ABSTRACT

Title of Dissertation:	THE PINKAITI PARTNERSHIP: A CASE STUDY OF TRANSNATIONAL RESEARCH AND EDUCATION IN THE BRAZILIAN AMAZON
	Matthew Ian Aruch, Doctor of Philosophy, 2021
Dissertation directed by:	Professor Jing Lin, Department of Counseling, Higher Education, and Special Education

In 1991, Barbara Zimmerman visited the Mẽbêngôkre-Kayapó community of A'Ukre. A'Ukre and Zimmerman came up with an idea to create the Pinkaiti Ecological Research Station (Pinkaiti) within the federally demarcated Kayapó Indigenous Territories in Brazil's Pará state. Pinkaiti was conceptualized to: (1) preserve Kayapó forests; (2) strengthen Kayapó culture; (3) create an economic alternative to regional mahogany logging; (4) initiate a tropical ecology research program; and (5) strengthen Kayapó transnational networks. After leaving A'Ukre, Zimmerman recruited Conservation International, an international environmental nongovernmental organization (NGO) as an institutional partner. The "Pinkaiti Partnership" has since evolved into a research and education-based multi-stakeholder partnership that includes a transnational network of community, NGO, university, and government actors. Over time, the partnership moved through four eras of activity: initiation (1991-1995); early research (1995-2000); international research (2000-2004); and the field course (2004 – present).

Using an embedded comparative case study methodology, this dissertation unpacks the trajectory of stakeholder groups (A'Ukre community, NGOs, universities) as units of analysis to discuss the structure, process, and outcomes of partnership activities across partnership eras.

To analyze partnership dynamics, I use Pinkaiti as a *boundary object* to trace Pinkaiti partner interactions across horizontal, vertical, and transversal axes. As a boundary object, Pinkaiti takes on multiple meanings and forms, depending on its use and context, as it is activated simultaneously or independently by one or more partnership actors. Partnership actors engage one another by navigating cultural, geographic, institution, or knowledge *passage points*. By tracing each actor group's trajectory through the lens of Pinkaiti, the study illustrates how boundary objects both permit and restrict transnational collaboration. At the same time, the study reveals both the opportunities and limits of boundary objects as a conceptual tool. Boundary objects can be useful for tracking histories, clarifying the big picture, highlighting feedback loops, and illuminating invisible work. On the other hand, the Pinkaiti study shows that boundary objects can be limited in scope, reflect designer biases, and reinforce unequal power dynamics. Still, the Pinkaiti Partnership suggests important takeaways for actors interested in the design, implementation, or evaluation of education or research-based transnational partnership work.

Keywords: partnership, boundary work, boundary objects, Mẽbêngôkre, Kayapó, Amazon, comparative case study, transnational collaboration, international education, field course, study abroad, sustainability, conservation.

THE PINKAITI PARTNERSHIP: A CASE STUDY OF TRANSNATIONAL RESEARCH AND EDUCATION IN THE BRAZILIAN AMAZON

by

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Dedication

To the A'Ukre community- the heart, soul, and spirit of the Pinkaiti Partnership.

Mejkumrej!

Acknowledgments

This dissertation was built from the support of friends, family, and colleagues around the globe. The manuscript reflects all of your energies and contributions.

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In 2013, Janet Chernela invited me to participate as a Kayapó field course instructor. Ever since, I've been a part of an incredible team engaged in meaningful, interdisciplinary, transnational education activities. In addition to those mentioned above, I worked alongside amazing colleagues from Brazil, Canada, and the United States including Jacquie Ballantyne, Emily Colón, Brittany Donnelly, Alex Gascon, Katie Murtough, Pedro Peloso, Diane Pinto, Ingrid Ramón-Parra, João Passos, Diego Soares da Silveira, Jorge Solórzano-Filho, and Laura Zanotti.

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Table of Contents

Dedication ii
Acknowledgments iii
Table of Contents vi
List of Tables xv
List of Figures xvi
List of Acronyms xvii

Chapter 1: Introduction 1
Prologue 1
Introduction to the Mẽbêngôkre-Kayapó 5
  Kayapó Social Organization 6
  Body Painting and the "Social Skin" 8
  Kayapó Conservation Partnerships 11
Brief Overview of Brazil and the Amazon 13
Kayapó Responses and Resistance in the Amazon 16
  Physical Resistance of Gold Miners in Gorotire 17
  Negotiated Mahogany Deals 17
  Political Action in Brasília 19
  Leveraging Transnational Advocacy Networks and Partnerships in Altamira 20
The Origins of the Pinkaiti Partnership and Case Study 23
Framing the Study 25
Dissertation Organization 26
  Section I (Chapters 1-3): Literature, Methodology, Setting, and Participants 26
  Section II (Chapters 4-6): Stakeholder Perspectives 26
  Section III (Chapter 7): Synthesis, Summary, and Recommendations 27

Chapter 2: Partnerships, Boundary Work, and Boundary Objects 28
Partnership Literature 28
  Defining Partnership 29
  Background on Transnational, Multi-Stakeholder Partnerships 31
    1992 United Nations Conference on Environment and Development 31
    2002 World Summit on Sustainable Development 32

2012 UN Conference on Sustainable Development 33
2015 Sustainable Development Goals 34

Partnership for What and With Whom? 35
Governments 36
Nongovernmental Organizations 38
Community-Based Organizations 39
Academia and Research Institutions 40
Public and Private Sector Donors 41

Partnership Characteristics 42
Partnership Structure 43
Partnership Processes and Activities 47
Outcome Features 49

Partnership Critiques 51
Availability and Allocation of Funding 51
Lack of Government Accountability 52
Partnerships are Not Inclusive or Representative 52
Strong Rhetoric, Weak Evidence 54
Lack of Transparency 54

Understanding and Evaluating Partnerships 54

A Framework for Understanding Partnership Structures, Processes, and Outcomes 57
Prerequisite Factors 57
Partnership Structure 58
Partnership Process and Activities 58
Partnership Outcomes 59

Boundary Organizations, Boundary Work, and Boundary Objects 60

Boundary Work 61

Boundary Objects 63

Critiques of Boundary Object Theory 68

What Happens at the Boundary? 70
Identification 71
Coordination 72
Reflection 73
Transformation 73

A Boundary Object Framework for Pinkaiti Partnership Research 76

Conclusion 80

Chapter 3: Methodology, Setting, and Participants 81

Case Study Methods 82

Embedded Case Studies 83

Comparative Case Studies 85

Pinkaiti as an Embedded Comparative Case Study 88

A'Ukre Community 89

The NGOs **90**
Conservation International 90
The David Suzuki Foundation 91
International Conservation Fund of Canada 91
Protected Forest Association 92

The Universities **93**

Brazilian Government Agencies **94**
FUNAI 95
The National Council of Scientific and Technological Development 96
Brazilian Institute of Environment and Renewable Natural Resources 96

Pinkaiti Partnership Eras **97**

Partnership Initiation (1991-1995) **97**

Early Research Era (1995-2000) **97**

International Research and Scale Era (2000–2004) **98**

Field Course Era (2004-Present) **98**

Data Sources and Data Collection **98**

Interviews and Sampling Techniques **101**

Document Data **104**

Observations and Field Notes **105**

Data Organization, Coding, and Analysis **107**

Collaborative Methods and Research with Indigenous Communities **110**

Community Consultations in Tucumã, PA **113**

Community Consultations in A'Ukre **115**
Initial Community Meeting 115
Consultation on Research Clarifications 116
Informal and Individual Consultations 117

Access, Authorizations, Positionality, and Confidentiality, and Positionality **118**

Case Study Research Validity and Trustworthiness **119**

Conclusion and What's Next **123**

Chapter 4: A'Ukre **124**

Data Collection and Organization **124**

Field Work in the A'Ukre Community **125**
Field Work Schedule and Interview Protocol 126
Mẽbêngôkre → Portuguese → English Translations 127
A'Ukre-Based Participant Observation 130

