit lightness”. The involuntary vomiting, combined with extended fasting, allows the trainee to attain an elevated sensory state akin to that experienced during soul flight. But further, it is through the purging process of drinking and vomiting that the apprentice forges relationships of alliance with the spirits of these piai-plants. As I was told by John Edwards, a prominent elder from Rewa who had himself undergone piai-training in the 1970s,

The piaiman uses those barks; he drinks them and vomits them out. Those trees turn into spirits; they become people. Those plants are the people who help him when he is beating leaf. The spirits of those trees, they are his helpers.

- John Edwards | Rewa, 2013

In short, the piaiman comes to “embody” those plants which he incorporates via ingestion. Each night, after consuming the bitter broths, the plant spirits will come to the apprentice in his dreams, appearing as human-like persons who impart piai knowledge to him. Over the course of these toxic trials, the human-plant bond becomes strengthened to the extent that the plant-spirits can be summoned during curing rituals. Each plant fulfils a particular role as a spirit-helper. The aforementioned monkey ladder liana, for instance, becomes the shaman’s stepladder for ascension to the cosmic plane during soul flight. As John explained, “the *pia’san* vomits that bush-rope up to be his ladder, for when his spirit leaves his body”. He can thenceforth summon the spirit of the liana during curing rituals.

Birds (*toron*), as the animals which epitomise lightness, constitute vital shamanic agents. Hummingbirds (*tukui'*), for instance, are said to be the piaiman's "angels". During his period of sylvan isolation, I was told, the apprentice must drink the bitter barks at the top of a waterfall (*imeru*), before vomiting the potion into the water which then cascades down the falls. A hummingbird appears at the bottom of the falls and scoops up the vomit in its beak; later, the tiny bird will appear to the shaman in a vision or dream as a spirit-helper. During the liminal period of fasting, the shaman must eat only hummingbirds.⁴³ Henceforth, the hummingbird spirit will guide the *pia'san*, supplying him with ideas and information. During beating leaf rituals, the piaiman leaves a bowl of tobacco juice on the floor to attract the hummingbird spirit, which enters the room to drink the potent elixir. The hummingbird is said to be "the master of tobacco". As Herman Marcello, the *pia'san* from Karasabai, told me during an interview:

Hummingbirds are like the *pia'san*; they are part of him. They are his piiai-birds. The *pia'san's* spirit can change to help people, just like the hummingbird changes colour.

- Herman Marcello | Yupukari, 2012

The deftness, iridescence, and transformability of the hummingbird are desirable qualities for the shaman, and thus he forges a working relation of mastery with the bird in order to harness those qualities. The hummingbird henceforth serves as his spirit-helper.

Another avian subject with whom the *pia'san* maintains a relationship of mastery is the swallow-tailed kite (*kumariya*).⁴⁴ This majestic white and black bird of prey can be seen spiralling on hot air currents in the middle of the day. Conceived of as female, and epitomising the capacity for lightness, it is said to be the *pia'san's* "partner". As with the

⁴³ One *pia'san* told me that during his training, he had to eat three hummingbirds per week for a month. In practice, however, I was told that the piaiman can also drink a little *siipe'* (farine mixed with water) or eat morsels of cassava bread while fasting. The consumption of meat or fish is strictly prohibited.

⁴⁴ Swallow-tailed kite, aka "scissor-tail" (*Elanoides forficatus*). Makushi name, *kumariya*.

tukui, the kite's spirit flies down to drink the tobacco juice during healing rituals, before ascending the spirit-ladder with the *pia'san*. The lightness (*amai'mara*) of the scissor bird by proxy allows the shaman's spirit to access the upper planes of the multiverse.

The piaiman shakes bush to call down his angels. *Kumariya* is the bird with a scissor tail, which turns into a lady – it comes down to drink the tobacco drink on the floor. Then the piaiman can beat leaf to collect the sick person's spirit. He has other helpers too, plenty people – they are the *imawari*, the right hand men of the piaiman.

- Isaac Rogers | Yupukari 2012

These examples demonstrate that the act of corporeal embodiment serves to foster special relationships of alliance and mastery between the *pia'san* and the *imawari* spirits. Just as the consumption of bitter barks serves to forge working relationships between the shaman and the tree spirits, so too does the consumption of hummingbirds. The shaman must physically incorporate these varied piai-beings by eating, drinking, or smoking them in order to somatically incorporate and form enduring relations of control with them. As Herman explained, the *pia'san* literally comes to embody these piai-helpers; they become part of his body (*esak*) and thus of his very essence. In short, the shaman masters the piai-helpers that he comes to embody via corporeal ingestion. By physically and subjectively incorporating them, he gains their species-specific capacities and skills. In this sense, the shaman might be thought of as an amalgam of multispecies relations. As discussed above, the same word – *esak* – denotes “body” and the notion of ownership or mastery; thus, the shaman, via embodiment, becomes the master of these piai-beings.⁴⁵

⁴⁵ See the conclusion of Chapter 3, for a discussion on mastery and embodiment.

7. 4. 2. Tobacco (*kawai*)

Tobacco is the key catalytic substance in shamanic healing practice, and as such has been called “the main curing tool for shamans” (Barbira-Freedman 2015: 1). The two species cultivated in lowland South America are *Nicotiana tabacum* and *Nicotiana rustica*, the former being more common and the latter being significantly more potent.⁴⁶ The crop was first domesticated on the eastern slopes of the Peruvian Andes over 8,000 years ago, from where it spread across the Amazon basin (Barbira-Freedman 2015: 3). The plant contains the stimulant nicotine, and is used as a narcotic substance in both everyday and shamanic contexts by Makushi people. Put simply, without tobacco, shamanic ritual would not be effective or, indeed, possible. As Fausto writes, “consumed alone or in combination with other drugs, tobacco is the hallmark of shamanic activity” (2004: 158).

The tobacco plant, *kawai ye*’ in Makushi and “black tobacco” in Creole,⁴⁷ is most commonly cultivated in forest farms, although it may be grown in the kitchen garden.⁴⁸ Tobacco is primarily grown from seed (*ena’pi*) as an annual crop, with young seedlings being transplanted into the farm where they are allowed to mature. Owing to the declining prevalence of shamanism and the increased availability of commercial cigarettes, farmers report that tobacco is cultivated with less frequency than in the past. Some people grow the crop for small-scale market sale; in Yupukari, for instance, a few individuals cultivate tobacco plants, before selling the dried leaves, bound into cakes, to other villagers.

⁴⁶ For a recent volume on tobacco in Amazonia, see *The Master Plant* (Russell and Rahman 2015). For a history of tobacco use in the region, see Oyuela-Caycedo and Kawa (2015). See also Wilbert (1987).

⁴⁷ “Black tobacco”, the Creole term for the plant and its products, is a truncated version of ‘blackfat tobacco’, the name for the processed sticky, black tobacco – thus, literally ‘black’ and ‘fatty’ – that was imported into the country by the British during the colonial era. According to one medical study from the 1970s, “blackfat is a tobacco leaf to which mineral oil and Vaseline are added for flavouring and as humectants” (Miller *et al.* 1971: 457). This additive-heavy rolling tobacco was being imported into Guyana from Kentucky from 1870 until 1966 (British Medical Journal, 12 Feb 1972). During the Balata bleeding era (1940-70s), the British administrators would trade black tobacco with the Makushi and Wapishana workers, possibly in direct payment for balata rolls.

⁴⁸ The white-flowered plants that I observed in the field appear to be of the species *Nicotiana tabacum*, native to the neotropics, the same species used for most commercial tobacco production.

Both practically and symbolically speaking, tobacco is a “male” plant, as opposed to “female” crops such as sweet cassava or potatoes, an opposition reflected in production and consumption activities. Tobacco cultivation and smoking are for the most part male activities: only men can cultivate the crop, and it is almost exclusively consumed by men. However, this gendered prescription appears to be loosening, as observed, for instance, in the increased prevalence of “*piai-ladies*” who smoke tobacco in divination and healing rites. Nevertheless, it is rare to see a woman smoking tobacco in the everyday setting.

Tobacco performs various connected roles in Makushi shamanism: it is a narcotic which the shaman uses to attain a state of trance or “soul-lightness”, a spirit-food for the auxiliary spirits, and a purifying substance that serves to consecrate the shamanic theatre and insignia. The act of smoking tobacco, *e'kuwaiti*, is a central rite in shamanic ritual.⁴⁹ Unlike certain Amazonian cultures in which hallucinogenic plant-based decoctions such as ayahuasca (*yagé*) are used to induce visions,⁵⁰ Makushi shamans use only tobacco and alcohol as ritual narcotics. Tobacco makes one light or “high”, inducing an altered state of body and mind in which the spirit is mobilised and activated. As opposed to “sweet” substances such as honey which are associated with domesticity and the terrestrial realm, tobacco is considered a “bitter” substance associated with spirit-flight and the celestial domain (see also Fausto 2004). Tobacco, as Lévi-Strauss once wrote, is a meta-culinary substance that may be thought of as an “anti-food” of sorts: it must be burnt into smoke and inhaled in order to be consumed (1973: 20).⁵¹ The narcotic strength of tobacco should not be underestimated, its power being such that great caution must be exercised when consuming it, a skill which is fully mastered only by the experienced shaman.

⁴⁹ As Françoise Barbira-Freedman (2015) has remarked of shamanism in the Upper Amazon, “tobacco is the primary connecting substance in [the shaman’s] relations to spirits, as a synergetic enhancer of the effects of the other mediating plants, and as the main tool of their therapeutic agency. In this way tobacco use is truly the hallmark of shamanism through history” (2015: 10).

⁵⁰ An entheogenic brew made of the *Banisteriopsis caapi* vine. See Taussig (1991) and Luna (1984a).

⁵¹ “Honey and tobacco are both edible substances yet neither, strictly speaking, depends in any way on cooking. For honey is made by non-human beings, the bees, who supply it ready for consumption, while the most common method of consuming tobacco places the latter, contrary to honey, not on the *hither side* of cooking but *beyond* it” (Lévi-Strauss 1973: 17).

Tobacco smoke itself (*kawai ere 'tî*) is understood to have healing qualities and is used by the *pia 'san* as a curing agent.⁵² Cigars are smoked around the patient in a similar manner to the burning of tree resins (*sipî ye 'ku*), in order to exorcise any *o 'ma* (harmful spirits) that may have possessed the afflicted individual. As a light substance, the tobacco smoke “lifts up” the spirits “like the breeze”. The act of blowing is also of significance here: the shaman’s breath contains light energy (*a 'ka*) which is condensed in his true soul (*ekaton*), in particular the constituent *ewan* (ancillary soul) seated in the chest (see section on *taren*, below). The *piaiman* blows tobacco smoke on the paraphernalia contained in his *piai*-basket (pegall), including his *bina* charms and *waawî* spirit darts. The smoke itself is a spirit-food for these personified beings, and is required to activate their ritual efficacy. As mentioned, the shaman also consumes the treacle-like “*piai*-juice” through his nostrils in preparation for beating leaf. By all accounts, the combination of heavy smoking and nasal imbibing results in an intense narcotic rush followed by a trance-like state necessary for engaging in soul-flight and journeying through the multi-layered cosmos.

The *piaiman* has a long cigar – he smokes it and produces a big cloud of smoke. Then he turns into spirit. He can then go far away, to the mountains – he flies away, like a strong breeze. That’s how he treats the patient, he chases away the *o 'ma* [bad spirits].
- John Edwards | Rewa, 2013

The consumption of tobacco also serves to activate the *pia 'san*’s connections with the parliament of *piai*-spirits with which he interacts while beating leaf. As the foodstuff of the *imawari* spirits, tobacco is used to entice the spirit helpers to the shamanic theatre. As mentioned above, the spirits of the hummingbird and swallow-tailed kite are attracted to the ritual space by a calabash (*poosi*) of tobacco juice laid out on the floor. The *tukui*’

⁵² As John Gillin has stated in relation to the Barama River Caribs, the tobacco smoke itself appears to be the embodiment of the practitioner’s power (1936: 147).

spirit descends from the cosmic plane to drink the juice, just as the hummingbird drinks the nectar of flowering plants. Tobacco is “spirit food”; as such, it attracts the *pi*-spirits.

He mixes it up [tobacco] in a cup with water. That’s the *pi*aiman’s drink. He drinks it through his nose, then he will dream, dream, dream. He shakes bush and his helpers come down. Then he changes into a spirit, and climbs the ladder.

- Isaac Rogers | Yupukari, 2013

Today, tobacco cigars are typically around 10cm in length and are rolled in white paper. Traditionally, however, shamanic cigars would be up to two feet long. The process of their manufacture was described to me by a *pi*aiman as follows. First, the fresh tobacco leaves are picked from the plant before being hung up to dry in the sun “like salted fish”. Honey, sugar cane, or lemon juice can be squeezed over the leaves, which has the effect of preventing rotting, “making the tobacco smell sweet, not rancid”. Next, the tobacco leaves are rolled up into “plugs”, which are repeatedly squeezed and loosened in order to soften the tobacco. Once soft enough, the processed tobacco is wrapped in fresh tobacco leaves (*kawai yare*) or the thin papery bark of certain species of tree (Roth 1924: 241)⁵³ and tightly bound into the characteristic cylindrical cigar shape. Strips of *asitar* (*wayape*), a spiky, durable bush-rope, are used to bind together the giant cigars.

To sum up, tobacco is the principal catalyst and connecting substance in Makushi shamanism, enabling the activation of the relationships between the *pi*a’san and his allied spirits. It is, in other words, the core synergetic substance in the highly transformational cosmos (Fausto 2004: 158). As the archetype of lightness and externality, tobacco makes the shaman’s spirit buoyant, enabling soul-flight, dreams, and visions, and allowing his auxiliary spirits to travel from the various layers of the cosmos to the ritual arena on the terrestrial plane. The beings and substances associated with shamanism are all “light” in

⁵³ Roth reports that the bark of the kakaralli tree (*Lecythis* sp.) may be used (1924: 241).

some way. Spirit-foods, light substances that nourish the soul, are generally very bitter substances.⁵⁴ These are opposed to “sweet” substances, which are heavy and nourish the body; indicatively, real foods are abstained from in shamanic training. Consumption of the bitter barks, combined with fasting, makes the spirit light and able to engage in soul-flight. Like tobacco, strong alcoholic drinks are considered to be “bitter” (*mai*), and by proxy light (*amai*). Likewise, the animal spirits associated with shamanism are those that exemplify swiftness in the aerial domain. Hummingbirds, tiny and almost weightless, flit around with such speed and deftness as to be nearly imperceptible save for an iridescent flash. Similarly, swallow-tailed kites soar on rising thermal currents, circling high above the savannah and forest. Occasionally they are seen hovering in mid-air, as if weightless.

By embodying these piai-beings, the human shaman is able to develop associated qualities of lightness. The piaiman incorporates the plant and animal spirits that act as his “helpers” by consuming them – via the process of corporal ingestion, they become part of his body and essence. Here, “body” is seen not as a physiological unit but as a fabricated set of affects, capacities, and dispositions that is amenable to change (Viveiros de Castro 1998: 478). Through internalising these piai-beings and substances by consuming them as smoke, foods, or decoctions, the piaiman literally *becomes them*. This is precisely what Herman the *pia’san* meant when he said that the hummingbirds “*are part of him*”. In the act of physical incorporation, the shaman comes to embody – and thus master – the piai-helpers that he calls upon in ritual. He is thus able to harness their species-specific powers and knowledge for use in the spiritual domain of shamanic activity.

⁵⁴ See Chapter 5. Bitter substances (stings, venom, alcoholic drinks, poisons, medicines, incense) are considered to have active, curing qualities (see Butt 1961, in the Akawaio context).

7. 5. *Taren* Incantations and the Power of Poetic Language

The final shamanic tools to be considered herein are the traditional esoteric spells known as *taren*. *Taren* are poetic incantations which are utilised by practitioners for a number of ends: for curing illnesses, for cursing enemies, for desubjectify meat, for enhancing one's physical or mental capabilities, or for causing a desired other to fall in love.⁵⁵ Referred to as "blows" in Creolese, these ritual invocations are literally blown over a target object or substance (body, food, drink, medicine), which is then given to an intended other to be consumed, whether openly or surreptitiously.⁵⁶ *Taren* spells can be used for productive or destructive ends: healing blows are called *etaremu 'tî*; harmful blows are called *mîi 'ma*.⁵⁷ The incantations can be used in conjunction with bina plants, being blown over the plants themselves to amplify their power, or applied to the same target for a compound effect.⁵⁸ The shaman also employs *taren* to banish dangerous beings (*o 'ma*) from populated areas. If a troublesome spirit inhabits a deep pool in the river, for instance, he can blow *taren* over a piece of firewood and throw it into the water to send the *o 'ma* away.

The following discussion is based on my own field research into *taren*, conducted with local healers (*taren esak*) and shamans. Much of what I learned about *taren* came from these ritual specialists, with whom I would spend long afternoons transcribing the poetic formulas, attempting to deduce their structure. Foremost among these healers were John Edwards of Rewa, Herman Marcello of Karasabai, and Isaac Rogers, Joel Samuel, Hubert Francis, Madelene Francis, and Flora Francis of Yupukari.

⁵⁵ Armellada (1972) compiled a catalogue of 130 *taren* collected among the Pemon of Venezuela during the 1930-40s. These incantations cover a wide range of desired effects, including *taren* to cure the damage caused by snakes, jaguars, caimans, and otters; *taren* to cure diarrhoea and colds, to rid children of intestinal worms, and to protect against mosquito bites; *taren* for improving fertility and for giving birth; and *taren* for shooting with bow and arrow, and for handling axes, saws, and hoes.

⁵⁶ Like many aspects of spiritual life, local understandings of *taren* are entangled with Christian beliefs. *Taren* are equated in some sense with the Biblical notion of blessing, an association evidenced by the use of the terms 'blessings' and 'prayers' as English translations of *taren*. In this sense, the Christian influence pervades local perceptions of *taren*: cursing, for instance, was translated by missionaries as 'evil' or 'Satan' (*makîi*), the term *makîi* being an extension of the Makushi word for snake, *ikîi*.

⁵⁷ The act of ritual blowing is known as *etaremu 'tî* (verb).

⁵⁸ See Chapter 6.

In the literature, *taren* invocations have been detailed most notably by Armellada (1972) among the Pemon. They have also been discussed by Walter Roth (1915), Koch-Grünberg (1916, III), Butt Colson (1961) among the Akawaio, Whitehead (2002) among the Patamona, and Thomas (1982) and Furst (1997) among the Pemon.

Taren are the foundation of shamanic practice. These highly-structured spells are primarily used by two types of people: shamans (*pia'san*) and blow-people (*taren esak*),⁵⁹ local healers who have mastered aspects of shamanic healing. Shamans, certainly, are the masters of *taren* and poetic language – a point also made by Armellada (1972):

I have been told repeatedly that the ‘piaches’, or shamans, were the main depositaries and transmitters of *tarén*, like many other things. It is thus not in vain that their name is ‘*piá-sán*’, descendants of the ‘*piá*’. Until this point, those people who have taught me most *tarén* were close relatives of shamans.

- Armellada 1972: 17—my translation from the Spanish.

Aside from shamans, there are “good” blow-people, those who use their spells to heal the sick, assist in childbirth, desubjectify game animals, and remove curses, and “bad” blow-people, who utilise them for subversive ends to curse enemies and launch targeted spirit attacks. In practice, however, any given practitioner may use their spells for productive or destructive ends, the moral directionality of which can only be understood when situated in the relational field of causality. For instance, one may curse an enemy (verb, *etannîpî*) to avenge a prior curse (verb, *ese'ma*). In general, a spell is regarded as a curse (*makîima*) if used to cause harm or to kill (*wîî*) rather than to cure or heal (*yepi'tî*).

There are two types of *taren* – blows that kill and blows that heal. Bad blow-people will give you a drink – they speak over it to spoil you, then you get sick. Some people

⁵⁹ See also Armellada on *taren esak*, the owners of *taren* (1972: 13).

still practice those dirty habits. Good blows heal what doctors can't cure; the piaiman can use them to cure you. Those are the habits of Amerindians, we don't change.

- Nathaniel Edwards | Rewa, 2013

In Makushi mythic-history, *taren*, like *muran* charms, were created by Insikiron and Anike in the embryonic “beginning times”. The mythical brothers are said to be “the leaders of *taren*”, and their names are spoken in many invocations. *Taren* formulas are esoteric and hyper-subjective: each practitioner has their own private corpus of *taren*, a body of spells which is passed down along kinship lines and closely guarded within those limits. The term *taren esak* translates as “spell owner”; thus, the local healer is one who owns these efficacious incantations. The power of *taren*, I was told, would be diluted and nullified if the formulas were known and used by many practitioners. In this regard, their efficacy is finite: it can run out. There is a further incentive for maintaining exclusivity over one's *taren*: the services of blow-people may be commissioned and paid for with cash or goods. An individual may enlist the services of a local healer to “bless” them with *taren* to heal an illness, deliver a baby, or curse an enemy. Thus, it is in the economic interests of *taren* owners to guard their spells.⁶⁰

Aunty Madelene once described *taren* to me as follows: “*taren* is like a story, like talking to a secret person, *pia*”. *Pia*, as discussed above, refers to the ancestral forces of creation, the primordial ancestors. In essence, then, the act of reciting a *taren* incantation allows the healer to harness these powers, and thus might be thought of as a conversation between the healer and the agents of *pia* (creation). Like shamanic chants, *taren* spells are spoken in the “deep Makushi” dialect, and as such are largely incomprehensible to lay-people. This is yet another example of the piaiman's special status as ‘cosmic-orator’; he has mastered the power of esoteric speech. Madelene continued, “the old ancestors taught me *taren*. I remember them, I keep them in my mind, just like learning a secret poem”.

⁶⁰ In Yupukari, there are at least five recognised *taren esak*; in Rewa, there are a similar number.

The efficacy of *taren*, in my understanding, is rooted in the interaction of two forces: (1) the power of poetic language, and (2) the power of breath. After reciting the spell, the practitioner typically blows over the patient's body or a vessel of water or kari, which the patient either drinks or bathes with. As has been discussed, breath is seated in the *ewan* (ancillary soul) located in the region of the heart and lungs; the act of blowing (*etaremu'ti*) releases a power contained within the soul-matter. The shaman, in particular, has extremely powerful breath which contains super-charged spirit-matter. In blowing over a drink, then, the shaman or healer is charging the liquid with the strength (*meruntî*) of their *ewan* soul, which is transferred to the patient via the vector of the liquid.

Taren are highly-structured poetic devices, which contain numerous stanzas and rely upon rhythmic poetic meters for their efficacy.⁶¹ If spoken incorrectly, the *taren* will be ineffective. The spells are used to “call down” the spirits of animals and plants, which assist in curing the patient or cursing the enemy. Each phrase of the spell ends with *pia*, if spoken by a man, or *pasi*, when spoken by a woman. *Pia* refers to male relative, whilst *pasi* means “sister” or female relative. As Madelene described to me, “them words mean ‘he’ and ‘she’ in deep Makushi, they are used for calling the ancestors”. The gendered use of these postfixes refers to the gender of the practitioner: “I be calling it *pasi*,” Madelene continued, “but when a man say it, he gon call it *pia*”. This also accords with Armellada's observation: “It is called “*potori*” or “*pachi*”, depending if it is male or female, and the *tarén* is called of either sex, according to the gender of the person reciting the *taren*” (1972: 17—my translation from the Spanish).⁶²

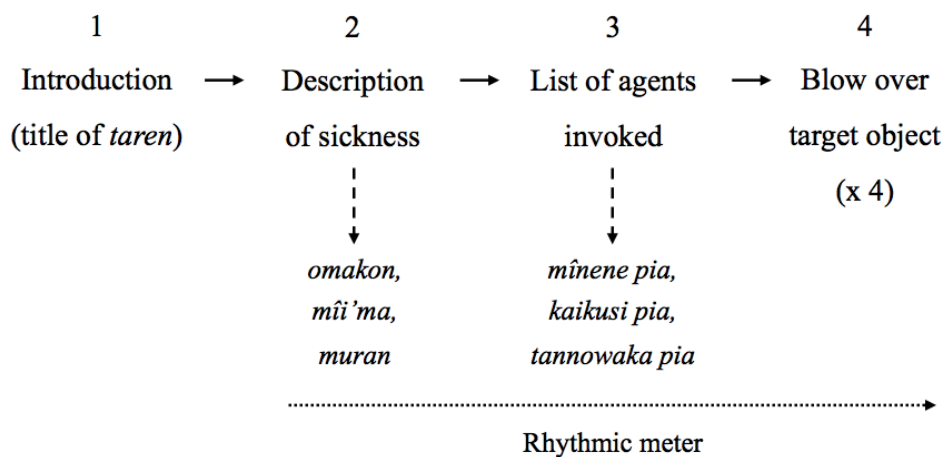
The average duration of the *taren* that I recorded was approximately one minute. Each incantation consists of around twenty to thirty discernable lines or spoken phrases. Roughly speaking, their structure is as follows: (1) an introduction (a title, akin to “this is

⁶¹ On the general structure of *taren* among the Venezuelan Pemon, see also Armellada (1972: 13-14). See also Furst (1993: 408-12) for a selection of Taurepan and Pemon healing spells recorded by Koch-Grünberg during his 1911-13 expedition to Roraima and southern Venezuela.

⁶² Armellada (1972) reports that the term *potori* is used rather than *pia*, designating “nephew” or male relative. My Makushi teachers only reported the use of *pia* as the male postfix to *taren* stanzas.

the *taren* of the jaguar”), (2) a brief description of the illness of the patient at hand, in which the causal factor is identified, e.g. spirit possession (*o’ma*), a curse (*mîi’ma*), or bad bina charms (*muran*), (3) a main phase, in which a number of cosmic agents are listed, each followed by the word *pia* or *pasi* to designate the ancestors, and (4) a closing stanza, in which these agents are “called down”. At the end of the spell, the practitioner blows three or four times over the object of the *taren* (drink, food item, plant, body part).

❖ Figure 28. General performative structure of *taren*



The main object of reciting an incantation is to invoke various nature spirits for assistance in the task at hand (curing, cursing, charming, and so on). The healer “calls down” the spirits of the animals and plants, which descend from the cosmic plane to lend their services. According to Madelene, “when you speak a *taren*, you are calling different names: those are the people who help you heal. When you call those animals, their spirits come down”. Agents commonly invoked in *taren* include Insikiron and Anike (the mythic heroes), *pemonkon* (person), *o’makon* (harmful beings), and a plethora of animal, plant, and elemental beings and forces. Each is listed in the formula, followed by the term *pia* or *pasi*. Each *taren* is named after the being or force which it summons; for instance, the jaguar (*kaikusi*), the osprey (*tannowaka*), or lightning (*sisiu*) (see Table 7).

When you call these animals in *taren*, their spirits come down. To bless animal meat, you have to call jaguar and harpy eagle – because they eat animals. To bless big fish, you have to call water dog and osprey – because these animals eat fish.

- Joel Samuel | Yupukari, 2012

In general, *taren* function by drawing a causal analogical association between the spirit invoked and the desired effect of the spell. Hunting or fishing *taren*, for instance, usually summon the spirit of the predator of the desired game animal (e.g. osprey for fish, jaguar for deer). Curing *taren* typically invoke animals that display behavioural attributes associated in some way with the cure for the ailment. Harmful curses tend to solicit the agency of malevolent spirits which prey on humans, such as *mariwa*, *karanau*, or *tipon*. In effect, *taren* allow the practitioner to harness the varied and species-specific agency of the sentient cosmos – an idea predicated upon the perspectival notion that these agents of alterity are themselves volitional persons with whom the shaman can communicate.

A few examples will illustrate the point. The labba *taren* (*warana taren*), a child-bearing incantation, is named after the small subterranean rodent. The spell is blown over a vessel of water, which is rubbed over the pregnant woman's abdomen in a downward motion, as if pushing the baby out. The spell transfers a specific behavioural attribute of the labba to the childbearing woman: she will give birth quickly and with minimal pain, with the baby "shooting out" like a labba. The termite *taren* (*mînene taren*) is used as a healing spell for lacerations in the flesh. If someone is wounded by a machete, the healer can recite this spell to invoke the termite spirit. Termites, known locally as "wood ants", are renowned for their ability to repair their monolithic mounds after they have been damaged by giant anteaters (*tamanua*).⁶³ In this fashion, the wood ant spirit "rebuilds" the patient's flesh laceration, which will stop bleeding and heal immediately. As Madelene related to me, "those are the wood ants you are calling; they block up the blood from

⁶³ Giant anteater (*Myrmecophaga tridactyla*). Makushi name, *tamanua*.

coming out, the same way they build back their houses”. A third and final example is the manatee (*piina*) *taren*.⁶⁴ This curing invocation is used for bodily swellings (*awîi’pî*) or growths (*awîi’nîto’*), such as the hugely swollen limbs that result from elephantiasis. The manatee, a large and heavy aquatic mammal, is invoked to “roll over” the illness-causing agent (*kîima*, a snake spirit), squashing or “flattening” it, thus removing the swelling.

Utilised by shamans and local “blow-people” for productive or destructive ends, *taren* constitute a specialised method of harnessing the species-specific skills and powers of various nonhuman beings. These spells can be considered a form of “somatic poetry” (cf. Uzendoski and Calapucha-Tapuy 2012: 5): emerging from and acting upon human bodies (*esak*), they contain power or “strength” (*meruntî*) which is itself rooted in bodily experience and indigenous theories of person-making. Bodies, as unstable and fabricated sets of affects, capacities, and dispositions, serve as channels of and recipients for this cosmic power, which in essence emanates from the ancestral forces of creation (*pia*).



Leaf bundles of the *sipî* tree, for beating leaf | Yupukari, 2012

⁶⁴ Amazonian manatee (*Trichechus inunguis*). Makushi name, *piina*.

7. 6. Conclusion: Cosmoecological Alliances and Multispecies Techniques

In the foregoing discussion, I have argued that the Makushi shaman is best thought of as a multinatural mediator with the capacity to navigate the interconnected cosmos in order to forge relations of alliance, mastery, and control with the powerful cosmic agents which populate it. The centrality of plants to shamanic training and ritual has been illustrated with reference to the ‘beating leaf’ ritual, the consumption of tobacco and a set of bitter entheogenic plants, and the recitation of *taren* incantations, three techniques by which the *pia’san* communicates with and controls nonhuman beings. The shamanic propensity for trans-specific communication and super-human perception is ultimately activated by the ability to harness and control the ancestral forces of creation, or shamanic wisdom (*pia*).

Makushi shamanism, as I have argued, refers less to an encyclopaedic stockpile of knowledge or a template for action, and more to a *way of knowing*, which in many ways equates to *a way of sensing*. In other words: less a resource, more a *modus operandi*. The shaman can channel the creative forces of the primordial universe (*pia*) for application in the present day. It is only through the extended trials of shamanic apprenticeship that the *pia’san* develops the ability to conjure and control the forces of creation. As a “broker of alterity” (Taylor 2014), the *piaiman* can negotiate with, temper, and harness the multifarious creative and destructive forces and beings that populate the multi-layered cosmos.

Shamanic knowledge is activated by the mastery of a set of super-sensory skills, which I refer to as *techniques of perception*. By harnessing the agency of a parliament of spirit helpers, these specialised methods endow the *pia’san* with the capacity to perceive hitherto imperceptible dimensions. Shamanic ‘techniques of perception’ are quite literally *embodied*, in that they are cultivated via the bodily incorporation of potent substances and enacted through corporal movements (the beating of leaves, gesticulations) and the power of breath (blowing, chanting, reciting *taren*) seated in the soul.

As has been demonstrated, the shaman embodies those beings that he internalises through ingestion (tobacco, bitter barks, hummingbirds, etc.). By incorporating them into his body, he comes to embody them, and thus to master them. This allows him to harness their subject-specific capacities and dispositions, for application in shamanic activity. In this perspectival “ecology of selves”, these non-human entities themselves have *ways of knowing* or “epistemologies” (Kohn 2002: 107). Shamanic embodiment is, precisely, a mode of harnessing and controlling these other-than-human epistemologies and capacities for action. The shaman, in this sense, might be thought of as a microcosm of the society of *piai*-beings that he comes to master through embodiment. He can thenceforth summon these allied beings using a host of methods including *taren* spells and shamanic chants. *Taren*, as poetic formulae that harness the species-specific capacities of a menagerie of nonhuman living beings, constitute yet another example of the pervasive “multiplicities of symbiosis” (Deleuze and Guattari 1988: 250) that underpin Makushi eco-cosmology.

For Makushi people today, shamanism remains an important conceptual presence whilst undeniably declining as a social practice. It is a sad truth that most living shamans today are old men. It remains to be seen, therefore, how shamanic practice adapts in these socially and ecologically precarious times, times in which endogenous and exogenous forces of change such as organised religion, formal state education, urban migration, gold mining, industrial mega-farming, and the growth of the market economy interact with traditional Makushi life-ways in unpredictable ways. It might be argued that the shaman, as the multinaturalist mediator and embodiment of life’s dynamic interactions, will have an increasingly important role to play in mitigating the relations that transpire between humans and the diverse actors with which they cohabit the world (cf. Conklin 2002). For, the Makushi shaman is the figure who truly encapsulates the environmental message of the school children’s mural: “biodiversity is our best security”. Or, as Rudy succinctly put it, “the *pia’san* is *conservation*; he is our connection with the natural world”.

❖ Table 7 | Some examples of *taren*

English	Makushi	Agent invoked	Target effect
Tapir	<i>Waira taren</i>	Tapir (<i>waira</i>)	For new-born babies to gain weight: the baby will get fat, like a tapir
Cockerel	<i>Kariwana yun taren</i>	Cockerel (<i>kariwana yun</i>)	Love spell for men: for attracting many women, like the cockerel
Dog	<i>Arinmaraka taren</i>	Dog (<i>arinmaraka</i>)	To cure sick babies: dog spirit chases away the janikuru (black vulture) spirit
Electric eel	<i>Arinra taren</i>	Electric eel (<i>arinra</i>)	To cure babies: shock makes the illness ‘jump’ out of the body
Harpy eagle	<i>Kawana taren</i>	Harpy eagle (<i>kawana</i>)	To desubjectify meat (harpy eagle is an apex predator of animals)
Labba	<i>Warana taren</i>	Labba (<i>warana</i>)	For childbirth: baby ‘shoots out’ of the womb, like a labba from a hole
Lightning	<i>Sisiu taren</i>	Lightning (<i>sisiu</i>)	For childbirth: the baby is shocked out of the womb, like lightning
Manatee	<i>Piina taren</i>	Manatee (<i>piina</i>)	To reduce swelling: swollen areas are ‘flattened’ by manatee spirit
Osprey	<i>Tannowaka taren</i>	Osprey (<i>tannowaka</i>)	To desubjectify fish; to make fish safe to eat (osprey is apex predator of fish)
Tiger	<i>Kaikusi taren</i>	Jaguar (<i>kaikusi</i>)	For hunting: hunter becomes an apex predator, like the jaguar
Wind	<i>A’situn taren</i>	Wind (<i>a’situn</i>)	For removing illness for a child: wind ‘blows away’ pathogenic <i>kîima</i> arrows
Wood ant	<i>Mînene taren</i>	Termites (<i>mînene</i>)	To heal flesh wounds: termite spirit repairs the wound, as they do their nests

8. CONCLUSION

Of Sign and Substance



Intercropped coconut, banana, and papaya trees | Yupukari, 2012

“Plants, animals, everybody – they all be people...”

So Grandpa John asserted one evening, as the sun was sinking behind the coconut palms that encircled his house in Rewa. It was the end of the rainy season, August 2013. By this late stage of my field research, this frequently repeated sentiment had become more than familiar to me. However, despite its familiarity, it would be a long time before I began to come to terms with it, intellectually. In fact, it would be an untruth to claim that I have, even now – almost three years later. For encoded within this succinct, seemingly simple statement are a host of complex, entangled notions that are nested in the most inextricable way within the Makushi conceptual system. In this sense, as a rumination on statements

of this nature, the present study has been an attempt to disentangle the un-disentangleable. In these concluding comments, I summarise the main findings of the thesis and draw out the core ethnographic themes, before making a number of theoretical suggestions. I close with an epilogue, which serves in part as a reflexive meditation on anthropology and in part as a methodological recommendation for a collaborative multispecies ethnography.