Pinkaiti Partnership Initiation in A'Ukre (1991–1995) **131**

A'Ukre Invites Zimmerman for Project Consultation **132**

A'Ukre Enters Into Partnership With CI ... 134

A'Ukre, CI, and the Canadian International Development Agency (CIDA) ... 135

Paiakan is Accused of Sexual Assault ... 140

Pinkaiti Research Station Construction ... 142

A'Ukre Governance of the Pinkaiti Research Station ... 144

A'Ukre's First Research Visits to Pinkaiti ... 146

Initial Compensation and Payment for A'Ukre ... 147

Donor and Grant Funding. ... 148
Community Fees ... 148
Individual Payments ... 149

Initial A'Ukre – FUNAI Relationships Regarding the Pinkaiti Research Station ... 150

Moving Into the Research Era of the Partnership ... 151

Early and International Research Eras at Pinkaiti (1995–2004) ... 152

Researcher Arrival, Preparation, and Organization ... 152

Coordination of the Pinkaiti Research Station ... 153

Selection of Kayapó Research Associates ... 154

A'Ukre Interactions With University Researchers ... 155

Intercultural Challenges With University Researchers ... 157

Research Era Critiques ... 159

A'Ukre, Pinkaiti and Expanded NGO Operations With the Kayapó ... 161

The End of the Pinkaiti Research Eras ... 164

The Field Course Era in A'Ukre (2004–present) ... 166

Community Field Course Preparation ... 167

Community Organization and Governance of the Field Course ... 168

Field Course Coordinators ... 168
Community Rules for Working With Kuben ... 172

Expanded Community Participation ... 173

Expanded Participation for Women ... 174
Field Course Participation Opportunities for Young Men ... 175
Field Course Exclusions ... 176

Field Course Interactions With University Students ... 177

Teaching the Kuben ... 178
Learning With the Kuben ... 180
Intergenerational Knowledge Sharing and Feedback Loops ... 182

A'Ukre's Field Course Relationship and Interactions With AFP ... 184

A'Ukre–AFP Field Course Logistics ... 185

From AFP to Associação Pykôre ... 188

A'Ukre-FUNAI Field Course Authorization ... 190

A'Ukre Summary and Partnership Discussion ... 191

Partnership Structure ... 192

Processes and Activities 194
A'Ukre Partnership Outcomes 195
A Note on Feedback Loops 197
Conclusion 199

Chapter 5: Nongovernmental Organizations 201
Data and Methods 201
Partnership Initiation with NGO Partners (1991-1995) 202
Early CI Fundraising with the Canadian Government 206
NGO Support Following Paiakan's Allegation 209
Early NGO-FUNAI Interactions, Relationships, and Project Authorizations 213
The First NGO-Supported Researchers from Brazilian Universities 216
NGO-Supported Donor Visits to A'Ukre and Pinkaiti Research Station 218
Setting Up the Redenção Office 221
Moving into the Research Era With a Solid Foundation 222
Early Research at the Pinkaiti Research Station (1995–2000) 223
CI Governance 223
"Barbara's Project" 224
CI Brazil Government Relations and Administration 225
The CI-Supported Kayapó Center for Ecological Studies 226
CI-Supported University Research, NGO Objectives, and A'Ukre Community Benefits 228
CI's Expanding Objectives and Activities with the A'Ukre Community 230
CI Leverages Pinkaiti to Scale Beyond A'Ukre 232
International Research and Scale (2000–2004) 233
Conservation International-Sponsored Meetings with Kayapó Leadership 234
Creating the Protected Forest Association 237
Pinkaiti as One Activity Within the Greater CI-Kayapó Project Portfolio 238
CI-AFP-FUNAI Kayapó Project Agreement 239
CI-AFP-FUNAI Agreement Non-Renewal and Biopiracy Concerns 241
Pinkaiti Research as Separate from Other CI Operations 243
International Research Expansion Between 2000-2004 245
CI Brazil Support of Foreign Research Authorizations 245
A New Pinkaiti House and Attempted Research Expansion 248
The Kayapó Fund: A CI Shift Toward Supporting and Financing Local Institutions ... 251
Alternative Activities: Shifting Toward the Kayapó Field Course 253

Field Course Era (2004- present) **254**

The Field Course Pilot **254**

AFP Changes Leadership and Office Locations to Take a More Important Role in Local Activities **256**

ICFC Enters as International NGO Partner **258**

Coordinating Field Course Authorizations with FUNAI **259**

Organizing University Documentation 260
NGO-Brazilian University Collaborations 260
NGO Relationship with FUNAI in Brasília and Tucumã 261
Annual Field Course Report 262

AFP–University Field Course Coordination **263**

Transportation and Lodging for University Students 263
Instruction and Support Staff During the Field Course 264

NGO Field Course Coordination with the A'Ukre Community **269**

Cash Course Payments 270
Getting Pedidos to A'Ukre 272

AFP Expansion: The Field Course as a Legacy Program **273**

NGO Summary and Partnership Discussion **277**

Internal Partnership Structure **277**

External Partnership Structure **282**

NGO Partnership Activities and Processes **284**

NGO Partnership Outcomes **286**

Conclusion **290**

Chapter 6: Universities **292**

Methods and Data Collection **292**

Interviews **293**

Document Data **294**

Participant Observation and Experiences **295**

University Partnership Initiation (1991-1995) **295**

Recruiting Brazilian University Counterparts **296**

Communication Breakdown Between CI, INPA, and FUNAI **298**

A Successful Research Partnership with the University of São Paulo **301**

USP Researcher–Kayapó Interactions at Pinkaiti 303
The USP Research Program Begins at Pinkaiti 304

Moving into the Early Research Phase at Pinkaiti **306**

Early Research Era (1995-2000) **306**

Early Researcher Interactions With CI **307**

Early Researcher Interactions with the A'Ukre Community 308

Researcher-Kayapó Interactions at the Pinkaiti Research Station 309
The Shift in Activities from Donors to Student Researchers 309
Co-Constructed Scientific Research in the Forest 310
Cultural Misinterpretations 312
Theft and Conflict Resolution 313
Pinkaiti as an Incubator for Intercultural Understanding 314

Early Researcher Interactions with FUNAI 315

Two Early Pinkaiti Research Critiques 316

Learning and Building Toward the Next Phase of Research 317

International Research Era (2000–2004) 317

International Researcher Interactions with CI and FUNAI 318
CI–Redenção Logistics and Support 318
Participation in the CI Meetings 321

International Researcher Engagement with A'Ukre 323
Working with Kayapó Associates 324
Learning with the Kayapó During Research 326
Creating Meaningful Interpersonal Relationships 328

Research Wind Down and Transition to Field Course 329

Field Course Era (2004- present) 330

Field Course Phase 1: The Field Course Concept and Pilot (2004-2009) 331
Pilot Phase University–NGO Interactions 334
Recruiting UnB as a Field Course Counterpart 335

Field Course Phase 2: Developing an Identity (2010 – 2013) 336
The UMD-Purdue Field Course Agreement 338

Field Course Phase 3: University Partner and Program Expansion (2013–Present) 339
The Purdue-UFU Course 339
The Federal University of Pará Belém as a new Brazilian Partner 341

University Roles and Responsibilities 342

Field Course University–Government Relations 343
FUNAI Tucumã as a Course Partner 346
FUNAI Course Participation 346

University Student Field Course Relationships with the A'Ukre Community 347
Instructional Relationships 347
Interpersonal Relationships 351
Transactional Relationships 354

Field Course Tensions Among University Partners 357
Natural and Social Science Disciplinary Divide 358
Comparing Brazilian and North American University Course Experiences 360
Dialoguing Through Tension and Conflict 363