In this study, I have illustrated the interpenetration of human-botanical lifeworlds, with reference to a set of culturally-pivotal human-plant engagements. In so doing, I have attempted to convey how the indigenous ecological ethic is predicated upon a practical and philosophical appreciation of the subjective perspectives of different kinds of living entities. For Makushi people, the biotic aspects of plant-life are inalienably interwoven with animic understandings of nonhuman personhood and trans-specific communication. It should be reiterated that multiple ways of knowing about and interacting with plant-life necessarily co-exist in any given socio-cultural context (Rival 2012a). Therefore, ethno-botanical modes of reasoning about plant-life appear complex, uncertain, and sometimes contradictory. Nevertheless, for Makushi people, plants are of utmost importance in every facet of life. In the symbiotic processes of their enactment, the life-paths of humans and plants become entangled and co-determinant. Plants and people constitute and transform each other through time, via shared “lines of becoming” (Ingold and Palsson 2013: 8). By tracing a number of socio-technical processes, I have shown how productive activities are constituted of what I have termed *multispecies techniques*.

In evaluating these “interspecies knots” (Haraway 2008: 35), I have employed an approach to human-environmental relations that utilises aspects of three core paradigms: ecosemiotics (e.g. Kohn 2013), ontological anthropology (Viveiros de Castro 2004b), and phenomenology (Ingold 2000). This synthesised perspective has enabled me to analyse a broad range of ethnoecological data pertaining to human-botanical engagements, allowing for a more holistic analysis that combines the strengths of each paradigm:

- 1) The ecosemiotic appreciation of cross-species communication and relationality;
- 2) Ontological approaches to corporeality and person-making in native Amazonia;
- 3) The phenomenological approach to embodied experience of being-in-the-world.

I have argued that, for the Makushi, plants are subjective agents with powers of perception, conception, and communication. As Makushi people state, plants have souls, or *ekaton*, the same kind of vital essence that “brings life” to humans and animals. Other-than-human entities are frequently described as being “persons” by Makushi people, and animals and plants are spoken of – and spoken to – in subjective terms. Thus, in principle, all plants – like humans and animals – are “people”, by virtue of the fact that they possess souls. To reiterate Uncle Joel’s statement, “plants? They is people, man!” Indeed, certain plants can be extremely powerful persons – such as those *piai*-plants (plant shamans) that human shamans call upon during rituals. Composed of radiant light-energy (*a’ka*), *ekaton* is the subjective substrate that unites all agentive beings in the cosmo-ecological field of sociality. Beings are differentiated by their bodies (*esak*), conceived not as brute physical units in the Cartesian sense, but as fabricated ways of being and capacities for action.

However, ‘plant-people’ are not described as “humans”, from their own point of view. Despite my enquiries into the matter, it was never suggested to me that plant-people live in human-like communities and engage in archetypally “cultural” activities such as cooking or farming (cf. Viveiros de Castro 1998). The orthodox model of perspectivism therefore does not seem to apply to plants, nor does it to the majority of animal species that populate the labyrinthine world of the neotropical forest (birds, lizards, frogs, ants, etc.). Other-than-human personhood, in the Makushi context, appears to be more diffuse, fragmented, and uncertain. Humans, animals, and plants are all “persons”, indeed, but they are not necessarily the same kind of persons. In fact, it is explicitly stated that plants are distinguished from humans and animals because they have different “ways of living”,

known as *yaseru* (pl. *yaseruton*) (cf. Butt Colson 1989). These species-specific “habits” and “customs” are precisely what differentiate different kinds of living selves.

Nevertheless, humans and plants are able to engage in intersubjective relations of various kinds, exhibiting multiplex relational dimensions that defy generalisation. Certain human-floral relations take on a ‘consanguineal’ character. Gardeners and their crops tend to relate to one another as parent to child, in the “kincentric” mode based on caring, love, and nurture (cf. Salmón 2000). Women often speak of their cassava crops as being their “children”, for whom they care in a motherly sense. Recall Aunty Elsa’s statement that her crops call her “mummy”, that they are like “sons” to her. However, other human-plant relations take on an ‘affinal’ or even antagonistic character, evoking notions of control, mastery, and predation. For instance, the relation of the shaman to his ‘bina’ charm plants is rooted in his ability to master – that is, *control* – these dangerous plant-people in order to utilise their cosmic power. If this relation of control ceases, these floral agents harbour the propensity to “turn wild” and kill humans at will by attacking their spirits. This form of control is likened to “taming” by Makushi people, and must be constantly maintained via socialising acts such as gifting, singing, and incanting.

As I have shown, human-floral and human-faunal interactions are also framed by relations with the master spirits (*tamona*), who govern the behaviour and life-processes of nonhuman beings including game animals and cassava crops. Therefore, in order to make sense of human-nonhuman relations, an evaluation must also be made of the triangular relations between humans and the master spirits, on the one hand, and the spirits and their animal and plant subjects, on the other. Humans and plants are thus not only engaged in bilateral relations; they are enmeshed in multilateral entanglements with a host of others, including divinities. Thus, in order to make sense of “other-than-human personhood”, one must also appraise the pervasive notions of mastery, control, and embodiment.

8. 1. Of Sign

Makushi people tend to think of trans-specific interactions semiotically. An ecosemiotic approach to cross-species relations makes visible an interactive field of sociality rooted in the interspecific communication that obtains between humans, animals, plants, and spirits. Pace Kohn (2013), employing Peirce's triadic theory of signs (1940), I have argued that the ecological domain of cross-species sociality is simultaneously a field of signification, and thus can be analysed as such using the ecosemiotic method. Subsistence agriculture, hunting, fishing, plant cultivation, fermentation, shamanic healing, cursing enemies: these are all composed of multispecies semiotic flows, which can be usefully analysed using the ecosemiotic approach (cf. Sebeok 1994, Deacon 1997, Kohn 2007).

I have highlighted a number of examples of multispecies communication, in the varied forms of charm songs, healing spells, shamanic chants, bird calls, leaf patterns, the whistles of spirits, gifts to the forest masters, ceremonial dances, fermentation processes, and shamanic ritual. As has been conveyed, these forms of trans-specific communication are rife with multi-sensory sign-flows that span the phenomenal repertoire, often referring to multiple senses at one time (cf. Shepard 2004). Ultimately, the dynamics of the entire interconnected multiverse can be read as a complex and ever-shifting web of sign-flows, from the cryptic camouflage of a praying mantis to the heliacal rising and falling of the constellations in the night sky (cf. Butt Colson and Armellada 2001).

Regarding the ways in which humans and plants communicate with one another, I have made a distinction between first- and second-order communication. Both methods of communication, which are non-mutually exclusive, are predicated upon the central notion that plants – like humans and animals – are sensing, feeling, thinking subjects, capable of engaging in cross-species semiosis. In this frame, all human-vegetal communication is of a subject-subject character (cf. Kohn 2002, Hornborg 2006).

First-order communication can take the form of direct dialogue, imagined in the linguistic model, between human and plant-person, and occurs in dreams, visions, spells, and in shamanic ritual. Via these specialised media, plants are said to appear like “little people” or homunculi in order to speak directly to humans. This type of communication is conceived of as symbolic referentiality (Peirce 1940: 105) – the plants are said to “speak words” to their human interlocutors, who speak back to them in kind. In this sense, plants are understood to be intersubjective agents that speak a common language with humans, under certain special conditions. Shamans, as the cross-species translators par excellence, are the experts in first-order human-floral communication.

Second-order communication is of the “non-linguistic embodied” type (Haraway 2008: 27), and operates on a form of what might be termed “cross-species empathy” via shared multi-sensory pathways. This kind of human-vegetal communication is based not on dialogue, but rather on the interpretation of a series of non-linguistic signals, including growth patterns, physical changes and movements, phenomenal sensitivity, and so on. If a plant begins to wither in the garden, for instance, it may be deemed to be “unhappy” and thus the attentive gardener will take suitable action to improve the wellbeing of the plant. This form of indirect non-linguistic communication, which accords with what Kohn terms “trans-species pidgin” (2013: 131), relies primarily not on symbolic reference, but rather on iconic and indexical modes of representation (cf. Peirce 1940: 105).

Thus, as I maintain, there is great value to be extracted from Kohn’s ecosemiotic approach, especially when it is expanded to include not just human-faunal relations, but also those between people and plants – which, as I have argued, are equally “semiotic” in nature. Symbiotic relations, in this sense, are at one and the same time semiotic relations. However, although it can elucidate a great deal about interspecific webs of signification, a number of limitations of the semiotic approach to multispecies relationships have come to light vis-à-vis the Makushi ethnography.

8. 2. Of Substance

In this thesis, I have also drawn attention to another form of trans-specific relationality that has garnered less attention in the ecosemiotic literature: namely, the physical transfer of substances between beings of different kinds. The ethnography described herein hints toward a possible limitation of the ecosemiotic approach: its inability to analytically deal with notions of corporeality and person-making. In Makushi cosmology, species-specific capacities and skills can be acquired via physical contact and bodily incorporation. As I have argued, this form of ‘substance logic’ permeates Makushi ethno-theories of life and person-making. This notion is a reflection of the broader theme of “substance sharing” in Amazonian person-making processes (cf. Rival 2005b: 105). In Amazonia, persons are always “uncertain and transitory” and subject to controlled or uncontrolled changes via the socialising or de-socialising acts of living with human and nonhuman others.

At face value, these associations evoke Frazer’s (1890) theory of contagious and imitative magic. Indeed, in line with Frazer, the capacities of nonhuman beings seem to be “magically” transferred to humans either via a relation of contiguity (physical contact) or of homeopathy (similarity). However, as I have put forth in the foregoing, substance-transfer in the Makushi context is not “magical” in the Frazerian sense, in that it does not act “at a distance” (1922: 12). Rather, the acquisition of qualities from nonhuman beings results from processes of bodily *incorporation* (Santos-Granero 2012). By incorporating (the substance of) another being into one’s own body, one can gradually become like that being. This form of substance logic is a reflection of the broader Amazonian theme of the social construction of persons via processes of consubstantiality (Vilaça 2002).

In the Makushi context, the notion that capacities can be acquired via the bodily incorporation of substances underlies the ‘bina’ charming complex, shamanic training and ritual, as well as aspects of ethno-medicine and disease etiology. Human beings are able

to acquire the species-specific capacities and powers of nonhuman beings via a range of bodily treatments including ingesting, smoking, bathing, tattooing, stinging, touching, and rubbing into the skin. Via these substance-based transfers, the human acquires the *yeseru* (way of living, capacity for action) of the nonhuman being that is incorporated into their body. For example, by rubbing the dried tongue of the tropical mocking bird on to one's own tongue each morning, the beneficiary can become an accomplished polyglot, just like the bird. The human thus comes to "embody" the bird by physically incorporating it.

This form of substance-based cross-species interaction can be read as semiotic in the indexical sense, in that there is an actual existential or physical association between the sign (substance) and the object it signifies (the acquired capacity) (Peirce 1940: 105). However, the semiotic approach arguably does not get us far enough in this respect. Thus, I have proposed that we need to look more systematically into ethno-metaphysical notions of incorporation and embodiment in indigenous conceptual systems, an area of enquiry strengthened by the analytical hardware of ontological anthropology (e.g. Fausto 2007).

For the Makushi, as I have hypothesised, persons are constituted of the myriad substances acquired from human and nonhuman others. Over time, bodies are fabricated via the incorporation of substances from Others – be they human kin, human enemies, or nonhuman selves of various kinds. In this sense, human bodies are dividual amalgams of socio-ecological relations. This proposition is based on the related notions that bodies are inherently permeable and unstable, and that potent substances are able to flow within and between bodies of different kind (cf. Rival 2005b).

In sum, indigenous theories of species interdependence – which might be termed "ethno-symbiotic" – are predicated upon notions of intersubjectivity, bodily instability, and the flow of substances between bodies. To take this point further, we might speculate that the entire multiverse is conceived of as a fluid field of substance flows within and between bodies of different kinds. In this sense, humans and plants are 'symbiotically' –

as well as semiotically – intertwined in species-knots, with substances acting as the trans-specific substrate. Indeed, a person might be conceived of as a symbiotic community of human and nonhuman subjectivities – as exemplified by the shaman, who embodies those nonhuman “piai-beings” that he ingests, and thus embodies, during the extended trials of his training, and which subsequently act as his spirit helpers (bitter-barked trees, tobacco, hummingbirds, and so on). The shaman, in short, is a community of piai-beings.

If the study of signs is called semiotics, then how might we refer to the study of substances and subjectivities? For the sake of concept creation, we might christen this area of enquiry ‘ousiotics’, from *ousia* in the Aristotelian sense as pertaining to substance and essence. For Aristotle, being in the primary sense was “substance”. Thus, the *ousia* of a thing or being refers to the substance that constitutes it (1933, VII: 311). “Substance”, Aristotle wrote, “is thought to be present most obviously in bodies” (Ibid: 313). The term seems to neatly encapsulate the flow of substances between and within bodies that I have proposed is a central aspect of cross-species relationality in Makushi ethno-metaphysics. The term, too, aptly mirrors the analytical focus of ecosemiotics, as the analysis of signs within and across species boundaries. To combine the two, then, we might even speak of ‘semio-ousiotics’ – the combined study of the flows of signs and the flows of substances both within and across species boundaries. Somewhat of a tongue twister, indeed, but a pleasingly assonant one. This, certainly, is rhetorical wordplay – but the term also serves as a useful conceptual weathervane, as it were, pointing toward our area of focus: namely, the coalescence of sign-flows and substance-flows in Makushi ethno-theories of life.

In sum, in any one multispecies interaction, we see an entanglement of signs and substances, of semiosis and symbiosis, of referentiality and corporeality. In light of this claim, I propose a holistic and composite model for an ecologically-oriented multispecies anthropology which can at one and the same time account for:

- 1) The flows of signs that transpire between living beings, and;
- 2) The flows of substances within and between bodies of different kinds.

Of course, these two analytical domains are not separate in reality, but rather demonstrate considerable overlap. They constitute complementary analytical perspectives, then, which come together under the rubric of what I term a “symbiotic anthropology”. The symbiotic entanglements that underlie Makushi ethnoecology are at once semiotic and somatic.

8. 3. On Ontological Hybridity

I finish with a few tentative proposals about Makushi ontology. I have speculated that Makushi cosmology is *poly-ontological*: although at its core animistic, the data suggest that it also incorporates analogical and naturalistic features. This notion accords with my broader argument that to characterise native Amazonian cosmologies as purely animistic is somewhat of an essentialisation: all ontologies, in one way or another, are hybrids.

That the core of Makushi ontology is animistic is evidenced by the fact that all beings, ultimately, have a true soul (*ekaton*). As I have discussed, all living beings are in principle subjects, by virtue of their possession of the *ekaton*. In short, the multispecies communicative field of sociality is underscored by a soul-substrate which unites all living beings in a single field of relationships. However, different species are differentiated by their bodies (*esak*), which are conceived of not merely as physiological units, but also as species-specific habits, capacities, and “ways of being” – the *yeseaton*. In this regard, interiority – true soul, spirit, *ekaton* – is pan-specific, and exteriority – body, physicality, habit – is multiple, suggesting a system of “standard animism” (Descola 1992: 114).

However, certain ethnographic findings imply that this is a simplification. I have speculated that Makushi ontology, although primarily animistic, also incorporates partial

analogical elements (cf. Halbmayer 2012b: 107). This is suggested by the centrality of the flows of substances within and between bodies, which I have argued is a central feature of cross-species relations in Makushi cosmology. The substance-based transfer of capacities implies a permeable conception of the body in which not just physical but also subjectival capacities can be acquired via cross-species transfers. This idea suggests that both bodies and subjectivities are fabricated and composed of multiple influences. They are, therefore, dividual and fluid. Thus, in certain respects, both interiority and exteriority are multiple, i.e. analogistic, in Descola's typology (cf. 2013). Further, the mereological composition of the human person involves the co-existence of numerous meta-souls, or *ewan*, situated in concentric spheres of encompassment, which inhabit various bodily organs, substances, and vital fluids. In light of these complex notions, the interiority-exteriority axis begins to appear less dualistic, and the boundary between the two appears blurred and anamorphic.

Further still, Makushi ways of knowing and relating to the living environment can often appear naturalistic. As Laura Rival (2012a) has argued, there is an often-overlooked appreciation for the organic or biological aspects of "life" among indigenous Amazonian peoples. For sure, Makushi farmers demonstrate an acute awareness and understanding of biotic processes such as growth, reproduction, regeneration, cultivation, domestication, and so on (cf. Rival 2001). There is an acknowledgement among Makushi people that all life-forms share certain biological features; indeed, this idea is the bedrock of indigenous ecological knowledge and practice (cf. Hunn 2006). The detailed, systematic knowledge that farmers, hunters, and fishers have about shared organic life-processes and symbiotic interactions lends credence to the ethnobiological position that there are, indeed, common modes of perceiving and categorising the living world (Berlin 1992: 8; Atran 1990).

Makushi ontology, I posit, cannot be adequately explained via a homogenic mode of praxis. Rather, it is characterised by ontological hybridity, incorporating analogical and naturalistic features within an overarching animistic cosmology. At different times and in

different contexts, Makushi people utilise alternative ways of knowing, interacting with, and being within their diverse and dynamic environment.