University Summary and Discussion 364

Internal Structure 364

External Partnership Structure 366

Partnership Activities and Processes **367**

Partnership Outcomes **368**

A Note on University Sustainability. 370

Conclusion **373**

Chapter 7: Partnership Synthesis **375**

Recreating the Pinkaiti Partnership **377**

Partnership Structure, Processes, and Activities **380**

Partnership Outcomes **383**

Environmental Protection and Sustainability 383

Material and Income Generation 384

Knowledge Generation and Exchange 385

Social Networks and Feedback Loops 386

Linking the Boundary Object Concept to Partnership Work **388**

Cultural Boundaries **391**

Unique Cultural Identities 391

Shared Cultural Identities 392

Exclusive Cultural Identity 393

Geographic Boundaries **394**

Arrival and Departure 394

Physical Proximity as a Means for Collaboration 395

Kayapó Autonomy and Activity Boundaries 397

Knowledge Boundaries **398**

Interdisciplinarity 398

Knowledge Processes 399

Institutional Boundaries **400**

Formal and Informal Arrangements 400

Institutional Autonomy 401

Champions, Gatekeepers, and Individual Agency 402

Research → Practice: Boundary Object Opportunities **403**

Boundary Objects Trace Trajectories to Uncover the Big (Often Hidden) Picture **404**

Boundary Objects Illuminate Feedback Loops **405**

Boundary Objects Link Adversity and Collaboration **406**

Boundary Objects Reveal Coincident and Invisible Work **407**

Research → Practice: Limits of Boundary Objects **407**

Boundary Objects Reflect the Bias of Their Designers **407**

Unless Explicit, Boundary Objects Do Not Uncover Power Dynamics **408**

Boundary Objects Can Be Too Narrow or Too Broad **409**

Suggestions for Transnational Multi-Stakeholder International Education Partnerships **409**

Study Limits and Areas for Further Research 413
Conclusion 417
Epilogue 419

Appendix A: Mẽbêngôkre-Kayapó- Portuguese -English Vocabulary and Translations 422
Appendix B: A'Ukre community Letters of Support and Research Permissions ... 423
Appendix C: Interview Solicitations 428
Appendix D: Sample Protocols 432
Appendix E: Pinkaiti Trail Map 442
Appendix F: Sample Field Course Itinerary and Trail Map 443
Appendix G: Example A'Ukre Kayapo Participation and Produce Sales in the Field Course 446
References 449

List of Tables

Table 1 Mẽbêngôkre-Kayapó Age Grades 7
Table 2 Features and Characteristics of Partnerships 42
Table 3 Pinkaiti as a Boundary Object 67
Table 4 Overview of Different Mechanisms and Characteristic Processes of Boundary Crossing 71
Table 5 Stakeholder Groups, Institutional Actors, and Data Sources for the Pinkaiti Partnership 99
Table 6 Research Project Timeline 100
Table 7 Total Number of Interviews and Documents by Stakeholder Group 103
Table 8 Typology of Field Observations by Field Work Setting 106
Table 9 Participant Attributes by Stakeholder Group 108
Table 10 Protocol for Kayapó Consultations 112
Table 11 Flybjerg (2006) Responses to Common Case Study Critiques 120
Table 12 Addressing Research Trustworthiness in the Pinkaiti Partnership Case Study 121
Table 13 A'Ukre Community Interview Participant Demographics 125
Table 14 Typical Weekly Schedule for Research Team 127
Table 15 A'Ukre Community Interview Participant Demographics 202
Table 16 Key NGO Responsibilities and Activities Over the Duration of the Pinkaiti Partnership 280
Table 17 University Interview Participant Demographics 293
Table 18 Field Course Phase, University Partners, and Key Activities 331
Table 19 Typical University Field Course Responsibilities 342
Table 20 Governance and Participation Shifts in the Pinkaiti-Related Activities by Stakeholder Group Across Partnership Eras 382
Table 21 Partnership Actors and Successful Feedback Loops 387

List of Figures

Figure 1 Views of A'Ukre and Pinkaiti From the Air 2
Figure 2 Map of River Travel Between A'Ukre and Pinkaiti 3
Figure 3 Map of Kayapó Villages and Federally Demarcated Indigenous Territories 5
Figure 4 Urucum, Genipapo, and Body Painting Examples 9
Figure 5 Image of Logging Road Near A'Ukre 18
Figure 6 Paiakan and Kuben-i with Daryll Posey at Florida International University 21
Figure 7 Framework for Describing Partership Structure, Process, and Outcomes 57
Figure 8 Boundary Object Framework for Collaboration, Knowledge, and Action Amongst Multiple Actors 76
Figure 9 The Boundary Object Framework as a Conceptual Model for Understanding the Pinkaiti Partnership 78
Figure 10 A Conceptual Framework That Overlays the Boundary Object Framework (Figure 8) Onto the Analytic Framework for Partnerships (Figure 7 79
Figure 11 Four Types of Case Study Designs 83
Figure 12 Embedded Case Study and Subunits for the Pinkaiti Partnership 84
Figure 13 Tracing the Boundary Object Across Embedded Subunits at Verticial, Horizontal, and Transversal Axes in the Pinkaiti Partnership 87
Figure 14 Entry and Exit of Pinkaiti Partnership Actors Over Time 89
Figure 15 Convergence of Data Sources by Stakeholder Group 99
Figure 16 Field Equipment for Note Taking, Memo Writing, Recording and Photography 106
Figure 17 Example Images of Research Team Interview Process 129
Figure 18 Paiakan on the Covers of Parade and Veja Magazines 140
Figure 19 Photos of the Original Pinkaiti House 143
Figure 20 Example Images of Kayapó Instruction at A'Ukre and Pinkaiti 178
Figure 21 Photos of Original and New Pinkaiti House 248
Figure 22 Field Course Visit to the AFP Office in Tucumã 268
Figure 23 A'Ukre Field Course Lodgings 337
Figure 24 Typical Field Course Activities in Pinkaiti and A'Ukre 349
Figure 25 Kayapó Artisan Crafts Displayed at the Course Fair 355
Figure 26 Understanding Structure, Process, and Outcomes Across Pinkaiti Partnership Eras 379
Figure 27 Overlapping Pinkaiti Partnership Outcomes 383
Figure 28 Revisiting Pinkaiti and the Boundary Object Framework 390
Figure 29 Aerial View of the Border at the Kayapó Indigenous Territories 394
Figure 30 Airplane Arrival at the End of the Field Course 419

List of Acronyms

AFP	Associação Floresta Protegida	(Protected Forest Association)
ABC	Agência Brasileira de Cooperação	(Brazilian Cooperation Agency)
ANT	Actor Network Theory	
ASB	Alternative to Slash and Burn	
BDFF	Biological Dynamic of Forest Fragments	
BINGO	Big International Nongovernmental Organization	
CABS	Center for Applied Biodiversity Science	
CBO	Community Based Organization	
CCS	Comparative Case Study	
CDN	Canadian Dollars	
CI Brazil	Conservation International Brazil	
CI	Conservation International	
CIDA	Canada International Development Agency	
CNPq	Conselho Nacional de Desenvolvimento Científico e Tecnológico	(The National Council of Scientific and Technological Development)
CGIAR	Consultative Group on International Agriculture Research	
DSF	David Suzuki Foundation	
EA	Education Abroad	
ECCS	Embedded Comparative Case Study	
ENSO	El Niño Southern Oscillation	
FUNAI	Fundação Nacional do Índio	(National Indian Foundation)
GCF	Global Conservation Fund	
IBAMA	Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis	(Brazilian Institute of Environment and Renewable Natural Resources)
ICFC	International Conservation Fund of Canada	
ICTs	Information and Communication Technologies	
INPA	Instituto Nacional de Pesquisas da Amazônia	(National Institute of Amazon Research)
ISA	Instituto Socioambiental	(Socioenvironmental Institute)
ISE	International Society of Ethnobiology	
KCES	Centro Kayapó Estudos Ecológicos	(Kayapó Center for Ecological Studies)
MDG	Millennium Development Goals	

MPEG	Museu Paraense Emilio Goeldi	(Emilio Goeldi Museum of Pará)
MTSU	Middle Tennessee State University	
MVZ	Museum of Vertebrate Zoology	
NDI	Núcleo Direitos Indígenas	(Nucleus of Indigenous Rights)
NGDO	Nongovernmental Development Organization	
NGO	Nongovernmental Organization	
OECD	Organization for Economic Co-operation and Development	
PA	Pará	
SDGs	Sustainable Development Goals	
TEAM	Tropical Ecology Assessment and Monitoring	
TIK	Terra Indígena Kayapó	(Kayapó Indigenous Territories)
UEA	University of East Anglia	
UFPA	Universidade Federal do Pará Belém	(Federal University of Pará Belem)
UFU	Universidade Federal de Uberlândia	(Federal University of Uberlândia)
UK	United Kingdom	
UMD	University of Maryland	
UN	United Nations	
UnB	Universidade de Brasília	(University of Brasília)
UNCED	United Nations Conference on the Environment and Development	
USA	United States of America	
USD	US dollars	
USP	Universidade de São Paulo	(University of São Paulo)
UT	University of Toronto	
WSSD	World Summit on Sustainable Development	
WWF	World Wildlife Fund	

Chapter 1: Introduction

Prologue

In July 2015, A'Ukre[1], a Mẽbêngôkre-Kayapó[2] village located in the center of the Kayapó Indigenous Territory[3] (TIK) receives a radio message from the Protected Forest Association[4] (AFP) office in Tucumã that the plane has taken off and the students are on their way. The plaza area around A'Ukre's *ngà* (warrior's house; see Appendix A for Mẽbêngôkre-Kayapó-Portuguese-English translations) has been swept clean. A'Ukre's men, women, and children have their bodies painted with a dye created from a mixture of genipapo (*Genipapa americana*) fruit, wood charcoal, and water. Around the perimeter of the rectangular ngà at the center of A'Ukre, men sit and talk in colorful lanyard or plastic chairs weaving palm baskets or carving red wood clubs. At the edge of the plaza, A'Ukre's houses create the rectangular shape of the village (see Figure 1). Women and children sit in chairs or lay in hammocks in the front, back, or shaded spaces between their homes. Several of the women bead elaborate designs into earrings, necklaces, or bracelets. Later, the men and women will attempt to trade these baskets, clubs, and jewelry for tents, sleeping bags, water bottles, flashlights, and other items. A group of small children kick and chase a deflated soccer ball around the plaza.

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[1] In June and July 2019, the A'Ukre community cleared land to construct a new village. The new village will be built adjacent to the old one. The community plans to change their name from A'Ukre to Djorodjo. However, I will use A'Ukre throughout this dissertation.
[2] The Mẽbêngôkre-Kayapó are known colloquially in Brazil as the Kayapó. Kayapó was the name given by the Portuguese. The Kayapó self-denominate as the Mẽbêngôkre, "the men from the water hole/place.". Both terms will be used interchangeably throughout this dissertation. There are multiple groups of Kayapó. For a an overview of groups and subgroups, see Verswijver, 1992 or visit https://pib.socioambiental.org/en/Povo:Mebêngôkre _(Kayapó)
[3] Translated from Terra Indígena Kayapó.
[4] Translated from Associação Floresta Protegida.

Figure 1

Views of A'Ukre and Pinkaiti From the Air

Note. (a) landing strip; (b) soccer field; (c) *ngà* (d) plaza; (e) *kuben* house; (f) Kôkôjagõti media center; (g) Pinkaiti research station; (h) Riozinho River

Note. Source: P. Peloso, 2018

About forty-five minutes after the radio call, there is the faint hum of a ten-passenger aircraft in the distance. The humming gets louder as the plane descends on the landing strip at the edge of A'Ukre. About half of the community begins to walk toward the landing strip. A few young men, anticipating the arriving supplies and gear, produce a set of wheelbarrows. The propellers slow and the plane comes to a stop. Men, women, and children crowd the plane to pick up goods flown in from the town of Tucumã or to catch a glimpse of the visitors inside. The pilot opens the airplane door and A'Ukre gets its first look at the instructors and students from Brazil, Canada, and the United States of America. Some instructors are well known to the community. They have been visiting A'Ukre for decades. Most of the students are in A'Ukre for the first time. The visitors descend from the plane and warm exchanges are shared amongst old friends. Many

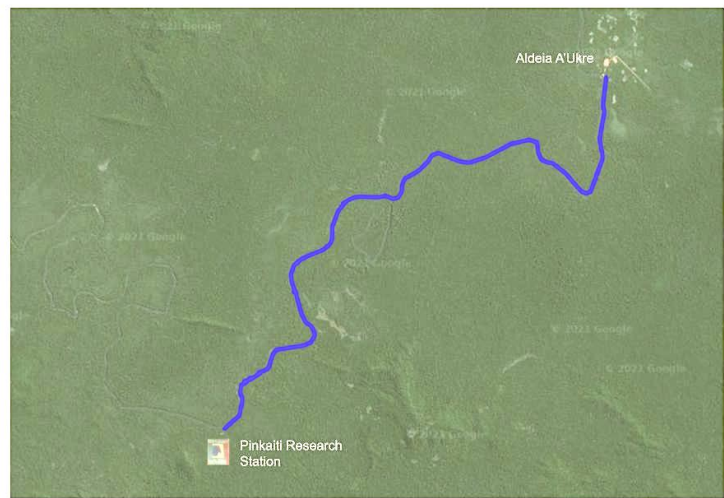
students appear nervous or uncomfortable as they account for their new surroundings and the crowd that has come to greet them.

Luggage, cargo, and supplies are quickly loaded off the plane by those selected by the community to work alongside the *kuben* (foreigners). Heavier items are placed in the wheelbarrows and carted off to the *casa de kuben* (foreigners' house), two wooden cabins at the far end of the village (see Figure 1). Conversations in English, Portuguese, and Mẽbêngôkre-Kayapó are translated as relationships are revisited or initiated. Once the airstrip is cleared of luggage and supplies, A'Ukre residents start to resume their daily activities. The visitors are guided to their temporary residence by Kayapó instructors. As they walk, the plane revs its engine, leaves the runway, and returns to the city.

At the far end of A'Ukre, the visitors begin to unpack and organize themselves at the kuben house. Half of the group will remain in A'Ukre. The other half prepare for a two-hour boat ride 12 km upstream to the Pinkaiti Ecological Research Station (Pinkaiti) (see Figure 1; Figure 2).

Figure 2

River travel between A'Ukre and Pinkaiti



Note. Distance is about 12km

For the next several weeks, the A'Ukre community will host an international field course in collaboration with universities, nongovernmental organizations (NGOs), and government partners.

The scene above happens almost every year within the A'Ukre community. A'Ukre has a long history of hosting university students or researchers. In 1992, A'Ukre created Pinkaiti in partnership with Conservation International (CI), an international environmental NGO. Over time, collaborators expanded to include a network of partners focused on international research and education activities in what I refer to throughout this report as the "Pinkaiti Partnership."[5]

This dissertation is a case study of the Pinkaiti Partnership history, structure, processes, and outcomes. The study draws upon documentation, interviews, and participant observations with the A'Ukre community, NGO, university, and government partners. In this chapter, I present an overview of the Mẽbêngôkre-Kayapó followed by a brief overview of Brazilian policies in the Amazon region. Then, I discuss how the Kayapó responses to social and environmental policies through political action, physical resistance, and strategic alliances. Next, I present the A'Ukre case and Pinkaiti Partnership as an embedded, comparative case study for transnational, multi-stakeholder international research and education collaborations. Finally, I provide a road map for the rest of the dissertation.