All of this suggest that ‘ontologies’, if such things can truly be identified at all, are not hermetically sealed and logically consistent totalities that can be easily explained via a limited set of structural possibilities, à la Descola (2013). Rather, as I speculatively put forth, any or all cosmological systems are characterised by ontological hybridity to a greater or lesser degree, and are therefore *poly-ontological* (cf. Ellen 2016: 26). In this frame, animic systems incorporate analogical, totemic, and naturalistic features, just as so-called “modernist” ontologies are riddled with animic traits (Latour 1993). Ontologies thus do not have an ‘all or nothing’ character; rather, they form variegated, ever-shifting, and context-dependent existential fields of action. They are “open wholes”, to borrow a term from Kohn (2013: 27). This ontological fluidity is requiring of further research and theorisation, especially in light of the increased political-ontological tensions in lowland South America and elsewhere (cf. Blaser 2009, Viveiros de Castro *et al.* 2014).

These abstract ontological ruminations do indeed have political ramifications. In today’s dynamic context, indigenous life-ways are enmeshed in a wider field of political, economic, ecological, and cultural flows. Makushi experts work as ecotourism guides and advisors for scientists, sharing knowledge in dialogue with outsiders from North America, Europe, and elsewhere. In these collaborative interactions, scientific ways of knowing and categorising the living world converge with indigenous modes of praxis in complex ways. The Rupununi region is an increasingly politicised sphere, in which indigenous peoples come into contact with an array of interested actors including conservationists, scientists, politicians, capitalists, and social anthropologists in the goings on of everyday life. In this heterogeneous present, the unavoidable yet sometimes uneasy coexistence of indigenous and Western life-ways can only lead to new political-ontological formations, formations that are all but impossible to predict. These syncretic futures will no doubt be rife with

cosmological disjunctures and frictions as well as new possibilities for action. Theorising these complex interactions is thus of paramount importance.

During this uncertain period of change, it must be hoped that Amerindian peoples are able to retain control over their own fate by representing themselves on the political stage. For this, there is hope. On the 21st of May 2015, Mr Sydney Allicock of Surama village was appointed as the Minister of Indigenous Peoples' Affairs in the new Government of Guyana. He is the first Makushi politician, and the first Amerindian from the hinterlands of the country, to hold a position in the national parliament, a momentous occasion in the history of indigenous politics in the country. I, along with my Makushi friends, sincerely hope that this signifies the dawning of a new era.



Amerindian Heritage Month celebration | Karasabai, September 2013

8. 4. Epilogue: Anthropology's Daffodil

The title of this closing epilogue refers to the daffodil, the Narcissus plant. This is nothing more than a playful reference to social anthropology's humanist bias. One might picture anthropology, like Narcissus, staring into the mirrored pool seeing only its own reflection for eternity, oblivious to the life going on all around it. Anthropology has been plagued by a kind of philosophical narcissism, with the consequence that the dazzling diversity of living forms with which humans share their worlds has, for the most part, been annexed and left to the biological scientists. In this anthropological hall of mirrors, the place of other-than-human life all too often fades into imperceptibility. Like Echo, the dynamic world of living beings has been banished to the margins, leaving nothing more than a reverberating trace in its absence. Perhaps if, as with Lévi-Strauss's wild pansy evoked in the introduction, we treat the daffodil not merely as a symbol or a thought-decoration, but also as a living, even thinking, self in and of itself, we might begin to rectify the tendency toward anthropocentric solipsism. Like the daffodil that sprung up where Narcissus died, new ontological possibilities begin to proliferate at the very locus where the mind-forged manacles of the discipline are shed.

The image is apt, too, for the daffodil not only symbolises humankind's obsession with itself (as in Dali's *Metamorphosis of Narcissus*), but also spring and new beginnings. Of course, in the classical myth, the goddess Nemesis led Narcissus to the pool where, enveloped by himself, he eventually drowned. Herein, however, I take a more optimistic view. In this uncertain era of environmental fragility, perhaps a reformulated ecological anthropology can lead the way in bridging the pervasive philosophical chasm between the natural and the social. In my view, this can only be achieved if informed by the ecological philosophies of indigenous peoples such as the Makushi. Thus, the goal is to strive toward a genuinely collaborative ethnography in which indigenous experts and anthropologists

work together with the common aim of communicating the complexity of shared human-nonhuman life-worlds to a wider global audience. This project should not be conducted purely for scholarly merit, but rather with an eye to biocultural conservation and political empowerment that benefits both sides of the partnership. Today in Guyana, indigenous peoples are writing their own ethnographies – such as the beautiful *Thinking together for those coming behind us* (2012) by the Wapichan people of the South Rupununi savannahs – the ethos of which is perfectly encapsulated by its title. As the Wapichan authors of the report urge, there is a moral as well as an environmental imperative to pay attention to the sustainability of multispecies assemblages, not just for ourselves, but also for the humans and nonhumans that “come behind us in the future”.

If anthropology proceeds to step down from the ivory tower and away from the mirrored pool, it will surely benefit all those involved – and at the same time contribute to the erosion of the imperial mind-set that has explicitly or implicitly plagued the discipline since its very inception. Anthropology is not a specialisation, but a necessary condition of being. This realisation brings to mind a conversation I had with Uncle Isaac – a sage, wordsmith, and close friend – during the embryonic days of my fieldwork.

“I’m an anthropology student”, I told him. “I study culture and the environment.”

“Anthropology?” he replied, “well, that’s what we Makushi do anyhow!”

Glossary

❖ Ethnonyms

- List of indigenous groups and language families cited in the text

Akawaio

Akawai, Northern Kapon, Inkariko, Serekong, Waika

Language family: Kapon (Carib)

5,959 people: 4,000 in Guyana; 1,231 in Brazil; 728 in Venezuela

Guyana: Upper Mazaruni highlands, Kamarang River, Cotigo River

Arawak

Coastal Arawaks, Lokono

Language family: Arawak

~10,000 people in Venezuela and the Guianas

Orinoco delta, Venezuela; coastal areas, Guyana; Demerara, Berbice, Cuyuni Rivers

Arawakan

Maipurean

Amerindian language family

Largest family in the Americas in terms of number of languages spoken

Includes Wapishana

Arekuna

Pemon, Northern Pemon, Kamarakoto

Language family: Pemon (Carib)

7,700 people in Guyana and Venezuela

Paruima, Upper Mazaruni, Guyana; Gran Sabana, Venezuela

Atorai

Atorad, Tauri

Language family: Arawak

Extinct sub-tribe of the Wapishana

South Rupununi savannahs, Guyana

Cariban

Galibi

Amerindian language family

Large group of dialects, predominantly in northern South America

Includes Kapon and Pemon languages

Kapon

Kapóng

Language group (Carib)

Includes Akawaio and Patamona languages

Karinya

Caribs, True Caribs, Kariña, Kalina

Language family: Carib

21,714 people in Venezuela and the Guianas

Coastal areas: northeast Venezuela; northwest Guyana

Makushi

Makuxi, Macusi, Makusi, Payako, Southern Pemon

Language family: Pemon (Carib)

40,014 people: 29,931 in Brazil; 10,000 in Guyana; 83 in Venezuela

Guyana: North Rupununi savannahs; Brazil: Gran Cerrado, northeast Roraima

Patamona

Southern Kapon, Patamuna, Inkariko

Language family: Kapon (Carib)

5,500 people in Guyana

Guyana: Pakaraima highlands; Potaro, Siparuni, and Ireng valleys

Pemon

Pemóng

Language family: Pemon (Carib)

5,000 people in Venezuela and Brazil

Gran Sabana, Venezuela; northern Roraima, Brazil

Pemon

Pemóng

Language group (Carib)

Includes Pemon, Makushi, Arekuna, and Taurepan languages

Taruma

Aroaqui

Language family: Arawak

Extinct sub-tribe of the Wapishana

Inhabited the area to the south of Wapishana territory and to the north of the Waiwai

Guyana: Essequibo headwaters, South Rupununi savannahs

Taurepan

Taurepang, Taulipang, Arekuna, Northern Pemon

Language family: Pemon (Carib)

27,830 people: 27,157 in Venezuela; 673 in Brazil

Gran Sabana, Venezuela; northern Roraima, Brazil

Trio

Tiriyó, Tariyo

Language family: Carib

3,309 people: 1,845 in Suriname; 1,464 in Brazil

Suriname-Brazil border

Waiwai

Wai Wai, Wai-wai

Language family: Carib

3,070 people: 2,900 in Brazil; 170 in Guyana

Southern Guyana, Essequibo headwaters; Roraima and Pará, Brazil

Wapishana

Wapichan, Wapixana, Wapisiana

Language family: Arawak

13,000 people: 6,000 in Guyana; 7,000 in Brazil,

Guyana: South Rupununi savannahs; Brazil: Gran Cerrado, eastern Roraima

Wayana

Wajana, Apalai

Language family: Carib

1,604 people: 800 in French Guiana; 500 in Suriname; 304 in Brazil

Suriname; French Guiana; Amapa and Pará, Brazil

Wajãpi

Wayapi, Oiampi

Language family: Tupi-Guarani

1,906 people: 956 in Brazil; 950 in French Guiana

French Guiana and Amapa, Brazil

Warrau

Warao

Language family: Warrau (language isolate)

~20,000 people in Guyana and Venezuela

Coastal regions: northwest Guyana; Orinoco delta, Venezuela

Yanomami

Yanomam, Yanomamö, Sanumá

Language family: Yanomami (language isolate)

35,338 people: 16,000 in Venezuela; 19,338 in Brazil

Southern Venezuela and northern Brazil

Ye'kuana

Yekuana

Language family: Carib

6,994 people: 6,523 in Venezuela; 471 in Brazil

Venezuela: Rio Auaris valley

Sources:

Instituto Socioambiental: www.indios.org.br/en

Ethnologue: www.ethnologue.com

Also, Butt Colson (2009a), Kopenawa and Albert (2013), and Olson (1991).

❖ Toponyms

- List of important places and those cited in the text

Annai

- Makushi village in the north-central North Rupununi
- 523 people (Makushi, Wapishana)
- Formerly a Carib settlement
- Administrative centre of the North Rupununi
- Place name may refer to three nearby hills, or the Karinya word for pineapple

Apoteri

- Amerindian village at the confluence of the Rupununi and Essequibo rivers
- 270 people (Makushi, Wapishana, Patamona)
- Neighbouring community of Rewa, ~15 miles to the northeast
- Headquarters of the Balata Company during the Balata boom (1950s-70s)
- Place name derives from an Arawak term for a species of tree

Aruwa Falls

- Important farming and fishing area for Yupukarians
- Located on the Rupununi River, ~15 miles upstream from Yupukari
- Named after the aruwa palm, which grows along this stretch of river
- Rapids created by a series of granite boulders in the river; these rocks are said to be fallen Carib warriors, slain during the tribal wars with the Makushi

Awarami Mountain

- Peak: 240m
- Mountain near to Rewa village
- Foothills constitute an important farming area for Rewa villagers

Awarikuru Lake

- Large lake immediately to the south of Yupukari
- Important fishing area and waterway for Yupukarians
- Forms a channel between the Rupununi River and Awarikuru Creek
- Name refers to a type of slippery clay found on the lake bed; *erekuru* meaning 'slippery'

Berbice

- Northeast region of Guyana, along the Berbice River
- Former Dutch colony, 1627-1815
- Traditional homeland of the Arawak tribe

Boa Vista

- Population: 266,901
- Brazilian city, capital of Roraima state
- Key destination for Makushi labour migrants

Bonfim

- Population: 12,626
- Brazilian border town and municipality, Roraima state
- Located on the Brazilian side of the Takutu River

Crashwater

- Makushi village, located on the Rupununi River
- Neighbouring community of Rewa
- Located ~20 miles to the west of Rewa, and ~10 miles east of Kwatamang

Dadanawa

- Cattle ranch and ecolodge in the South Rupununi
- At one time, the largest cattle ranch in the world
- Founded by de Rooij in the 1860s; purchased by H.P.C. Melville in the 1890s
- Place name derives from the Wapishana name Dadinauwau, 'macaw spirit creek hill'

Demerara

- North-central area of Guyana, along the Demerara River
- Former Dutch colony, 1745-1815
- Name means 'river of the letterwood trees' in Arawak

El Dorado

- Seasonal wetland; convergence point of the Amazon and Essequibo watershed
- Located 5 miles to the west of Yupukari, beside Quatata village
- Also known as Lake Parime and Lake Manoa, fabled site of El Dorado

Fly Hill

- Small satellite village of Yupukari
- Located in the savannah ~5 miles to the south of Yupukari
- Makushi name is *Ereuwe kîrî*, meaning ‘black fly hill’

Georgetown

- Population: 235,017
- Capital city of Guyana
- Located at the mouth of the Demerara River
- Key destination for Makushi labour migrants

Gold Bush

- Creole term for the Upper Mazaruni (Region 7) and Potaro-Siparuni (Region 8)
- The most important terrestrial and alluvial gold-mining area in Guyana
- Key destination for male Makushi labour migrants

Gran Sabana

- ‘Great savannah’
- Tepui-strewn savannah highlands in Venezuela
- Located in Bolivar state, to the west of the Guiana Highlands
- Homeland of the Pemon and Arekuna peoples

Iwokrama Centre

- Ecological research centre and ecotourism lodge
- Autonomous non-profit conservation organisation, founded in 1996

Iwokrama Forest

- Large rainforest in central Guyana; 1,430 square miles
- Location of Fairview village (Makushi community; 232 people)

Kaicumbay

- Satellite village of Yupukari
- Population ~250 (mostly Makushi)
- Located ~10 miles to the southwest of Yupukari
- Name means ‘place where cassava bread is eaten’, *ikei* being cassava bread in Makushi

Kanuku Mountains

- Mountain range in southern Guyana
- Elevation of up to 910m
- Runs from east to west, dividing the North and South Rupununi savannahs
- Biodiversity hotspot, the name means 'forest' in Wapishana
- *kanukuru'ta* in Makushi

Karanambu

- Ecolodge and former cattle ranch
- Founded by Tiny McTurk in 1927; currently run by Diane McTurk;
- Located ~10 miles to the north of Yupukari
- Place name relates to a myth about Karinya warriors being turned into rock

Karasabai

- Large Makushi village (multi-ethnic)
- Administrative centre for the South Pakaraima region
- Location of a small airstrip, a police station, and a medical centre

Katoka

- Neighbouring village of Yupukari
- 671 people (Makushi, Wapishana)
- Located ~8 miles to the south of Yupukari
- Place name means 'cotton' in Makushi; named after the mythical cotton tiger (*katoka*)

Kwatamang

- Makushi village close to Annai
- 415 people (mostly Makushi)
- Important river landing on the north bank of the Rupununi River
- Place name refers to the spider monkey, *kuwata* in Makushi

Lethem

- Small border town, Guyanese side of Takutu River
- Population: 1,158, but seasonally variable with large migrant contingent
- Named after Sir Gordon Lethem, Governor of British Guiana, 1941-1947

Maipaima

- Ecolodge of Nappi village
- Founded in partnership with the non-profit Foster Parrots Ltd.
- Located in the foothills of the Kanuku Mountains, a biodiversity hotspot
- Named after a species of canopy giant, used in shamanic training

Makarapan Mountain

- The highest lone peak in the North Rupununi, 950m
- Located 2 miles to the north of Rewa village
- Foothills constitute an important farming area for Rewa villagers

Makarapan Pond

- Large oxbow lake directly to the north of Rewa village
- An important fishing site for Rewa villagers

Marudi Mountains

- Mountain range to the south of the South Rupununi savannahs
- Elevation of up to 590m
- Important gold mining area
- Named after the marudi (Spix's guan), a species of forest game bird

Mapari

- Farming area and eco-tourism site for Yupukarians
- Located on Mapari Creek in the foothills of the Kanuku Mountains
- Site of Mapari Falls, a waterfall and archaeological site

Massara

- Makushi savannah village
- 435 people (mostly Makushi)
- Founders of Rewa village migrated from Massara

Mazaruni River

- Large river in northwest Guyana
- Guyana's primary source of alluvial gold
- Source in the Roraima plateau; confluence with the Essequibo River at Bartica

Mîri'ku Pai

- An important farming area for Yupukarians
- Located 2 miles to the south of the village, along Awarikuru Creek
- Place name means 'gravel pool' in Makushi; *mîri* ' being a type of red gravel, named after a species of large red crab of the same name

Mount Roraima

- Peak: 2,810m
- The highest mountain in Guyana
- Tepui plateau located in the upper Pakaraima Mountains
- The convergence point of Guyana, Brazil, and Venezuela

Nappi

- Makushi savannah village
- Proprietors of community-run Maipaima Ecolodge
- Located in the southwest North Rupununi, ~20 miles east of Lethem

North Rupununi

- Large area of savannah grassland, forest, and wetland in southwest Guyana
- Situated between the Pakaraima and Kanuku mountain ranges
- Homeland of the Makushi people (~9,000 people)

Quatata

- Satellite village of Yupukari
- 240 people (mostly Makushi)
- Located in the savannah 4 miles to the west of Yupukari
- Name means 'place of the spider monkeys', *kuwata* being Makushi for spider monkey

Pakaraima Mountains

- Highest mountain range in Guyana
- Elevation of up to 2,810m
- The highlands run from southeast to northwest along the Guyana-Brazil border
- Homeland of the Patamona and Akawaio peoples

Pirara

- Site of the first Anglican mission in the Rupununi, established in 1838
- Latterly, the site of a former cattle ranch in the North Rupununi
- The ranch was burned to the ground during the Rupununi Uprising of 1969

Pirara Landing

- Former name for Yupukari Landing
- Inlet on the Rupununi River, 1 mile east of Yupukari village
- River landing used by the British to access Pirara Mission during the 1830s-40s, and by early European explorers as a portage between the Essequibo and Amazon basins

Rewa

- Small Makushi village
- 250 people (Makushi, Wapishana, Patamona)
- Located at the confluence of the Rewa and Rupununi rivers
- The name relates to either (1) a species of whitey tree (*Inga*), (2) the candiru ‘vampire’ fish, or (3) a giant mythical fish-monster that drowned fishermen

Rewa River

- Blackwater river in southern Guyana
- Important waterway and fishing site for Rewa villagers
- Tributary of the Rupununi River; headwaters at Rewa Head in the remote south; runs north to Rewa in the northwest North Rupununi

Roraima

- Brazilian state bordering southwest and southern Guyana
- Population: ~450,000; capital: Boa Vista
- Most northerly and least populous state in Brazil
- Homeland of the Brazilian Makuxi population (29,931 people)