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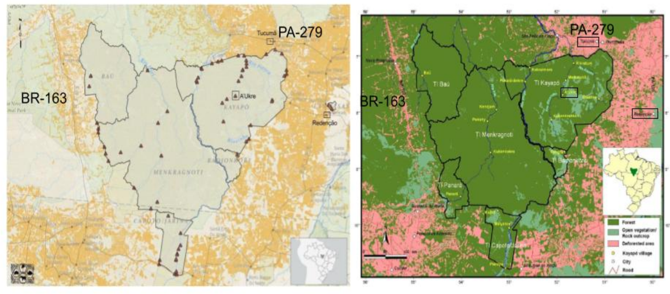
[5] Some colleagues take issue Pinkaiti as the study focus, believing it de-center's the A'Ukre Kayapó. My stance is that without Pinkaiti, subsequent partnership activities would not have occurred. I discuss this critique further in Chapter 7.

Introduction to the Mẽbêngôkre-Kayapó

A'Ukre is located in center of the federally demarcated TIK in the Brazilian state of Pará. A'Ukre is one of about 50 Kayapó villages found in one of nine federally demarcated Mẽbêngôkre[6]-Kayapó (Kayapó) Territories in the Brazilian states of Pará and Mato Grosso (AFP, 2019; ISA, 2020; see Figure 3).Together, TIK and the adjoining demarcated Kayapó land areas make up close to 11,000,000 hectares, the largest continuous area of tropical forest in the world (AFP, 2020d; ICFC, 2020b; Zimmerman, 2010; see Figure 2). Kayapó have a population of about 9,000 individuals. Kayapó village range in size from dozens of people in smaller villages to larger villages with villagers numbering in the hundreds (AFP, 2020d; Turner, 2003). Each village is autonomous and village life is at the center of political and social lifeways for the Kayapó (Lea, 1992; Lea, 1995; Posey, 2000; Turner, 1995c; Turner, 2003; 2012; Zanotti, 2016; Zimmerman, 2010).

Figure 3

Map of Kayapó Villages and Federally Demarcated Indigenous Territories



Note. Adapted from AFP, 2020d; ICFC, 2020a

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[6] The Mẽbêngôkre-Kayapó are one of approximately 250 Brazilian Indigenous groups[6] (ISA, 2020).

According to Turner (2012), “the social organisation of the villages is based on a relatively complex system of institutions, which are clearly defined and uniform for the population as a whole” (p. 487). Within Kayapó communities, the ngà serves as the locus of social and political activities and is the central space around which the village is organized in concentric circles from the center to the periphery (Lea 1992; Murphy, 2004; Turner, 1995; 2003; see Figure 1).[7] Politically active men meet within the ngà for discussions, village decision-making, and leisure activities. For important social events or decisions, the entire village will meet in the ngà. The space around the ngà is a cleared, central plaza used as a recreation and community festival space. At the end of the plaza space, in the next concentric circle are “women’s” (Turner, 2012) or family homes, followed by family gardens. Beyond the family gardens are communal garden areas and, finally, the forest (Turner, 2003; Zanotti, 2014b; Verswijver, 1992).

Kayapó Social Organization

Through life, Kayapó pass through a series of life stages or “age grades” to achieve the goal of becoming a fully active member of society (Fisher 2001; Murphy, 2004; Turner, 2003; Zimmerman, 2010; see Table 1). Social and political structures are organized around ceremony and ritual, where social “strength or power” and “beauty” are bestowed upon individuals with approval and coordination from the community as one advances through age or “stage” grades (Fisher, 2003; Murphy, 2004; Turner, 2003; 2012; 2017; Zanotti, 2014b; Zanotti, 2018; Zimmerman, 2010). As Turner (2003)

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[7] Traditional Kayapó villages are organized in a circle. As the story goes, A’Ukre is rectangular because as part of a1990s municipal project, homes were built with concrete foundations. It was easier to lay the foundation in rectangular fashion that in a circle (Aruch, 2019 field notes).

explains, "'Power' and 'beauty' are the main Kayapó social values. They represent the qualities in terms of the relative worth of persons, their ability to play roles in the community commensurate with their stage of life and family status, their relative prestige and influence, and their capacity for leadership and political effectiveness, are judged" (p. 13). Zanotti reiterates these social values, stating that "being beautiful (*mej*) and strong (*tyx*), two Kayapó-valued characteristics, include extensive knowledge of a proper and responsive engagement with other coinhabitants…. That is, by the time a certain Kayapó individual has gone through adolescence and subsequently had their first child, there are ideally a series of tasks that both men and women should have gained experience in that involve ceremonial, political, and subsistence practices" (Zanotti, 2018, p.355). As individuals grow older and move through the age grades, they are given more social and political responsibilities within household and village life "including what type of knowledge and what kind of behavior is appropriate… at a particular stage in the life cycle" (Murphy, 2004, p. 57).

Table 1

Mẽbêngôkre-Kayapó Age Grades

Age grade	Name for men (*me my*)	Name for women (*me nire*)
Babies	**Meprire**	**Meprire**
Boys and girls (young adults)	**Me bôkti** Big boys (*bôkti*) Moved to men's house (*bêngàdjy*) Painted ones (*me'ôkre*)	**Me kurerere** Big girls (*kurereti*) Big little ones (*prīti*) Newly thigh-blackened (*kraxtykny*)
Newly adult	**Arym abatanh** New penis sheath (*mydjênyre*) Sleep new (*nõrny*)	**Arym abatanh** Old thigh-blackened (*kraxty'atum*)

Adult (with children)	**Me krare** Fathers of new child (*kra nyre)* Fathers of many (*kra krãptī)*	**Me krapdji** Mothers of one child (*kra pynh* Mothers of many (*kra krãptī)*
Elders	**Me tum re** *Me bêngêt*	**Me tum re** *Me bêngêx*

Note. Adapted from Bamberger, 1979, Murphy (2004), and Trevisan and Pezzoti (1991).

Kayapó politics, knowledge exchange, and rituals are organized by gender and age grade (Bamberger, 1979; Fisher, 1994; Turner, 2003). Naming ceremonies are of particular importance and take months to prepare, with the entire village organizing to gather food and other resources for the bestowing of a "beautiful name" upon a child (Bamberger, 1974; Fisher, 2003; Lea, 1992; Turner, 1995c; Turner, 2003; Verswijver, 1992). Senior men and women provide leadership and expect to share knowledge with younger generations, who are in turn responsible for the younger age grades. Lower age grades defer to and learn from those above them (Murphy, 2004; Turner, 2003; Zimmerman, 2010). As Kayapó men and women grow older, they progress through the age grades, access new forms of knowledge, and increasingly participate in social and political life (Turner, 2003, Zimmerman, 2010). Mebegnet or community elders are "considered to have attained full status in the community" (Murphy, 2004, p. 61) and are able to speak "well" on behalf the community.

Body Painting and the "Social Skin"

Body adornment and body painting are important aspects of the Mẽbêngôkre-Kayapó culture and social organization.[8] Kuben (non-Kayapó) visitors to Mẽbêngôkre villages will immediately take note of the elaborate "notions of propriety in bodily

[8] A full discussion is beyond the scope of this dissertation, but see Kayapo et al., 2015; Turner, 1995; 2012; and Vidal, 1981 for more nuanced discussion of body painting, and body adornment and design examples.

appearance" with respect to Kayapó body painting and adornments of beaded earrings, lip rings, bracelets, feathered headdresses, and so forth (Turner, 2012, p. 488; Figure 4). As Vidal (1981) notes, "body ornamentation is an elaborate and central aspect of Mẽbêngôkre-Kayapó culture… especially body painting expresses… the understanding the Kayapó have of their social structure, religious beliefs, biological manifestations, and relation with nature [and]… must be seen as a part of a larger patterned universe (Vidal, 1981, pp. 1-2). In fact, Turner (1995) shares that "the painting of the body marks stages and modes of socialization of the body's natural powers" (p. 151) corresponding to the age grades noted in Table 1 (see Figure 4). Body painting is part of community life, particularly for women. Vidal states, "Women always paint with apparent pleasure and calm control, certainly a lively social event when they gather for the weekly collective painting sessions… women are bound to paint" (pp.177).