Rupununi

- Collective name for the North and South Rupununi lowland savannahs
- Administratively, Region 9 of Guyana; encompasses around 5,000 square miles
- Homeland of the Makushi and Wapishana peoples (~15,000 people)
- *pununi* in Makushi; named after (1) a species of tree (*pununi ye*), or (2) an Arawak term

Rupununi River

- River in southwest Guyana
- Most important waterway and fishing site for the Makushi people
- Tributary of the Essequibo River; bifurcates the South and North Rupununi savannahs

Salipenta

- An important farming area for Yupukarians
- Named after the salipenta (gold tegu lizard), a large species of lizard
- Located ~25 miles upstream on the Rupununi River, in the Kanuku foothills

Sea Wall

- Important farming and fishing area for Rewa villagers
- Located ~5 miles upstream on the Rewa River
- Large rock formation on the river bank; resembles the Sea Wall in Georgetown

Simoni

- Small hamlet ~2 miles to the east of Karanambu
- Location of a creek and a seasonally flooded network of oxbow lakes
- Important fishing site for fisher-people from Yupukari and Massara

South Rupununi

- Large area of savannah grassland and wetland in southwest Guyana
- Situated to the south of the Kanuku Mountains
- Homeland of the Wapishana people (~6,000 people)

St. Ignatius

- Village located next to Lethem on the Brazilian border
- Site of the main Amerindian secondary school in the North Rupununi
- Former site of the first Catholic mission in the Rupununi, St. Ignatius Mission

Steamer Pond

- Large lake located 2 miles to the east of Yupukari
- Important fishing site for Yupukarians
- In myth, the location of a dangerous subaquatic steamer boat

Surama

- Makushi village
- 287 people (Makushi, Amerindian mixed)
- Situated in the north-central North Rupununi
- Location of Surama Ecolodge, a primary ecotourism destination
- Place name relates to a myth about a burning barbecue (*suura*)

Tupa

- An important farming area for Yupukarians
- Located ~20 miles upstream on the Rupununi River, in the Kanuku foothills
- Named after the crimson-crested woodpecker, *tu'para*

Upper Mazaruni

- Headwaters of the Mazaruni River
- Administratively, Region 7 of Guyana
- Homeland of the Akawaio and Arekuna peoples
- Gold-mining area and location of controversial proposed hydroelectric dam project

Wayaka Piapî

- 'The petrified tree stump'
- Large stump-like mountain in the Roraima mountain range
- Located at the meeting point of Brazil, Venezuela, and Guyana
- Important mythological site for the Kapon and Pemon peoples; the origin of life

Yupukari

- Makushi village
- 548 people (Makushi, Wapishana)
- Satellite villages: Quatata, Fly Hill, and Kaicumbay
- Location of Caiman House research station and ecolodge
- Place name means either (1) 'salipenta hill', or (2) 'place of the ferocious tiger's roar'

Appendices

Appendix 1 | Crops

Some crops cultivated in farms and gardens, including vegetables, fruits, craft materials, and medicinal plants, as recorded in Yupukari, Rewa, and Kaicumbay, 2012-13.

Note: some identifications are tentative and subject to further checking.

Common	Makushi	Linnaean	Varieties	Further information
Aloe	<i>Aloe ye'</i>	<i>Aloe vera</i>	—	Succulent plant; remedy for skin sores and rashes
Annatto	<i>Karaya'pi ye'</i> <i>Sipi</i>	<i>Bixa orellana</i>	—	Coloured seeds used as red dye; body paint; protects against harmful spirits
Arrow grass	<i>Piriu ye'</i>	<i>Gynerium sagittatum</i>	—	A tall grass; stems used to make arrow shafts
Baboon cotton	<i>Arouta kato'ka</i>	<i>Gossypium</i> sp.	—	Brown cotton; used for weaving hammocks
Balanji, aubergine	<i>Balanji ye'</i>	<i>Solanum melongena</i>	White purple yellow	Vegetable crop; skin of fruit is used to make a strong alcoholic drink
Banana	<i>Paruru</i>	<i>Musa</i> sp.	Apple baboon dwarf <i>kaian</i> kokorite <i>manai'kuma</i> <i>santu</i> <i>sian'ta</i> sko sko Wapishana	Important food crop; cultivated in forest farms
Bina plants	<i>Muran</i>	—	See Appendix 3	Category of charm plants, for hunting, fishing, etc.
Bitter cassava	<i>Kise</i>	<i>Manihot esculenta</i>	> 100	Staple crop; roots used to make cassava bread, farine, <i>parakari</i> , <i>kassiri</i>

Crops

Bora beans, cow pea	<i>Ma'sari</i>	<i>Vigna unguiculata</i>	—	Legume crop; cultivated for its edible beans
Breadnut, bread fruit	—	<i>Artocarpus altilis</i>	—	Fruit tree; cultivated for its fleshy fruit
Calabash 1	<i>Araapî ye'</i>	<i>Crescentia cujete</i>	—	Medium-sized calabash; round fruit used as container
Calabash 2	<i>Poosi ye'</i>	<i>Crescentia</i> sp.	—	Medium-sized calabash; elongated fruit used as bowl or container
Calabash 3	<i>Ereku ye'</i>	<i>Crescentia</i> sp.	—	Large-sized calabash; round fruit used as container
Cashew tree	<i>Yoroi ye'</i>	<i>Anacardium</i> sp.	Red fruit yellow fruit wild cashew	Fruit tree; fruit used as a dye and to make alcoholic rum (<i>mocororo</i>)
Cassava Mama	<i>Kîsera yun</i>	<i>Manihot glaziovii</i>	—	Shade tree; insecticide for akushi ants; remedy for mosquito worm
Cherry, acerola cherry	—	<i>Malpighia emarginata</i>	—	Fruit tree; berries used to make juice drink
Coconut palm	<i>Koko ye'</i>	<i>Cocos nucifera</i>	Beach dwarf tall yellow	Coconuts (drupes) used as food and drink; also used to make oil, for hair, skin, cooking
Corn	<i>A'nai</i>	<i>Zea mays</i>	<i>A'nai</i> <i>wayara</i>	Food crop; also a hunting bina charm for dogs
Cotton 1	<i>Kato'ka</i>	<i>Gossypium</i> sp.	—	White cotton, larger seeds; spun into thread; used for making hammocks, etc.
Cotton 2	<i>Uri'ka</i>	<i>Gossypium</i> sp.	—	White cotton, smaller seeds; spun into thread; used for making hammocks, etc.
Cunani, kunami	<i>Aya ye'</i>	<i>Clibadium surinamense</i>	—	Mild fish poison; mixed with grated bitter cassava to create paste balls
Dunks tree	—	<i>Ziziphus mauritiana</i>	—	Fruit tree; small red and yellow plum-like fruits

Crops

Eddoe dasheen, taro	<i>Na'</i>	<i>Colocasia esculenta</i>	—	Corms eaten as starchy carbohydrate; leaves eaten as callaloo
Five finger, star fruit	—	<i>Averrhoa carambola</i>	—	Fruit tree; fruit used to make a sweet juice
French cashew	—	<i>Syzygium malaccense</i>	—	Fruit tree; aka Malay apple
Garlic	<i>Garlic ye'</i>	<i>Allium sativum</i>	—	Bulb used in cooking; also to protect against bad forces, harmful spirits (<i>oma</i>)
Genipap	<i>Ruku' ye', luna ye'</i>	<i>Genipa</i> sp.	Land (<i>ruku'</i>) river (<i>luna</i>)	Edible fruits; used as dye for body painting
Ginger	<i>Ginger ye'</i>	<i>Zingiber officinale</i>	—	Rhizome used as remedy for fresh cold
Ginip	<i>Maku ye'</i>	<i>Melicoccus bijugatus</i>	—	Fruit tree; small green plum-like fruits
Goobi, gourd	<i>Ma' ye'</i>	<i>Lagenaria siceraria</i>	—	Vine gourd; used for making drink vessels and rattles
Grapefruit	—	<i>Citrus x paradisi</i>	—	Cultivated citrus fruit tree
Guava	<i>Kanun ye'</i>	<i>Psidium</i> sp.	White red fruit river guava	Fruit tree; edible fruits used to make jam; bark used as remedy for diarrhoea
Haiari 1	<i>Aya, waira puu</i>	<i>Tephrosia sinapou</i>	Tapir foot	Strong fish poison; used for poisoning creeks
Haiari 2	<i>Kunapuru</i>	<i>Euphorbia cotinifolia</i>	—	Strongest fish poison; extremely toxic
Jamun	<i>Jamun ye'</i>	<i>Syzygium cumini</i>	—	Fruit tree; purple plum-like fruit; used to make wine
Karauya'	<i>Karauya'</i>	Bromeliaceae	—	Craft material; leaves used to make bow string
Leaf of life	<i>E'ti ye'</i>	<i>Bryophyllum pinnatum</i>	Green leaf purple leaf	Remedy for skin sores, tooth ache, head cold
Lemon	<i>Aparísina</i>	<i>Citrus x lemon</i>	—	Fruit tree; remedy for high blood pressure
Lemongrass	—	<i>Cymbopogon</i> sp.	—	Remedy for fever
Lime	<i>Remona</i>	<i>Citrus</i> sp.	—	Fruit tree; used to make juice, with sugarcane

Crops

Mango	<i>Mankuro ye'</i>	<i>Mangifera</i> sp.	<i>Amko ye'</i> <i>kurasi ye'</i> <i>mangita ye'</i> <i>suribara ye'</i>	Fruit tree; widely eaten; fruit used to make wine
Maracuja, passion fruit	—	<i>Passiflora edulis</i>	—	Fruit vine; remedy for insomnia and stress
Orange	—	<i>Citrus</i> sp.	—	Fruit tree; fruit used to make sweet juice
Papaya	<i>Ma'pîya</i>	<i>Carica papaya</i>	—	Fruit tree; pioneer species in swidden farms
Pargwa	<i>Par'kwa</i>	<i>Musa</i> sp.	—	Similar to plantain; used to make porridge
Pear, avocado	<i>Apa' ye'</i>	<i>Persea americana</i>	—	Fruit tree; remedy for urinary problems
Pepper, hot pepper	<i>Pimi</i>	<i>Capsicum</i> sp.	Bird green <i>kari'karî</i> <i>muran'ta</i> <i>muro'pî</i> <i>pimiro'</i> <i>rasîta</i> <i>sikîra</i> <i>turo'tarimî</i>	Key ingredient in pepper pot; protective substance; rubbed in eyes of patients to ward off harmful spirits
Peyong	<i>Paima ye'</i> <i>Pia'san ye'</i>	<i>Jatropha gossypifolia</i>	Purple green	Multi-purpose medicinal plant; shamanic plant
Pigeon peas	—	<i>Cajanus cajan</i>	—	Legume crop, grown for its edible peas
Pineapple	<i>Kaiwura'</i>	<i>Ananas comosus</i>	<i>Apatu'</i> <i>pa'tu</i>	Grown for its multiple fruit; used to make 'pine wine'
Plantain	<i>Kurani,</i> <i>puran'tin</i>	<i>Musa</i> sp.	Horse <i>kurani</i> <i>naaza</i>	Cooking banana; ingredient in pepper pot and stews
Pumpkin	<i>Kaima</i>	<i>Cucurbita</i> sp.	Several	A type of edible squash; its name means 'yellow'; leaves eaten as callaloo

Crops

Purple potato	<i>Taari,</i> <i>kassiri</i>	<i>Ipomoea</i> sp.	Several	Vine; used to make the drinks <i>kassiri</i> and ‘fly’
Sorrel	<i>Kupi</i>	<i>Rumex</i> sp.	—	Herb with bitter red fruit; remedy for hypertension
Soursop	<i>Îrasîko,</i> <i>kai’pura</i>	<i>Annona muricata</i>	—	Fruit tree; leaves used as remedy for diabetes
Sugar apple	<i>Atta</i>	<i>Annona squamosa</i>	—	Fruit tree; fruit used to make juice drink
Sugarcane	<i>Kaiwaraku</i>	<i>Saccharum</i> sp.	—	Grow in farms; used to sweeten lime juice
Sweet cassava	<i>Kaisira,</i> <i>ka’na</i>	<i>Manihot esculenta</i>	~10 varieties	Different ethno-species to bitter cassava; non-toxic
Sweet potato	<i>Sa’</i>	<i>Ipomoea batatas</i>	agouti tail <i>sa’</i>	Vine with edible tubers; intercropped with cassava
Tobacco, black tobacco	<i>Kawai ye’</i>	<i>Nicotiana</i> sp.	2	Narcotic drug, consumed by men; used in shamanic ritual; ‘spirit food’
Watermelon	<i>Patiya</i>	<i>Citrullus lanatus</i>	—	Vine-like strangler; cultivated for its pepo; intercropped with cassava
Whitey tree	<i>Kuwari ye’,</i> <i>mai’pa ye’</i>	<i>Inga</i> sp.	Baboon tail land monkey eye tapir ribs water	Fruit tree; grown for its white flesh-filled seed pods
Yam	<i>Karisa</i>	<i>Dioscorea</i> sp.	<i>Aramu</i> headly <i>karisa</i> <i>sipuya</i> tapir foot	Perennial vine; cultivated for its edible tubers; intercropped with cassava

1. 1. Some crops (identifications overleaf)



1. 2. More crops (identifications overleaf)



Identifications of photographs, top left to bottom right:

1. 1. Some crops:

1. Pumpkin (*kaima*) – *Cucurbita* sp.
2. Cotton (*katoka*) – *Gossypium* sp.
3. Passion fruit (maracuja) – *Passiflora edulis*
4. Aubergine (balanji) – *Solanum melongena*
5. Banana (*paruru*) – *Musa* sp.
6. Yam (*karisa*) – *Dioscorea* sp.
7. Watermelon (*patiya*) – *Citrullus lanatus*
8. Sweet cassava (*ka'na*) – *Manihot esculenta*

1. 2. More crops:

1. Pineapple (*kaiwura'*) – *Ananas comosus*
2. Starfruit (five finger) – *Averrhoa carambola*
3. Yam (*karisa*) – *Dioscorea* sp.
4. Corn (*a'nai*) – *Zea maize*
5. Pumpkin (*kaima*) – *Cucurbita* sp.
6. Bora beans – *Vigna unguiculata*
7. Pepper (*pimi*) – *Capsicum* sp.
8. Cotton (*katoka*) – *Gossypium* sp.

Appendix 2 | Cassava Varieties

A list of cassava folk-varieties, as recorded in Yupukari, Rewa, and Kaicumbay, 2012-13.

Note: some identifications are tentative and subject to further checking.

Common	Makushi	Location	Features
Bitter cassava	<i>Kîsera</i>	Yupukari	Hundreds of varieties
	<i>Kîse</i>	Rewa	> 100 in Yupukari
		Kaicumbay	> 75 in Rewa
Sweet cassava	<i>Makasira</i>	Yupukari	> 5 varieties, including
	<i>Ka'na</i>	Rewa	Makushi stick
		Kaicumbay	Brazil stick
			Yellow stick
		White stick	
		Purple stick	
Amazon stick	<i>Karai pîye'</i>	Yupukari	Plant: tall, light green stems
		Rewa	Leaves: green, seven fingers
		Kaicumbay	Roots: light yellow, thick skin
			Relief stick from Brazil
		Maturation 5-7 months	
Anikwa stick	<i>Kanraiwa ye'</i>	Yupukari	Plant: dark red stems
			Leaves: dark green, narrow, 7 fingers
			Roots: yellow, sticky
			Named after chacalaca bird (anikwa)
Armadillo stick 1	<i>Kaikan pîye'</i>	Yupukari	Roots: large
			Roots resemble fat armadillos
Armadillo stick 2	<i>Muru ye'</i>	Rewa	Roots: large, white
Arowana stick	<i>Arowana pîye'</i>	Yupukari	Roots: white
			Roots resemble shape of arowana fish
Bali stick	<i>Bali ye'</i>	Rewa	From a man called Bali in Apoteri
Banana stick	<i>Maripa pîye'</i>	Yupukari	Leaves: resemble banana leaves
Black man stick	<i>Mekoro ye'</i>	Yupukari	Plant: black / dark purple stems
		Kaicumbay	Leaves: 5 fingers
			Came from South Rupununi

Cassava Varieties

Buttonfish stick	<i>Kuruwari ye'</i>	Yupukari	Plant: pale red stems and petioles Leaves: broad, 5-6 fingers Roots: white Leaf shape resembles buttonfish tail
Caiman stick	<i>Kuratu ma piye'</i>	Yupukari Rewa	Plant: short; red stems and petioles Leaves: broad Roots: white, dry Cracked skin resembles caiman scales
Cement stick	<i>Cementi ye'</i>	Yupukari	Plant: medium height, light green stems Leaves: glossy, seven fingers Roots: yellow Variety came from South Rupununi
Chicken egg stick	<i>Kariwana i'moi ye'</i>	Yupukari	Roots: very yellow
Company stick	<i>Kompani ye'</i>	Yupukari Kaicumbay Rewa	Plant: tall Roots: very yellow Relief stick from the Balata Company
Crash Water stick	<i>Crash Water ye'</i>	Rewa	Roots: very yellow
Dickey stick	<i>Dickey piye'</i>	Kaicumbay	Plant: very tall Roots: yellow Named after a man from Yupukari
Dry stick	<i>Aimun ye'</i>	Yupukari	Roots: white, dry
Dwarf stick	<i>Nuwa'ti piye'</i>	Yupukari	Plant: very short Roots: white
Euburn stick	<i>Euburn ye'</i>	Yupukari Kaicumbay Rewa	Plant: short; red stems Leaves: broad, seven fingers Roots: white, purple skin Named after a man from Yupukari
Fine fish stick	<i>Karawa moro' ye'</i>	Yupukari Rewa	Roots: white Variety came from Rewa
Fowl tongue stick	<i>Kariwana nu ye'</i>	Yupukari	Plants: red stems and petioles Leaves: dark green, narrow, 7 fingers Roots: white
Frog stick	<i>Pire'tiku piye'</i>	Yupukari Kaicumbay Rewa	Roots: yellow 12 months maturation

Cassava Varieties

Giant anteater stick	<i>Tamanua ye'</i>	Yupukari	Variety from Brazil
Giant river turtle stick	<i>Warara piye'</i>	Yupukari	Plant: tall Roots: very yellow, large Roots the colour of turtle egg
Glass bead stick	<i>Koropi piye'</i>	Yupukari	Sticks were traded for with glass beads
Government stick	<i>Kopana piye'</i>	Yupukari	Roots: white Relief stick from the government
Haimara stick	<i>Aimar piye'</i>	Yupukari	Roots resemble haimara fish
Haiawa stick	<i>Haiawa piye'</i>	Yupukari	Roots: yellow Came from Haiawa village
Hori stick	<i>Pata kai piye'</i>	Yupukari	Roots resemble hori fish 9 months maturation
Jigger stick	<i>Siki tai piye'</i>	Yupukari	Roots: yellow, sticky 12 months maturation Round roots, like a jigger (flea) bump
Karamani stick	<i>Maitikin piye'</i>	Yupukari Kaicumbay Rewa	Plant: tall, light green stems, petioles Leaves: narrow, seven fingers Roots: yellow, sticky, red skin Very resilient, drought resistant Named after karamani tree resin
Kari stick	<i>Parakari piye'</i>	Yupukari	Leaves: purple Roots: yellow Leaves used in kari manufacture
Makushi stick	<i>Makushi ye'</i>	Yupukari	Came from Annai village
Manwa stick	<i>Manwa ye'</i>	Yupukari	Came from Manwa
Mavis stick	<i>Mavis piye'</i>	Yupukari	From a person called Mavis in Kaicumbay
Moco Moco stick	<i>Moco Moco ye'</i>	Yupukari	Came from Moco Moco village
Mosquito stick	<i>Karapna piye'</i>	Yupukari	Roots: yellow Named after large black mosquito
No bark stick	<i>Yawe'ka ye'</i>	Yupukari	Leaves: broad Roots: white, red skin <i>Yawe</i> means 'to debark'
Old man stick	<i>A'yeketon ye'</i>	Yupukari	Purple striped stem Leaves: 5 fingers Roots: yellow

Cassava Varieties

Piab tree	<i>Sapiri pîye'</i>	Yupukari	Plant: short Roots: yellow
Potato stick	<i>Sa' ye'</i>	Rewa	Roots: white, starchy
Pumpkin stick	<i>Koima pîye'</i>	Yupukari	Roots: orange, like pumpkin Variety came from Brazil
Red stick	<i>Karanpi pîye'</i>	Rewa	Plant: medium height, pink petioles Leaves: narrow, five fingers Roots: pinkish cream; large; starchy 5 months maturation
River turtle stick 1	<i>Tarekara pîye'</i>	Yupukari Rewa	Roots: very yellow Roots the colour of turtle egg
River turtle stick 2	<i>Pittura pîye'</i>	Yupukari	Roots: yellow
Rock stick	<i>Ti ye pîye'</i>	Yupukari	Roots: hard, dry
Rupununi stick	<i>Pununi pîye'</i>	Yupukari	Roots: white
Sairon stick	<i>Sairon pîye'</i>	Yupukari	Roots: yellow Named after an ancestor
Sea turtle stick	<i>Ratu pîye'</i>	Yupukari	Roots: yellow
Sea wall stick	<i>Sea wall ye'</i>	Rewa	Roots: yellow
Shia stick	<i>Sia pîye'</i>	Rewa	Roots: white, starchy Came from Shia, South Rupununi
Sifter stick	<i>Manari ye'</i>	Yupukari	Sticks were traded for with sifters
Simmel stick	<i>Simmel ye'</i>	Rewa	Plant: blackish grey stems and petioles Roots: white Variety died out in flood, 1998
Sister-in-law stick	<i>Eeru pîyé</i>	Rewa	Leaves: broad
Sirokai stick	<i>Sirokai ye'</i>	Yupukari	Came from Brazil
Six month stick	<i>Tiwin mia 'pona kapoi pîye'</i>	Yupukari	Roots: cream 6 months maturation
Sparrow stick	<i>Taron pîye'</i>	Yupukari	Leaves: 3 fingers Roots: white Flowers: cream
Sticky stick	<i>Ki'nî pîyé</i>	Yupukari Kaicumbay	Roots: yellow, thick, sticky Hard to grate
Stingray stick	<i>Supara pîye'</i>	Yupukari	Roots: white
Sweet cassava leaf stick	<i>Makasira yare kan ye'</i>	Rewa	Roots: very white, dry Leaves resemble sweet cassava leaves

Cassava Varieties

Takutu stick	<i>Takutu p̄ye'</i>	Yupukari	Plant: short Roots: white Named after the Takutu River
Tall man stick	<i>Santi p̄ye'</i>	Yupukari	Plant: tall Roots: yellow
Tapir stick	<i>Waira p̄ye'</i>	Yupukari	Plant: red stems Leaves: broad, five fingers Roots: yellow Large brown roots resemble tapir
Tasteless stick	<i>Ipo p̄ye'</i>	Yupukari	Produces tasteless bread and farine
Three month stick	<i>Eseur̄wa kapoi p̄ye'</i>	Yupukari	Roots: white 3 months maturation
Tiger stick	<i>Kaikusi ye'</i>	Yupukari	Two types Roots: one type white, one type yellow Leaf is shaped like a tiger's ear
Tortoise stick	<i>Wayanmuri ye</i>	Yupukari	Roots: very yellow Roots the colour of tortoise egg
Turkey vulture stick	<i>Kurun p̄ye'</i>	Yupukari	Plant: short Roots: white
Waracarbara stick	<i>Kami p̄ye'</i>	Yupukari Kaicumbay	Roots: yellow Named after grey-winged trumpeter bird (waracarbara)
White man stick	<i>Paranak̄ir̄i p̄ye'</i>	Yupukari Kaicumbay Rewa	Plant: tall, whitish stems and petioles Leaves: broad Roots: very white 12 months maturation
Wonky stick	<i>Karum p̄ye'</i>	Yupukari	Wonky-shaped roots
Wowetta stick	<i>Wowi ko ye</i>	Yupukari	Came from Wowetta village
Wood skin stick	<i>Ye pi'p̄i ye</i>	Yupukari	Roots: rough skin, like tree bark
Yupukari stick	<i>Yupukari p̄ye'</i>	Rewa	Roots: yellow Came from Yupukari village

2. 1. Variation in leaf morphology



2. 2. Cassava roots



Appendix 3 | Bina Plants

A list of bina charm plants, as recorded in Yupukari, Rewa, and Kaicumbay, 2012-13.

Note: some botanical identifications are tentative and subject to further checking.

Common	Makushi	Linnaean	Properties	Application
Arowana bina	<i>Arowana murani</i>	<i>Maranta arundinacea</i>	Fishing charm, accurate bina for bow and arrow	Warm root in fire; rub leaf on hands and bow, repeat for 5 days
Arrow bina	<i>Pîrîu inwa</i>	—	For accuracy with bow and arrow	Tie leaf around anterior end of arrow (<i>inwa</i>)
Axe bina	<i>Waka murani</i>	—	Work charm; for strength, labour, chopping trees	Warm leaf, place on wrists, elbows, shoulders; use for 4 days
Balata bina, bulletwood	<i>Puruwe murani</i>	<i>Manilkara bidentata</i>	Strength charm, for fighting	Fight a balata sapling in the forest to gain vitality
Bird vine, bird shit vine	<i>Toron ye'</i>	<i>Phthirusa stelis</i>	Cursing charm, fertility charm	For cursing women, to cause or prevent pregnancy
Black fly bina	<i>Ereuwe</i>	<i>Portulacca cf. grandiflora</i>	Hunting charm for dogs, to catch labba	Mix leaves into dog food Named after black fly, which swarms on meat
Black man bina	<i>Mekoro murani</i>	<i>Hippeastrum</i> sp.	Work charm, for labour, for strength	Rub into abrasions on forearms, biceps, shoulders
Bush hog bina	<i>Pinkî murani</i>	<i>Caladium bicolor</i>	Dog hunting charm, for peccaries	Cut dog's nose and rub leaf into cut, five times
Calabash bina	<i>Poosi murani</i>	<i>Crescentia</i> sp.	For landing fish; fish will float like a hollow calabash	Rub a calabash (<i>poosi</i>) fruit on fishing line when landing fish
Cash bina	<i>Kasi murani</i>	Araceae	Charm to bring wealth, money	Grow in garden; carry leaf in pocket
Cassava bina	<i>Kîsera murani</i>	<i>Eleutherine bulbosa</i>	Cultivation charm, for cassava	Plant amongst the crops in the farm; chew bulb, spit over cassava sticks

Bina Plants

Catfish bina	<i>Kurutu murani</i>	<i>Caladium cf. bicolor</i>	Fishing charm for large catfish	Carry leaf in pocket Rub leaf on fishing line or on bow and arrow
Childbirth bina	<i>More rem'tu More sema</i>	<i>Hippeastrum cf. puniceum</i>	For delivering baby easily, childbirth	Bathe with leaves; drink root as tea
College bina 1	<i>Esenwun</i>	<i>Xanthosoma</i> sp.	Knowledge bina for children, for school	Heat ginger-like root; rub on pencils, books, and child's hands
College bina 2	<i>College ye'</i>	<i>Dracontium</i> sp.	Knowledge charm for school children, learning charm	Heat bulb; rub on pencils, books, and child's hands
Cursing bina	<i>Suwa ye'</i>	<i>Dieffenbachia seguine</i>	Revenge charm; for detecting who has cursed you	Bathe with the leaf; warm leaf, rub on body; cut succulent stem and put blood inside
Dari bina	<i>Kimi'yari murani</i>	—	Fishing charm for dari (scale fish)	Carry leaf when fishing; rub leaf on fishing line
Deer bina 1	<i>Waikin murani</i>	<i>Xanthosoma cf. brasiliense</i>	General charm; deer hunting bina; love charm for people	Rub leaf on arms, bow Put root in coconut oil or perfume and rub in hair
Deer bina 2	<i>Waikin murani</i>	<i>Caladium bicolor</i>	Dog hunting bina, for red-brocket deer and other mammals	Mix leaves into dog food, feed to dog for 5 days prior to hunt
Dog bina 1	<i>Arinmaraka murani</i>	<i>Zea mays</i>	Hunting bina for young dogs	Corn cob as pendant on young dog's collar
Dog bina 2	<i>Arinmaraka murani</i>	<i>Eleutherine bulbosa</i>	Hunting bina for dogs, to catch peccaries	Feed to young dogs; mix into dog food for 5 days prior to hunt
Emkusma	<i>Emkusma</i>	<i>Hippeastrum puniceum</i>	Guardian bina; 'police' bina, also used for killing	Powerful shamanic bina Cultivate near house, carry leaf in pocket
Fan bina	<i>Wiriwo' murani</i>	<i>Astrocaryum aculeatum</i>	Love charm; also for taming animals	Plaited fan, made from awara palm shoots; wave fan in direction of person or animal

Bina Plants

Garlic	<i>Garlic ye'</i>	<i>Allium sativum</i>	Protective bina	Walk with garlic clove; rub on boat hull or door
Giant river turtle bina	<i>Warara murani</i>	Amarillidaceae	Charm for children to learn to walk at an early age	Bathe child with leaves; warm leaf, rub on ankles, knees, hips, legs
Hoe bina	<i>Sanpa' murani</i>	Bromeliaceae	Work bina for ploughing banks	Warm leaf, rub on hands, elbows, shoulders; rub on hoe, axe, cutlass
Horse bina	<i>Kawaraima</i>	Araceae	Guardian charm Can be used to kill	Cultivate in near house; carry leaf in pocket
Janikuru bina, vulture	<i>Watunai murani</i>	<i>Hippeastrum</i> sp.	Work charm, for lazy people	Long, narrow leaf; named after the black vulture (janikuru)
Jumbi bina	<i>Pari'riko</i>	<i>Canna x generalis</i>	Guardian bina, protects from harmful spirits	Plant near house; red and yellow flowers; whistles to warn of danger
Kami	<i>Kami</i>	<i>Aristolochia</i> sp.	General charm: hunting, love, cash	Crush up leaves and rub on bow, arrow, arms; place leaf in hair oil
Kari bina	<i>Parakari murani</i>	<i>Cassia fistula</i>	Tattoo bina for making <i>parakari</i>	Pound up seed pods; rub into cuts in arms
Kanaimî bina	<i>Kanaimî murani</i>	—	Killing charm used by <i>kanaimî</i>	Small sticks; induce invisibility
Knowledge bina	<i>Knowledge ye'</i>	<i>Cyperus articulatus</i>	Charm for knowledge acquisition	Rub bulb on hands, books, pencils; grate bulb and drip into eyes
Kokorite bina	<i>Maripa</i>	<i>Eleutherine bulbosa</i>	Dog hunting charm	Add leaves to dog food; named after kokorite palm, due to resemblance
Labba bina	<i>Warana siwisikî</i>	<i>Tradescantia</i> sp.	Dog hunting charm, for labba	Crush up root and add to dog food; name means 'labba intestines'
Land turtle bina	<i>Wayanmuri murani</i>	<i>Hippeastrum</i> sp.	Dog hunting charm, for land turtles	Heat leaf and rub on dog's nose before hunt

Bina Plants

Learning bina 1	<i>Siruku</i>	<i>Eleutherine bulbosa</i>	Knowledge charm, for learning new languages, skills	Mash up leaf, drip juice into eyes, rub on books and pencils
Learning bina 2	<i>Wayaya</i>	[grassy plant]	Charm for learning new languages	Named after a mellifluous bird
Learning bina 3	<i>Yauraimî</i>	[bulbous plant]	Learning charm, knowledge charm	Burn plant and mix with razorgrass roots; rub ashes into abrasions on tongue, hands, stomach
Maribunta bina	<i>Piuka murani</i>	<i>Hippeastrum</i> sp.	Fishing and hunting charm, for accuracy with bow and arrow	Warm leaf, rub on hands Place leaf inside arrow; named after wasp (maribunta)
Ma'sua'sua	<i>Ma'sua'sua</i>	Araceae	Guardian bina, also used to kill	Cultivate near house; carry leaf in pocket
Mermaid bina	<i>Kasari murani</i>	<i>Passiflora vespertillo</i>	Potent love charm	Vine; gathered from riverbanks
Osprey bina	<i>Tannowaka murani</i>	<i>Hippeastrum puniceam</i>	Fishing charm, for accuracy with bow and arrow	Rub leaf on arms; bathe with leaf; named after osprey (apex predator)
Pana'pana	<i>Pana'pana</i>	<i>Uncaria guianensis</i>	Guardian bina, used to protect and to kill enemies	Liana; very powerful; smoke tobacco, leave offerings, talk to plant
Pirai bina	<i>Arai murani</i>	Araceae	Bad bina, 'evil', for killing people	Causes enemies to bleed, like piranha bite
Ropaapî	<i>Ropaapî</i>	Araceae	Bad bina; guardian charm; also for killing, cursing	Carry leaf when travelling alone; named after small tiger
Running bina 1	<i>Parau'yun</i>	<i>Cipura paludosa</i>	Charm for running fast, racing; also for hunting	Warm leaf, rub on feet and legs; tattoo ankles; name means 'puma'
Running bina 2	<i>Semum'si</i>	Poaceae	For running fast; endurance charm	Rub on feet and legs; tattoo ankles with ash
Selling bina	<i>Selling ye'</i>	Fabaceae	For selling products, attracts customers	Purple leaf, resembles a butterfly

Bina Plants

Shopping bina	<i>Shopping ye'</i>	Araceae	For purchasing goods at reduced price or for free	Grow in yard; rub on hands and carry when going shopping
Sweetheart	<i>Karaip'no ye'</i>	<i>Desmodium</i> sp.	Love charm; also for riding horses, being a vaquero	Crush up seeds, put in hair oil or perfume, rub on person or animal
Taming bina	<i>Esepanî</i>	<i>Hippeastrum</i> cf. <i>puniceum</i>	Charm for taming wild animals Love charm	Put leaf in coconut oil or perfume, apply to target animal or person
Tiger bina	<i>Kaikusi</i>	<i>Basella alba</i>	Guardian charm, protects against harmful spirits	Powerful shamanic plant; pick leaf, carry in pocket; use for cursing
Travelling bina	<i>Travel ye'</i>	<i>Xanthosoma</i> sp.	Guardian charm, for protection	Carry leaf in pocket when travelling alone
Turtle bina	<i>Tarekara murani</i>	<i>Hippeastrum puniceam</i>	Hunting bina for turtles, birds, fish, animals	Mash root and rub into abrasions on the hands and arms
Walking bina	<i>Wara'ta</i>	[a grass]	Charm for children to learn to walk at an early age	Warm leaf; rub on ankles, knees, hips, legs; named after the double-striped thick-knee bird
Warrior bina	<i>Tuwarawa pamî</i>	Araceae	Guardian charm, protection from <i>o'ma</i>	Grow in garden; carry leaf in pocket when travelling in the forest
Watchman bina	<i>Kayapa</i>	<i>Xanthosoma</i> sp.	Guardian bina, used to protect and kill	Powerful shamanic plant; leave offerings of tobacco, kari, and food
Waterdog bina	<i>Tura'ra murani</i>	<i>Hippeastrum</i> cf. <i>puniceam</i>	Guardian bina for women; especially when menstruating or during puberty	Carry in pocket; rub on feet; rub on boat Named after the giant river otter (apex river predator)
Willing bina	<i>Aripanî</i>	Zingiberaceae	Induces hard work; ginger-like root	Grate root, drink as tea; beat feet with leaves; squeeze juice into eyes

3. 2. Some bina plants (identifications overleaf)



3. 1. Identifications of photographs, top left to bottom right:

1. Travelling bina – *Xanthosoma* sp.
2. Black fly bina (*ereuwe*) – *Portulacca cf. grandiflora*
3. Taming bina (*esepanî*) – *Hippeastrum cf. puniceum*
4. Catfish bina (*kurutu murani*) – *Caladium cf. bicolor*
5. Cursing bina (*suwa ye'*) – *Dieffenbachia paludicola*
6. Deer bina (*waikin murani*) – *Xanthosoma cf. brasiliense*
7. Bulb of knowledge bina – *Cyperus articulatus*
8. Cassava bina (*kîsera murani*) – *Eleutherine bulbosa*

Appendix 4 | Shamanic Plants

Some important plants used in shamanic training and practice, as recorded in Yupukari, Rewa, and Kaicumbay, 2012-13.