Figure 4

Urucum, Genipapo, and Body Painting Examples

(a) Urucum

(b) *Genipapa americana fruit*

(c) Genipapo mixed with charcoal and water

(c) Aruch and colleague during 2019 manioc festival

(d) Aruch painted in ngabe with *arym tujaru* pattern (wife pregnant with first child)

(e) Field course student being painted with genipapo dye

Note. All photos from M. Aruch except image (b). Image (b) source: https://commons.wikimedia.org/wiki/File:Genipa_americana_L._fruits_(codiferous).jpg

Both men and women are painted in two colors: black and red[9]. The black dye created from the mixture of genipapo fruit, charcoal, and water. Depending on the subject and circumstances, black genipapo designs are created using the broad strokes of a finger, or the delicate application of reed created from a twig. Generally speaking, women and children are painted in more elaborate designs with intricate geometric designs while men are often painted more coarse patterns. Black dye is applied to the subject's torso and legs. Once applied, the pattern remains on the skin for about two weeks. The red paint comes directly from the seed of urucum[10] and is applied without pattern and applied to a subject's feet, ankles, and face, typically in a band across the eye (Tuner, 1995; Figure 4). The red paint does not remain on the skin and may be washed off immediately after application.

Genipapo (black) designs represent the both the personal preferences and community social structure. Women painting in children of their household will experiment with variations of common or innovative designs resulting in "a coherent overall pattern out of many individually insignificant lines, dots, etc. The final result is unique, as a snowflake is unique. The idiosyncratic nature of the design reflects the relationship between the painter and the child being decorated" (Turner, 2012). Common designs represent animals including fish, turtles, jaguars, and so forth (See Kayapó et al., 2015). For ritual ceremonies all men and women of a certain age grade will be painted

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[9] See Turner, 2012 for a discussion of the meaning and placement of the black and red body paint.
[10] Urucum *(Bixa orellana)* is a seed used by the Kayapó and other Amazon Indigenous groups. The seed is covered by a waxy red tinged dye. The dye is used for adornment in routine and celebratory activities.

with the same pattern respectively (Turner, 1995; 2012). As Turner (2012) stated of the communal and ritual nature of painting, “their social context of application is typically collective: men’s age sets gathered in the men’s house [see Figure 4], or women’s societies, which meet fortnightly in the village plaza for the purpose of painting one another. On such occasions, a uniform style is generally used for the whole group (different styles may be used to distinguish structurally distinct groups, such as bachelors and mature men)” (p.494).

Kayapó Conservation Partnerships

Kayapó social organization presents “the possibility of collective political action to maintain or transform social and political conditions” (Turner, 1995c, p. 165). The Kayapó Territories present a unique opportunity for partnering or collaborating with outside conservation organizations focused on forest protection and biodiversity. For outsiders, Kayapó villages appear to speak with a single voice.[11] “When multiple Kayapó communities are brought together for inter-village decision-making, similar hierarchical processes of organization among the various communities allow for general consensus when working with partnering organizations.

Satellite images demonstrate the 11,000,000 hectares of Kayapó lands as a forest oasis amid widespread and ongoing deforestation (AFP, 2020d; ICFC, 2020b; ISA, 2010; Turner, 1995a; 1999; Zimmerman, 2010; see Figure 3). On all sides, Kayapó lands are threatened by external pressures from road construction, agriculture, logging, and mining.

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[11] Despite the outward appearance of unified voice, there are often differing opinions and mindsets within the community. Conflict sometimes leads to community fissions (see Bamberger, 1976; Jerozolimski et al., 2011).

In particular, roadways and population growth significantly increase deforestation rates throughout the Amazon region (ICFC, 2020b; Nepstad et al., 2006). People migrate and settle along the roads, resulting in small incursions by small landholding farms, loggers, and miners. Once a foothold is established by small- and medium-sized agroindustry, larger landholders drive large-scale deforestation (Fearnside, 2007; Nepstad et al., 2002). Figure 3 demonstrates this small scale "fishbone effect" a settlement continues along the western border of the Terra Indígena Bau along BR-163 (see also NASA Earth, 2021). On the eastern border of TIK, the full scale deforestation is visible from Redenção to Tucumã to São Felix do Xingu along PA 279, in a region referred to as the 'arc of deforestation.' (see Hecht & Cockburn, 2010; Schmink & Wood, 1992; Figure 3).[12]

On all sides, Kayapó livelihoods, embedded within a complex political ecology, continue to intersect with agricultural, mining, and logging interests, contradictory government policies, and environmental advocacy organizations (Anderson, 2019; Hecht & Cockburn, 2010; Puppim de Oliveira, 2008; Zimmerman et al., 2020). Kayapó social organization incorporates, adopts, and adapts strategies for negotiating with outside entities to maintain territorial and cultural sovereignty (Turner, 1995a; 1995c). Kayapó social organization and political actions are one reason the Kayapó are recognized as an Amazon conservation success story (Dowie, 2009; Schwartzman & Zimmerman, 2005; Schwartzman et al., 2013). As Zimmerman (2010) states, "the particular social organization of the Kayapo is, then, a cauldron that forged great leaders who have

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[12] For more information on BR-163 (the trans-Amazon highway) see Fearnside, 2007; Gonçalves, 2007; ICFC, 2019; Nepstad et al., 2006; Sbragia, 2006). For more information on the ecopolitics of the region near PA-279, see Fisher, 2000; Hecht & Cockburn, 2010; Schmink and Wood 1992; Zimmerman, 2010.

achieved more for the conservation of the southeastern Amazon than all governments, scientists and NGOs together… ritual organization of the Kayapo remains vital and continues to be a wellspring of Kayapo strength into the 21st century" (p. 68).[13]

Brief Overview of Brazil and the Amazon

Brazil, the largest country in South America, contains about 60% of the Amazon Forest within its borders. Since European arrival, the Amazon River, its forest, and its peoples have existed in a diverse mosaic of imaginaries ranging from romantic to savage, diverse to monolithic (Hames, 2007; Hecht & Cockburn, 2010; Jasanoff & Kim, 2015; Redford, 1991; Schmink & Wood, 1984; Schmink & Wood, 1992; Stearman, 1994; Zanotti, 2016). Despite a complex and rich history[14] (Posey & Balée, 1987; Schwartzman et al., 2013), the Amazon region is often characterized as a region of "low population density, weak social organization, river-based travel, chaotic landholdings and decentralized power" (Zanotti, 2006, p. 71). The Brazilian government often used the Amazon as a political vehicle, citing the region as a point of national pride, and a mechanism for modernization and economic development. In 1940, Brazilian president Getulio Vargas gave a speech to the nation encouraging settlement of the Amazon and "rational exploitation," stating:

> The Amazon, in the impact of our will and labor, will cease to be a simple chapter in the world, and made equivalent to other great rivers, shall become a chapter in

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[13] However, not all Kayapó communities are allied with environmentalists. Some villages permit mining and logging concessions, most notably the large village of Gorotire (see Turner, 1995a). Anderson (2019) details the current complexities in the region near PA 279.

[14] A detailed Amazon history is beyond the scope of this dissertation. See Balée, 1989, Hecht and Cockburn, 2010; Heckenberger et al., 2003; Posey & Balée, 1989; Schmink & Wood, 1984; 1992; and Zanotti, 2016 for more detailed history of the Indigenous activities and Brazilian policies in the Xingu region and Amazon more generally.

> the history of human civilization. Everything which has up to now been done in Amazonas, whether in agriculture or extractive industry... must be transformed into rational exploitation. (quoted from Hall, 1989)

From 1965 to 1985 a military dictatorship governed Brazil. One policy goal of the regime was modernizing and populating the Amazon region. A key feature of this modernization policy was developing and capitalizing on the natural capital and resources of the interior of the country to: (a) develop the area for sovereignty of the Brazilian nation, and (b) spur economic growth and prosperity in the Amazon region and provide natural capital and resources to the industrial centers on the coast (Fisher, 1994; Hecht & Cockburn, 2010; Schwartzman, 1998). Since the 1960s Brazil's social and economic policies have encouraged migration and developed the Amazon region to a road-based and agricultural industrial economy "for a land with men for men without land." Population growth and economic development has led to ever-increasing "mega" infrastructure projects including road and dam building (Fearnside, 1987; Fisher, 1994; Lutzenberger, 1985; Rich, 1994; Schmink & Wood, 1992; Scroth et al., 2006; Zanotti, 2016).

In 1985, when a democratically elected government came into power, Amazon areas that were previously designated "national security zones" by the military government were decentralized to local control (Keck & Sikkink, 2002; Nepstad et al., 2002; Zanotti, 2011). The new Brazilian government continued policies of Amazon frontier development, but it decentralized implementation and enforcement of government policies to the local level (Morsello, 2006; Puppim de Oliveira, 2008; Schmink & Wood, 1992). At the same time, development banks including the World

Bank and Inter-American Development Bank incentivized road building and energy-related infrastructure projects with significant environmental impacts (Fisher, 1994; Keck & Sikkink, 1998; Rabben, 2004; Rich, 1994; Wade, 2011). Ultimately, Brazilian government institutions were unable or unwilling to commit resources to forest protection. With a combination of forces driving globalization and decentralization, the regulation of Amazonian geographies fell to the interests of local landowners and business leaders, who often sought financial returns on intensive use of natural resources via agriculture, logging, and mining (Hecht & Cockburn, 2010; Morsello, 2006; Schmink & Wood, 1992). The resulting environmental impacts had devasting effects on Brazil's forest and Indigenous communities. Introduction of disease by migrating populations coupled with polluted waterways and fragmented habitats affected the plants, fish, and wildlife these communities relied upon for their livelihoods.

The shift to democratic government in Brazil over the same period resulted in a proliferation of civil society organizations focused on environmental activism and Indigenous rights. Indigenous leaders used their experiences working on the development schemes of the 1980s and 1990s to learn the Portuguese language and about Brazilian culture (Fisher, 1993; Rabben, 2004; Turner, 1995a). With better understanding of the dominant culture, Indigenous leaders and communities linked up with these civil society organizations in what Keck and Sikkink refer to as "transnational advocacy networks" (Keck & Sikkink, 1998). These networks were able to "generate influence on their behalf, to mobilize information strategically to help create new issues and categories, and to persuade, pressurize, and gain leverage over much more powerful organizations and governments" (Keck & Sikkink, 1999, p. 89). The Kayapó were among the most

successful Indigenous groups at leveraging local, national, and international institutions for goals of political, cultural, and territorial sovereignty.

Kayapó Responses and Resistance in the Amazon

Through social and political organization, the Kayapó responded to developments in the Amazon through a series of actions including violent resistance, political engagement, and strategic alliances, often using more than one strategy at a time. As early as the 1950s, the Kayapó were feared by settlers for their fierce resistance to incursions on their territory (Rabben, 2004). More recently, Kayapó "warfare" has been fought in the political arena. Images of Kayapó warriors adorned with body paint, elaborate beadwork, and headdresses and armed with warclubs and camcorders have become synonymous with well-known political protests against tropical deforestation, logging, mining, and megadevelopment in the Amazon region (Conklin & Graham, 1995; Conklin, 1997; Turner, 1991). The cases of the Gorotire gold mines, mahogany dealing, the Brazilian Constitution, and the Belo Monte Dam protest all highlight overlapping strategies of physical resistance, negotiation, political action, and continued involvement in transnational partnerships, alliances, and advocacy networks. Facing increasing incursions and loss of territory, the Kayapó leveraged their relationships with outsiders (Chernela, 2005a,b; Conklin & Graham, 1995; Dewar, 1995; Rabben, 2004; Schwartzman & Zimmerman, 2005; Zanotti, 2011) and innovative use of imagery and media technologies (Conklin, 1997; Turner,1991; Turner, 1993; Turner & Fajans-Turner, 2006) to address political, physical, and environmental invasions of their territories.

Physical Resistance of Gold Miners in Gorotire

In 1985, two illegal gold mines operated within the territory of the Kayapó village of Gorotire, near the town of Redenção. The gold miners had negotiated access through arrangements made with Kayapó leadership, who recorded the proceedings. Through these audio recordings, the Kayapó realized they were not receiving the payments guaranteed by the miners for gold extraction. In response, 200 Kayapó warriors seized and blockaded the landing strip, holding the 3,000 miners hostage (Beckham & Turner, 1997; Paiakan, personal communication; Schmink & Wood, 1992; Turner, 1993). To end the blockade, the Kayapó demanded the following from the Brazilian government:

1) The Kayapó gained the title and authority to the mines, including 10% of the proceeds on gold extracted, including back pay.[15]
2) The government must legally demarcate the Kayapó Indigenous areas so that the government would be accountable for any future illegal incursions (Turner, 1993).

Following a 10-day standoff, Kayapó demands were met and TIK was formally recognized by the Brazilian government (Turner, 1993; Zimmerman, 2010).

Negotiated Mahogany Deals

In the late 1980's, two Kayapó communities began negotiating with loggers for highly valued mahogany. By 1992, "mahogany logging was widespread across Kayapó territories and was rampant until the government finally stopped it in 2002" (Zimmerman, 2010, p. 65). Logging roads from Redenção reached the interior of Kayapó

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[15] With the returns on the proceeds from the mine, the Gorotire Kayapó bought an airplane to monitor its territory for illegal incursions and became the first Indigenous People with an "air force" (Beckham & Turner, 1997).

territories and many villages (including A'Ukre, see Figure 5). The logging roads were accessible only during the dry season, and often required several days of travel (Santilli, 1992). Zimmerman (2010) refers to the period of mahogany as "party time" for the Kayapó. In exchange for some logging concessions, the Kayapó received "a bonanza of travel, transport, tools, radios, boats, fuel, clothes, coffee, sugar, tobacco and beads" (Zimmerman, 2010 p. 66).

Figure 5

Logging Road Near A'Ukre

Note. Logging road in A'Ukre. Source: B. Zimmerman collection, circa 2001

Amongst the Kayapó, mahogany logging represent access to financial, social, and political capital (Fisher, 1994). In exchange for a few of these culturally insignificant trees, the Kayapó received considerable royalties and access to political leaders. There was no loss of territory and the expectation was that the loggers would not stay. Mahogany deals made the Kayapó one of the wealthiest Indigenous groups in the world (Dewar, 1995; Rabben, 2004). The social organization, wealth and stock of natural

resources made many Kayapó leader important local, regional, and national political actors until 2002 when the Brazilian government outlawed logging on Indigenous territories (Zimmerman, 2010).

Political Action in Brasília

Armed with camcorders to record the proceedings and accompanied by an international press corps, Kayapó imagery and media savvy contributed greatly to the political influence and pressure they were able to place on Brazilian lawmakers (Conklin, 1997; Conklin & Graham, 1995; Turner & Fajans-Turner, 2006). In the 1980s, Kayapó leaders made repeated trips to Brasília to end the violent standoffs in their territories and advocate for their rights as the new Constitution was developed (Paiakan, personal communication). Painted in black genipapo while dressed in colorful headdresses, beaded necklaces, and armbands, the Kayapó participated in debates regarding Indigenous rights to lands and resources (Conklin, 1997; Conklin & Graham, 1995). The Kayapó successfully lobbied the appropriate deputies (Fisher, 1993). These Kayapó political actions and pressure campaigns were instrumental in:

1) The inclusion of Indigenous rights in the 1988 Constitution (Article 231).[16]
2) The demarcation of Kayapó lands including the *Capoto* Indigenous area (1985), the Kayapó Indigenous area (1985), and the *Mengraknoti* (1992) (ISA, 2016; see Figure 3).

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[16] Brazil 1988 Constitution, http://www.planalto.gov.br/ccivil_03/constituicao/constituicao.htm

The Kayapó continue to be politically active both locally and in Brasília advocating for Indigenous rights and land demarcation.