Note: some botanical identifications are tentative and subject to further checking.

Common	Makushi	Linnaean	Use	Method of application
Annatto	<i>Kara'ya'pî ye'</i> <i>Sipî</i>	<i>Bixa orellana</i>	Protective substance	Red dye from fruits used as a body paint for protection from harmful beings (<i>oma</i>); rubbed on body, door, or canoe
Black tobacco	<i>Kawai ye'</i>	<i>Nicotiana tabacum</i>	Training Ritual practice Offering	Smoked and ingested during shamanic training; smoked during rituals; tobacco piai-juice consumed nasally in rituals; offering for forest masters
Bow tree	<i>Amara ye'</i>	<i>Brosimum</i> sp.	Ritual practice	Alternative to <i>sipî ye'</i> for beating leaf during rituals
Cursing bina	<i>Suwa ye'</i>	<i>Dieffenbachia paludicola</i>	Bina charm	Used to divine who has cursed a patient, and to curse them back
Garlic	<i>Garlic ye'</i>	<i>Allium sativum</i>	Protective substance	Mixed with annatto and applied as a protective substance; rubbed on body, door, or canoe
Guardian bina	<i>Emkusma</i>	<i>Hippeastrum puniceam</i>	Bina charm	<i>Pia'san's</i> spirit ally, consulted during shamanic rituals; used for protection or cursing
Guava tree	<i>Kanun ye'</i>	<i>Psidium</i> sp.	Ritual practice	Alternative to <i>sipî ye'</i> for beating leaf ritual
Haiawa 1	<i>Maruwa ye'</i>	<i>Protium guianense</i>	Ritual practice Healing	Alternative to <i>sipî ye'</i> for beating leaf ritual; tree resin used for 'smoking out' patients
Haiawa 2, moraipa	<i>Sipî ye'</i>	<i>Protium cf. heptaphyllum</i>	Ritual practice Healing	Leaf bundles used in 'beating leaf' ritual; tree resin used for 'smoking out' patients

Shamanic Plants

Haiawa 3	<i>Murru ye'</i>	<i>Protium</i> sp.	Healing	Tree resin used for 'smoking out' patients; exorcises spirits
Karamani	<i>Maitikim ye'</i>	<i>Symphonia globulifera</i>	Healing	Tree resin used for 'smoking out' patients; exorcises spirits
Komi	<i>Komi ye'</i>	[grass]	Training Bina charm	Bitter plant, consumed during shamanic training
Lime	—	<i>Citrus</i> sp.	Protective substance	Mixed with annatto and garlic; rubbed on body, door, or canoe
Locust tree, moraipa	<i>Müre ye'</i>	<i>Hymenaea courbaril</i>	Healing	Tree resin used for 'smoking out' patients; exorcises spirits
Maipaima tree	<i>Aiua ye'</i> <i>Mai ye'</i>	[canopy giant]	Training Practice	Consumed as a bitter bark; spirit helper for <i>pia'san</i> ; alternative to <i>sipî ye'</i> for beating leaf ritual
Monkey ladder	<i>Karaiwa ye'</i> <i>Wayamuri nokupî ye'</i>	<i>Bauhinia</i> sp. [liana]	Training Ritual practice	Consumed as a bitter bark; key spirit ally of the shaman; spirit step-ladder; <i>pia'san</i> ascends during soul-flight
Pepper	<i>Pimi Sikîrai</i>	<i>Capsicum</i> sp.	Protective substance	Used as a protective substance to ward off dangerous spirits; to exorcise spirits
Peyong	<i>Paima ye'</i> , <i>pia'san ye'</i>	<i>Jatropha gossypifolia</i>	Ritual practice Medicine	Leaves used to divine illness; seeds used for 'smoking out'; remedy for skin and eye sores
Piaiman bina 'Ear' bina	<i>Pana'pana</i>	<i>Uncaria guianensis</i> [liana]	Bina charm, guardian	<i>Pia'san's</i> powerful spirit ally, called down during rituals; used for protection or cursing
'Tiger' bina	<i>Kaikusi</i>	—	Bina charm, guardian	<i>Pia'san's</i> powerful spirit ally; consulted during rituals
Whitey tree	<i>Mai'pa ye'</i>	<i>Inga</i> sp.	Ritual practice	Alternative to <i>sipî ye'</i> for beating leaf in shamanic rituals
—	<i>Mai' ye'</i>	[a tree]	Training	Bitter bark; shamanic training
—	<i>Muviva</i>	[a spice]	Training	Bitter bark; shamanic training
—	<i>Susua ye'</i>	[a tree]	Training	Bitter bark; shamanic training
—	<i>Taruka ye'</i>	[a tree]	Training	Bitter bark; shamanic training
—	<i>Unapa ye'</i>	[a tree]	Training	Bitter bark; shamanic training

4. 1. Some shamanic plants (identifications overleaf)



4. 1. Identifications of photographs, top left to bottom right:

1. Haiawa fruits (*sipî napu*) – *Protium cf. heptaphyllum*
2. Monkey ladder vine (*karaiwa ye'*) – *Bauhinia* sp.
3. Tobacco (*kawai ye'*) – *Nicotiana tabacum*
4. Tobacco (*kawai ye'*) – *Nicotiana tabacum*
5. Annatto (*kara 'ya 'pî ye'*) – *Bixa orellana*
6. Annatto fruits (*kara 'ya 'pî ye'*) – *Bixa orellana*
7. Karamani resin (*maitikim ye'ku*) – *Symphonia globulifera*
8. Moraipa resin (*sipî ye'ku*) – *Protium cf. heptaphyllum*

Appendix 5 | Medicinal Plants

Plants used as remedies (*epi'*), as recorded in Yupukari, Rewa, and Kaicumbay, 2012-13.

Note: some botanical identifications are tentative and subject to further checking.

Common	Makushi	Linnaean	Remedy for	Method of application
Aloe	<i>Alo ye'</i>	<i>Aloe vera</i>	Skin sores	Squeeze juice from leaves on to sores
Annatto	<i>Kara'ya piye'</i>	<i>Bixa orellana</i>	Heart pain, hypertension	Parch the red seeds and drink as a tea
Aromata tree	—	<i>Clathrotropis macrocarpa</i>	Callouses and foot sores	Squeeze juice on to the area three times a day
Arrow grass	<i>Pirû ye'</i>	<i>Gynerium sagittatum</i>	Thread worm	Burn stem, mix ash with gun powder, place on cotton, insert into rectum
Avocado pear	<i>Apa ye'</i>	<i>Persea americana</i>	Kidney stones, urinary tract infections	Dry leaves and boil in water; drink as a tea
Baby tree	<i>More ye'</i>	—	Diarrhoea	Drink bark as tea
Banana	<i>Paruru ye'</i>	<i>Musa</i> sp.	Mouth sores in breastfeeding children	Put latex on a piece of cotton and administer to mouth sores
Bat vine	<i>Makami ye'</i>	<i>Stigmaphyllon sinuatum</i>	Diabetes, and severe fever	Grate root, mix with lily bulb root, drink as tea
Bird pepper	<i>Miro</i>	<i>Capiscum annuum</i>	Boils; growths; tumours	Mash up with water, apply as a face mask
Bird vine	<i>Waipin ye', toron ye'</i>	<i>Phthirusa stelis</i>	Contraceptive, abortive	Drink the leaves as a tea for unwanted pregnancy
Black man tree	<i>Mekoro ye'</i>	—	Mosquito worm (<i>i'ku</i>), botfly	Use the white latex to cover the wound
Buruhuda tree	<i>Amoko ye'</i>	<i>Parinari</i> sp.	Snake bites, esp. rattlesnake	Scrape the bark, rub the powder into the bite
Bush garlic	<i>Taikurî ye'</i>	<i>Mansoa alliacea</i>	Fresh cold	Boil leaves as tea; bathe with leaves

Medicinal Plants

Cabuya	<i>Kurauwa'</i>	<i>Furcraea foetida</i>	Joint pain, arthritis	Heat leaf on fire, apply to painful joints
Cashew tree	<i>Yoroi ye'</i>	<i>Anacardium</i> sp.	Lameness in children	Break a new shoot, drop latex on to child's tongue
Cassava mama tree	<i>Kisera yun ye'</i>	<i>Manihot glaziovii</i>	Mosquito worm (<i>i'ku</i>), botfly	Mash up leaves and place over holes in flesh
Cayambe tree, sandpaper tree	<i>Kuratiki ye'</i>	<i>Curatella americana</i>	Skin sores; cancer; back ache; stomach ache	Boil the bark, drink as tea; squeeze juice from bark, drink from spoon
Chinga	<i>Kumaruwa yé</i>	—	Scabies, itching	Bath with leaves
Coconut palm	<i>Koko ye'</i>	<i>Cocos nucifera</i>	Insect repellent	Rub coconut oil on legs to prevent mosquitoes and kaboura flies biting
Cotton	<i>Katoka ye'</i>	<i>Gossypium</i> sp.	Fever; soul-loss in children	Grind up seeds, mix into water, bath; 'smoke out' child by burning seeds
Cunani	<i>Kunani ye'</i>	<i>Clibadium surinamense</i>	Joint pain, arthritis	Wrap leaves around the painful joint overnight
Curry tree	<i>Kurri yé</i>	<i>Murraya koenigii</i>	Sore eyes, conjunctivitis	Mash leaves and drop juice into eyes
Genipap	<i>Aruku ye'</i>	<i>Genipa americana</i>	Asthma	Make juice from the fruit, drink three times a day
Ginger	—	<i>Zingiber officinale</i>	Fresh cold; cough; sore eyes	Grate root, mix with lime, drink as tea; drop juice into eyes
Greenheart tree	<i>Kata ye'</i>	<i>Chlorocardium rodiei</i>	Malaria; diabetes; contraceptive	Dry the seeds, scrape into water, boil, drink as tea
Guava tree	<i>Kanon ye'</i>	<i>Psidium</i> sp.	Diarrhoea, dysentery	Boil fresh leaves and bark in water, drink cold
Haiari, tapir foot	<i>Aya ye'</i>	<i>Tephrosia sinapou</i>	Rashes, scabies, ringworm; AIDS	Burn the vine, rub the ashes into affected areas; drink bark as tea
Haiawa tree 1	<i>Maruwa ye'</i>	<i>Protium guianense</i>	Fever in children	Burn resin to 'smoke out' patient; exorcises spirits
Haiawa tree 2	<i>Sipi ye'</i>	<i>Protium cf. heptaphyllum</i>	Fever in children	Burn resin to 'smoke out' patient; exorcises spirits

Medicinal Plants

Jamun tree	<i>Jamun ye'</i>	<i>Syzygium cumini</i>	Diarrhoea, dysentery	Make a tea from bark and leaves, drink
Jumby pepper	<i>Ye' pana</i>	<i>Peperomia</i> sp.	Ear ache, sticky ear	Mash up leaves and drop juice into ear
Kapadula vine, karambola	<i>Karatuwai yé</i>	<i>Davilla kunthii</i>	Back ache; skin sores; impotence	Drink bark as a tea; scrape bark into water, wash sores
Karamani tree	<i>Maitikim</i>	<i>Symphonia globulifera</i>	Fever in children	'Smoke out' child by burning tree resin
Kongo pump tree	<i>Kumai ye'</i>	<i>Cecropia obtuse</i>	Asthma; urinary tract infections; childbirth	Pick new red shoots, boil in water, drink as a tea; bathe with leaves
Kunapuru, bad hayari	<i>Kunapuru ye'</i>	<i>Euphorbia cotinifolia</i>	Leshmaniasis; mosquito worm	Extremely poisonous; burn plant, rub ashes in skin wounds
Leaf of life	<i>E'ti ye'</i>	<i>Bryophyllum pinnatum</i>	Skin sores; toothache; fresh cold	Heat leaf, squeeze juice out, mix with honey, drink; rub on sores
Lemon tree	<i>Lemon ye'</i>	<i>Citrus x lemon</i>	High blood pressure	Squeeze the juice, add to water, drink
Lemongrass, fever grass	—	<i>Cymbopogon</i> sp.	Fever; sore throat	Boil the grass in water, drink as a tea
Lily	—	<i>Hippeastrum</i> sp.	Severe fever, diabetes; mix with bat vine	Grate bulb into water; drink it as a tea; bathe with it
Locust tree	<i>Miire ye'</i>	<i>Hymenaea courbaril</i>	Stomach ache; back ache; fever in children	Make tea from bark, drink; burn resin for 'smoking out' children
Mango	<i>Mankuro ye'</i>	<i>Mangifera</i> sp.	Skin sores; rash, scabies	Scrape bark into water; bathe every morning
Marishi tree	<i>Mirhu ye'</i>	<i>Vismia</i> sp.	Mouth sores; skin sores; diarrhoea	Scrape bark into water, drink as tea; apply powder from leaves to sores; bathe
Maruwa	<i>Maruwa yé</i>	<i>Protium</i> sp.	Fever in children	Burn resin on fire to 'smoke out' children

Medicinal Plants

Metrush	<i>Metrusi ye'</i>	<i>Dysphania ambrosioides</i>	Threadworm; fresh cold; whooping cough	Boil leaves and mix with milk, feed to baby; bathe with leaves
Morning star	<i>Kaiwuno</i>	Root resembles ginger	Sore eyes, conjunctivitis	Mash up, boil in water, drop into eyes
Mountain silverballi	<i>Mii ye'</i>	<i>Licaria canella</i>	Scabies; insect repellent; head-lice	Extract oil from bark and seeds, rub on skin; rub sap into hair
Moco moco	<i>Pu'koi ye'</i>	<i>Montrichardia arborescens</i>	Stingray sting; backache	Roast stem, squeeze juice on to sting; heat leaves and place on back
Neem tree	<i>Neem ye'</i>	<i>Azadirachta indica</i>	Skin or mouth sores; malaria	Boil leaves in water, drink as a tea
Papaya	<i>Ma'pi ye'</i>	<i>Carica papaya</i>	Flesh wounds	Place bark over wound
Parakaran tree	<i>Pimiya ye'</i>	—	Skin sores	Boil the bark, apply to sores; squeeze juice
Passionfruit, maracuja	—	<i>Passiflora edulis</i>	Stress; nerves; insomnia	Boil the leaves, drink as tea; bathe with leaves
Peyong, piaiman tree	<i>Paima ye'</i> , <i>pia'san ye'</i>	<i>Jatropha gossypifolia</i>	Diabetes; skin sores; fever	Drink green leaves as a tea; apply white latex to sores; boil leaves and bathe child; burn seeds to 'smoke out' children
Physic nut tree	<i>Koko ye'</i>	<i>Jatropha curcas</i>	Cancer; skin sores	Drip white latex into water, drink every day; rub sap on sores
Piper plant, pepper plant	<i>Tiko' ye'</i>	<i>Piper sp.</i>	Toothache; insect repellent	Chew the root, rub on tooth; place leaves on fire
Plemla tree 1	<i>Miinî ye'</i>	<i>Solanum sp.</i>	Skin infections; sores, rashes	Bathe child with leaves; rub on skin sores
Plemla tree 2, itchy plant	<i>Ayaru ye'</i>	<i>Cnidoscolus urens</i>	Moles, lumps, tumours, growths	Hit the stinging leaves against the hard growth
Pigeon tree	<i>Puinurai ye'</i>	<i>Schefflera morototoni</i>	Fatigue; general sickness	Boil leaves in water, rub on body
Quinine tree	<i>Warana ye'</i>	<i>Cinchona sp.</i>	Malaria	Drink the bitter bark as a tea everyday

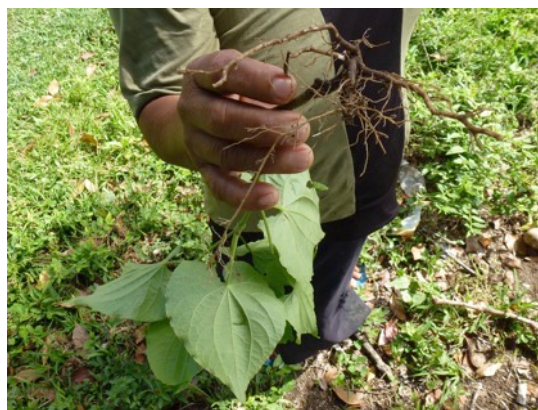
Medicinal Plants

Razor grass	<i>Sara ye'</i>	<i>Scleria</i> sp.	Headache	Insert blade of grass into nose, bleed out
Rubber plant	—	<i>Clusia</i> sp.	Tick bites; leshmaniasis	Apply red sap to flesh wounds and sores
Shame leaves, sleep tree	<i>E'moron ye'</i>	<i>Mimosa</i> sp.	Insomnia	Mash up roots, mix with water, drink; especially for babies
Sickness bowl bush	<i>Puran piso</i>	Fabaceae	Diarrhoea; dysentery	Scrape the green bark into water, drink
Sorrel	<i>Kupi</i>	<i>Rumex</i> sp.	High blood pressure	Pick new shoots, drink as tea for three months
Soursop	<i>Îrasîko, kai'pura</i>	<i>Annona muricata</i>	Diabetes	Boil leaves in water, drink as tea
Spirit tree 1	<i>Katon'pî ye'</i>	<i>Humiria balsamifera</i>	Fresh cold; influenza	Boil leaves in water, cool, bathe with it
Spirit tree 2	<i>Katon'pî ye'</i>	—	Diarrhoea; fresh cold	Boil roots, drink as tea; bathe with leaves
Sucker berry tree	<i>E'kui ye'</i>	<i>Himatanthus</i> sp.	Fever; sores; mouth ulcer	Boil bark, drink as tea; bathe with bark; apply sticky sap to ulcers
Sun daughter, sun foot	<i>Wei yensi, wei pîsi</i>	<i>Evolvulus sericeus</i>	Whooping cough; fever	Boil the leaves, cool, bathe the child; drink
Sweet broom	<i>Siu'u ye'</i>	<i>Scoparia dulcis</i>	Stomach ache; cold; diabetes; urinary problems	Boil leaves, drink as tea
Tamarind	<i>Tamarin ye'</i>	<i>Tamarindus indica</i>	Chicken pox; snake bites	Boil bark, bathe the skin; burn seeds, pound into powder, drink in water
Tobacco	<i>Kawai ye'</i>	<i>Nicotiana</i> sp.	Mosquito worm (<i>i'ku</i>), botfly	Squeeze juice into holes in flesh, place mashed leaves on wounds
Toothpaste tree	<i>Warima ye'</i>	—	Dental health	Chew the coarse leaves to brush teeth
Tree ear	<i>Ye' pana</i>	<i>Peperomia</i> sp.	Sticky ear, ear ache	Crush up succulent leaf; drip juice into ears
Whitey tree	<i>Mai'pa ye'</i>	<i>Inga</i> sp.	Mouth ulcers	Boil bark, cool, drink

Medicinal Plants

Wild guava 1	<i>Pariko ye'</i>	Myrtaceae	Diarrhoea; skin sores	Make tea from bark, drink; eat fruits
Wild guava 2	<i>Kanun ye'</i>	<i>Psidium</i> sp.	Diarrhoea; nausea	Boil leaves in water, drink as tea
Wild thyme	—	—	Fever; general illness in children	Bathe baby with leaves
Yari yari tree	<i>Araira ye'</i>	<i>Duguetia</i> <i>pycnastera</i>	Headache; fever	Eat fruit, or drink as juice
Unknown 1	—	<i>Phyllanthus amarus</i>	Bach ache; cough; cancer	Boil the root, leave to cool, drink
Unknown 2	—	<i>Euphorbia hirta</i>	Kidney stones; urinary infections; gall stones	Drink as tea
—	<i>Arikuwa ye'</i>	—	Skin sores	Scrape bark, bathe; apply sap to sores
—	<i>Karam'si ye'</i>	—	Diarrhoea	Drink as tea
—	<i>Ma'pari ye'</i>	—	Sexually transmitted infections	Drink as tea
—	<i>Maturai</i>	—	Snake bites; diarrhoea	Remove the white heart, scrape into water, drink
—	<i>Raku ye'</i>	—	Fever	Drink root as tea
—	<i>Su yé</i>	—	Sore eyes; conjunctivitis	Drip milk into eye

5. 1. Some medicinal plants (identifications overleaf)



5. 1. Identifications of photographs, top left to bottom right:

1. Piper plant (*tiko' ye'*) – *Piper* sp.
2. Piper plant (*tiko' ye'*) – *Piper* sp.
3. Marishi tree (*mîrhu ye'*) – *Vismia* sp.
4. Bat vine (*makami ye'*) – *Stigmaphyllon sinuatum*
5. Spirit tree (*katon'pî ye'*) – *Humiria balsamifera*
6. Sickness bowl tree (*puran piso ye'*) – Fabaceae
7. Plempla tree (*mîîî ye'*) – *Solanum* sp.
8. Sun daughter (*wei yensi*) – *Evolvulus sericeus*

Appendix 6 | Fish Poison Plants

Fish poison plants, as recorded in Yupukari, Rewa, and Kaicumbay, 2012-13.

Note: some botanical identifications are tentative and subject to further checking.

Common	Makushi	Linnaean	Notes	Method of use
Bitter cassava	<i>Kîse</i>	<i>Manihot esculenta</i>	Cultivated	Collect toxic effluent (<i>kata</i>), pour bowl into water; add grated roots to cunani balls
Cabuya	<i>Kurauwa'</i>	<i>Furcraea foetida</i>	Gathered, medium poison	Collect seeds, pound into mulch, throw in water
Christmas tree	<i>Karimosi ye'</i>	<i>Antonia ovata</i>	Gathered, medium poison	Tie plants into bundle, macerate, throw in water
Cunani	<i>Kunani ye'</i>	<i>Clibadium surinamense</i>	Cultivated, mild poison	Make paste balls: grate leaves with bitter cassava, kokorite worms (<i>kiwo</i>), and spiders
Haiari 1, white type	<i>Aya ye', aya pîsi ye'</i>	<i>Lonchocarpus</i> sp.	Gathered, liana, strong poison	Tie bundle of lianas together, beat the bark, throw in water
Haiari 2, black type	<i>Aya ye', ai'wana</i>	<i>Lonchocarpus</i> sp.	Gathered, liana, strong poison	Tie bundle of lianas together, beat the bark, throw in water
Kunapuru	<i>Kunapuru</i>	<i>Euphorbia cotinifolia</i>	Cultivated, extremely strong	Macerate entire plant and throw bush into water
Tapir foot	<i>Aya ye', waira puu</i>	<i>Tephrosia sinapou</i>	Cultivated, strong poison	Tie uprooted plants together, macerate, throw into water

6. 1. Some fish poison plants (identifications overleaf)



6. 1. Identifications of photographs, top left to bottom right:

1. Tapir foot (*waira puu*) – *Tephrosia sinapou*
2. Tapir foot (*waira puu*) – *Tephrosia sinapou*
3. Cunani (*kunani ye'*) – *Clibadium surinamense*
4. Cunani paste (*kunani*) – *Clibadium surinamense*
5. Cunani leaves (*kunani yare*) – *Clibadium surinamense*
6. Kunapuru (*kunapuru ye'*) – *Euphorbia cotinifolia*
7. Christmas tree (*karimosi ye'*) – *Antonia ovata*
8. Cabuya (*kurauwa'*) – *Fucraea foetida*

Appendix 7 | A Taxonomy of Spirits

A list of some of the most important spirits and other dangerous beings (*o'makon*) in Makushi cosmology, as recorded in Yupukari, Rewa, and Kaicumbay villages, 2012-13. This list should not be taken as a fixed, systematic classification of *o'makon*; rather, it is intended purely for the purposes of identification with regards to references in the text, as an index or glossary of sorts.

Common	Makushi	Linnaean	Features	Other information
Anike, Chiki	<i>Anike</i>	—	Mythic culture hero; younger brother of Insikiron – together, the first people, ‘angels’	The mischievous brother; appears in many <i>taren</i> spells
Bat spirit, bat jumbi	<i>Tipon</i>	—	Dangerous spirit; a bat which transforms into a short man; flies around at night; makes a whistling sound	Especially dangerous to young children; kills victims by touching them with poisonous plants
Bush dai dai	<i>Tai tai,</i> <i>Pia'ma'</i>	—	A huge hairy person that lives in the forest; has backwards feet; large ears; eats humans	Lives in a cave deep in the bush, has a wife; expert hunter; the <i>pia'san's</i> ally
Bush men	<i>Em'rikutun</i>	—	Like <i>tamona'</i> , small people; one eye in the centre of head, one ear; face on back of head	‘Spoil’ people; cause madness, mania, death
Cassava Mama	<i>Kisera yun</i>	—	Mistress spirit of cassava plants; invisible spirit	Causes sickness; co-opts human souls; imparts ‘lashes’
Cotton tiger, white jaguar	<i>Ka'tokataimî</i>	—	Underwater tiger; white woolly fur like cotton; huge, like a bull	Namesake of Katoka village, as recounted in myth
Devil, demon, evil	<i>Makîi</i>	—	An evil spirit or force; ‘Satan’; like <i>imawari</i>	Name derives from word for snake (<i>kîi</i>)

A Taxonomy of Spirits

Dragon, lizard jumbi	<i>Oromaimî</i>	—	Big lizard, dragon; dangerous; lives in a hole in the ground	Resembles an iguana or caiman; has a three-forked tongue
Echo spirit, 'hecko'	<i>Kumaara</i>	—	The sound of an echo; an unseen spirit, used in <i>taren</i> for healing	Deters sickness, it cannot locate you, like an echo
Forest masters, grandfathers	<i>Tamona', kompi</i>	—	Master spirits of the forest; owners of all animals and plants; short red-faced people; whistle, like chimes	Kill those who misuse their forest resources; hunters must leave offerings, tobacco; <i>pia'san's</i> allies
Ghosts, dead people's spirits	<i>Katon'pi</i>	—	Spirits of dead people; dangerous; invisible, appear like the breeze, wind; only the <i>pia'san</i> can see them	Cause harm to people, induce sickness, especially in children, the hungry, the weak, or overheated
Ghoul, kanaimî, jumbi	<i>Wainîripî</i>	—	Animal transformation of <i>kanaimî</i> ; lizard, rat, snake, fox, anteater; glowing red eyes; blood-curdling cry	Burrows into graves, feeds on rotting juices of victims; uses straw to drink from grave
Heat spirit	<i>Kawaptaka</i>	—	Invisible spirits, 'like heat'; appear as dancing girls; carry victims away to the mountains	Attack hungry, weak people; induce mania; co-opt human souls; 'feed' their victims
Horse jumbi, giraffe	<i>Kawaraimî</i>	—	Aquatic horse; spotted, with single horn	Sink boats on the river; like a giraffe
Hummingbirds	<i>Tukui'</i>	Trochilidae	Hummingbirds; shaman's helpers; angels; pi'ai-birds	<i>Pia'san</i> calls them down during séances to help diagnose and cure patients
Insikiron, Makunaima	<i>Insikiron</i>	—	Mythic culture hero; elder brother of Anike; the first people, 'angels'	The 'good' brother, ultra-powerful being; appears in many <i>taren</i>

A Taxonomy of Spirits

Jumbi bird 1, kanaimî bird	<i>Arauwaimiti</i>	Great potoo (<i>Nyctibius grandis</i>)	Nocturnal bird; avian manifestation of dark shaman (<i>kanaimî</i>)	Makes a distinctive whistling sound; <i>kanaimî</i> mimics bird's call
Jumbi bird 2, kanaimî bird	<i>Watafaimi</i>	Undulated tinamou (<i>Crypturellus undulates</i>)	Crepuscular bird; avian manifestation of the <i>kanaimî</i> ; dark shaman mimics the bird's call	Uses bina plants to attack human victims, who die from fever; removes anus, penis, testicles, and tongue
Jumbi bird 3, kanaimî bird	<i>Kanraiwa', anakwa</i>	Chacalacas (<i>Ortalis</i> sp.)	Another <i>kanaimî</i> bird; avian manifestation of dark shaman; evil assassin mimics the bird's call	Uses bina plants to attack human victims, who die from fever; removes anus, penis, testicles, and tongue
Jumbi bird 4, kanaimî bird	<i>Ko'sara'</i>	Grey-necked woodrail (<i>Aramides cajanea</i>)	Another <i>kanaimî</i> bird; avian manifestation of dark shaman (<i>kanaimî</i>); evil assassin mimics the bird's loud call	Uses bina plants to attack human victims, who die from fever; removes anus, penis, testicles, and tongue
Kanaimî, jumbi, assassin, sorcerer	<i>Kanaimî, itoto</i>	—	Dark shaman; assault sorcerer; humans who use shamanic arts to kill; mutilate victims; wear animal skin masks to terrify victims	Jealous killers; use 'bad' bina charms; transform into <i>wainîripî</i> to feed on rotting corpses; whistling sound
Kiaki, toucan snake	<i>Kiakiamî, kia'ki</i>	—	A giant snake, like a bushmaster but huge; lives in a tree; has snake's body and toucan's head	Calls like a toucan (<i>kia'ki</i>), its namesake; hangs human victims from tall trees
Land kamudi, Boa	<i>Aman</i>	<i>Boa constrictor</i>	Extremely dangerous snake, up to 12 feet in length; a powerful spirit, harms humans; contaminating spirit	Male attacks women, female attacks men; appears as lover; causes mania; land counterpart of the anaconda

A Taxonomy of Spirits

Land turtle jumbi	<i>Kamaiwa</i>	—	Large tortoise with two spikes on its shell	Shamanic spirit; appears in <i>taren</i>
Lion, mountain jaguar	<i>Parauya</i>	—	Large mountain cats; run extremely fast, ‘like the breeze’	Locked up by shamans in high mountain caves
Marawi, nature spirits	<i>imarawi</i>	—	Nature spirits; <i>pia ’san’s</i> helpers, his ‘disciples’	The forces of nature; powerful forest and mountain spirits
Okraima	<i>Okraima</i>	—	Dangerous monster; cannibalistic person; preys on humans	Sounds like a marudi (bird); shoots victims with invisible darts, a ‘special arrow’
Pia	<i>Pia</i>	—	Forces of creation; ancestors, first people; the beginning times	Added as postfix to stanzas in <i>taren</i> spells to invoke spirits
Puma, panther	<i>Sariwara</i>	<i>Puma concolor</i>	A large cat, two metres long; light brown, no spots or stripes	Named after a type of bush deer (<i>usari</i>); not very dangerous
Rainbow	<i>Merenmere’</i>	—	Rainbow spirit; giant water snake; causes physical injuries; also, the master of deer	Spirit can enter girl’s body, cause mania; can impregnate girls with snake-baby
Rainbow snake	<i>Kiarara</i>	—	Huge invisible snake, the rainbow; controls the rain	Lives near to springs, controls the spring water; causes sickness
Rewa	<i>Ariwī</i>	—	Monstrous fish with spines; sinks boats by creating a whirlpool	Namesake of Rewa village; mythical fish monster
Scissor bird, Swallow-tail kite	<i>Kumariya</i>	<i>Chelictinia riocourii</i>	<i>Pia ’san’s</i> spirit helper; descends in séances; converses with <i>pia ’san</i>	Helps shaman diagnose illnesses; collects lost spirits
Spirit darts, shaman’s arrows	<i>Waawī</i>	—	Invisible arrows; tiny marbles with feathers and smoke inside; little persons, subjects	<i>Pia ’san</i> shoots them at enemies and extracts them from sick patients

A Taxonomy of Spirits

Spirit, soul, vital essence	<i>Ekaton,</i> <i>ewan</i>	—	Human spirit, soul, essence; the vital element of a person; a trans-specific notion	Leaves body during sleep (dreams), and at death; permanent soul-loss is fatal
Stingray jumbi, waterlily	<i>Paimî</i>	—	Water jumbi, lives in rivers and lakes; large black stingray, round like a waterlily	Sinks boats; drowns people and swallows them whole
Swordfish jumbi	<i>Kamoruwi'wa</i>	—	Monstrous swordfish; giant fish, kills people	Shamanic spirit; summoned in <i>taren</i>
Tapir tiger	<i>Wairarimî</i>	—	Dangerous aquatic tiger; resembles a tapir, but with the head of a tiger; dark brown	Huge; red eyes, white feet and nose; two tails; makes a sound like thunder
Tiger (general)	<i>Kaikusi,</i> <i>kaikusiyamî</i> (collective)	Felidae: jaguar, puma, ocelot, margay, oncilla	Refers to all types of cats; recognised felids and 'spirit' tigers	Includes many species currently unknown to science
Tiger 2	<i>Maakaimî</i>	—	Small, black forest cat; moves quickly, 'like the breeze'	Named after <i>maaka</i> (tinamou), whose call it resembles
Thunder	<i>Uranhimî</i>	—	Thunder spirits; short people, control thunder and lightning; fair skin, curly hair; invisible	Create the sound of thunder; shoot bullets to the ground, creates thunder stones
Tree spirit	<i>Mariwa</i>	—	Invisible evil spirit; lives in trees; makes sound of trees creaking; appears as a beautiful child or lover	Attacks hungry or tired victims, 'feeds' them; they starve to death; drives people insane, causes mania
Underground tiger	<i>Ropaapî</i>	—	Small subterranean cat; kill people	Heard calling in dry season near lakes
Waracarbara tiger, jakami tiger	<i>Kamisarai</i>	—	Small spotted cat; eats people; moves in large groups; moves through trees 'like the breeze'	Calls like the <i>kami</i> (waracarbara); markings resemble plumage of <i>kami</i> ; its master is tapir tiger

A Taxonomy of Spirits

Water anteater	<i>Sīpiptu</i>	—	Large aquatic anteater; extremely dangerous; black body, white legs and feet; golden hair	Sinks boats; eats ears, nose, jaw; removes fingernails from victims' corpses
Water dragon	<i>Kīīima</i>	—	Master of snakes; 'father of the water'; harmful water spirit	Causes sickness; bad omen; sounds like a falling tree
Water jumbi 1	<i>Parakwa</i>	—	Water monster, dragon; brings storms; creates whirlpool in river to sink boats	Used to live in a deep pool in the Rupununi near Aruwa; locked up by <i>pia'san</i>
Water jumbi 2	<i>Ro'to</i>	—	Dangerous spirit, lives in the water; visible only to the <i>pia'san</i>	Has hooked tentacles to pull victims into the river
Water kamudi, anaconda	<i>Wii, tīnki</i>	<i>Eunectes murinus</i>	Very dangerous aquatic snake; snake spirit; impregnates women	Water counterpart of land kamudi (<i>Boa constrictor</i>)
Watermama 1	<i>Tuna'ko</i>	—	Generic name for mermaids and water spirits; <i>twenkron, kasari</i>	Live under the water; seduce men, lure them underwater
Watermama 2, mermaids	<i>Twenkron</i>	—	Mermaids; masters of the river; dolphins; beautiful girls, long hair	Seduce victims, who go insane; they create whirlpools in river
Watermama 3, mermaids	<i>Kasari</i>	—	Aquatic people with fish tails; long hair, white skin; 'dolphins'	Beautiful girls; seduce men; induce mania and death
Water tiger 1	<i>Aruturu</i>	—	Medium-sized aquatic tiger; eats people; dangerous spirit	Lives in a hole in the bank; dog-sized; sounds like a basha
Water tiger 2	<i>Totoraima</i>	—	Large white aquatic tiger; eats people; resembles a ram	Makes a whistling sound, like blowing over a bottle
Whirlwind	<i>Karanau</i>	—	Dangerous spirit; whirlwind, spiralling breeze, rustling leaves	Steals spirits of children or sick people; 'smoked out' using tree resins

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