Leveraging Transnational Advocacy Networks and Partnerships in Altamira

The 1989 Altamira (PA) Indigenous Gathering's opposition of the World Bank-funded Belo Monte Dam is among the most renowned examples of the Kayapó leveraging transnational advocacy networks. In 1987 two Kayapó leaders, Paulinho Paiakan (Paiakan) and Kuben-i, received invitations to Florida International University from North American anthropologists Janet Chernela and Daryll Posey. As shown in Figure 6, the two Kayapó leaders participated in a conference about Indigenous Peoples and conservation biology (Chernela, personal communication; Rabben, 2004; Suzuki, 2006). There, the Kayapó leaders were told of plans for a series hydroelectric dams to be constructed along the Xingu River. These infrastructure projects were going to be financed by the World Bank. Despite the potential impact of the dam on many Indigenous Peoples, the Kayapó were never consulted as required by the Brazilian Constitution (Article 231). Posey and Chernela accompanied the Kayapó leaders to Washington DC, where they met with executives from the World Bank and a handful of United States senators. Upon returning to Brazil, Paiakan used his international connections to begin organizing a "gathering" of Indigenous peoples from around Brazil and the world to protest the dam construction in Altamira (Conklin & Graham, 1995; Fearnside, 2006; Suzuki, 2006; Zanotti, 2015).

Figure 6

Paiakan and Kuben-i with Daryll Posey at Florida International University

Note. Photo courtesy of Janet Chernela.

In 1988, Canadian documentary filmmaker David Suzuki was introduced to Paiakan when he visited Brazil to film a documentary on the Brazilian Amazon (Suzuki, 2006). Impressed by Paiakan's political savvy and environmental activism, Suzuki arranged for Paiakan to visit Canada to raise awareness and funding for the Altamira gathering and protest. In November 1988, Paiakan gave a speech[17] at Saint Paul's Anglican Church in Toronto soliciting support:

> We Kayapó Indians[18] are at war against the dam at Altamira Xingu. This fight concerns many people and this is why I am here. I don't want this to be only our fight. I want the fight of all of you here- of this country- help in this fight so that our forest won't be flooded, our sacred land won't be flooded… We want to end

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[17] Translated by Dr. Barbara Zimmerman who accompanied Paiakan and Suzuki.

[18] Indian (*Índios)* is a term used colloquially within Brazil for Indigenous peoples. In my writing, I prefer the term Indigenous peoples (see Smith, 2012, pp. 6-7), but use the term Indian when quoting, translating, or transcribing directly from text or audio.

this dam so as not to scare away the game, nor ruin the fish, nor ruin the river- so we can eat the fish.

Collectively, Paiakan was able to organize Kayapó and other Indigenous leadership to send representatives in solidarity to Altamira along with these diverse international groups. In Altamira, Paiakan's leadership brought together a diverse set of actors that had previously worked in isolation from one another including those focused on human rights, Indigenous rights, and both anthropological and environmental organizations (Turner, 1993). The Altamira Gathering drew the attention of international media, celebrities, and businesses who raised the profile of the event to the international community (Conklin, 1997; Conklin & Graham, 1995; Suzuki, 2006; Turner, 1993). The resulting backlash and international pressure forced the World Bank to rescind project funding (see Turner, 1993).[19]

The Altamira protest is widely regarded as a cornerstone case in successful Indigenous organization and resistance. In the lead up and aftermath of the Altamira Protest, Paiakan became an international environmental icon. He was on the cover of Parade Magazine with the title, "A man who would save the world" (Whittmore, 1992). A'Ukre,[20] Paiakan's village, was one of two Kayapó communities selected to pilot the Body Shop's Brazil nut oil-based Trade Not Aid program (Morsello, 2006; Morsello & Adger, 2007; Petean, 1996; Santilli, 1992; Suzuki, 2006; Turner, 1995b). Anita Roddick

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[19] While the initial funding for the Belo Monte Dam in Altamira was withdrawn, the project was ultimately completed 2016. The dam was expected to be operational by 2019, but continues to be embroiled in political and environmental conflicts. For more details on the hydroelectric project refer to Fearnside, 2006; Fisher, 2011, Zanotti, 2015.

[20] Zanotti (2016, pp. 14-24) provides a detailed history and introduction to the A'Ukre community in her text *Radical territories in the Brazilian Amazon: The Kayapó's fight for just livelihoods.*

of the Body Shop, at the behest of Paiakan and Suzuki, donated an airplane to A'Ukre, leading some later A'Ukre visitors to refer to "Kayapó Airlines" (Dewar, 1995; Suzuki, 2006).

The Origins of the Pinkaiti Partnership and Case Study

Barbara Zimmerman, a PhD student working in Manaus on the Biological Dynamics of Forest Fragments Project (BDFF), accompanied and translated (Portuguese to English) for Paiakan in Canada (Paiakan, personal communication; Suzuki, 2006; Zimmerman personal communication). During their discussions in North America and Brazil, Paiakan invited Zimmerman to visit the A'Ukre community (Chernela, 2005a,b; Zimmerman, personal communication). Zimmerman said, "He [Paiakan] probably invited everyone to A'Ukre, but I actually went" (Zimmerman, personal communication). Paiakan and Zimmerman's relationship and subsequent June 1991 visit set in motion a decades-long partnership and collaboration between the A'Ukre community and NGOs, universities, and government actors anchored in research and education. In 1991, A'Ukre was fully enmeshed in the regional economic cycle centered on mahogany extraction (Fisher, 2000; Zimmerman, 2010; Zimmerman et al., 2001).

During the 1991 visit, A'Ukre and Zimmerman agreed that forest preservation was a mutual goal for both the Kayapó and conservation organizations. A'Ukre agreed to set aside 5,000 hectares for an ecological reserve to protect a remaining stand of mahogany. In exchange, Zimmerman left A'Ukre and sought external financial, human, and political resources to execute the project. After leaving A'Ukre, Zimmerman wrote letters to Suzuki as well as colleagues at BDFF, The World Wildlife Fund, and

Conservation International to describe her meeting in A'Ukre and subsequent plan of action. Zimmerman wrote:

> I have just returned from an amazing trip to Paiakan's village, in the middle of nowhere, somewhere at the end of the world in southern Pará… I am fascinated with the potential role of Indians in conservation of the Amazon and hope to make this my career…The plan that emerged in my relations with [the community] is that A'Ukre become a focus of "ecotourism" and applied conservation ecology research. (Zimmerman, 1991a)

Soon after, with support from the David Suzuki Foundation (DSF) and Conservation International (CI), A'Ukre and Zimmerman broke ground on the Pinkaiti Ecological Research Station. Between 1992 and 2004 Pinkaiti was an active research facility. Dozens of scientific research papers and reports were published from the work of field ecologists and biologists at Pinkaiti (see https://tinyurl.com/de5r56b5). In 2004, the focus at Pinkaiti shifted from research to international education. Under the leadership of A'Ukre, Zimmerman, and Dr. Janet Chernela, an anthropology professor at the University of Maryland College Park (UMD), Pinkaiti and A'Ukre became the site for an international field course entitled *Indigenous Peoples, Conservation, and Sustainable Development*.

Pinkaiti generated additional scholarship aside from the basic and applied ecology research at Pinkaiti. For example, discussions regarding the CI-A'Ukre partnership and relationship include forest conservation and sustainable development partnerships and alliances (see Chernela, 2005a,c; Dowie, 2009; Peres & Zimmerman, 2001; Rabben, 2004; Schwartzman & Zimmerman, 2005, Zimmerman et al., 2001; Zimmerman et al.,

2020). Additional Pinkaiti Partnership research uses social science perspectives to analyze community-conservation partnerships (Chernela, 2005a; 2005b; Chernela & Zanotti, 2014; Zanotti, 2011; 2014a), ecotourism and international education (Zanotti & Chernela, 2008), intercultural collaboration (Zanotti, 2016; Zanotti & Palomino-Schalscha, 2016), media making (Ramón-Parra et al., 2018), and ecopedagogy (Aruch et al., 2019).

Framing the Study

Since 2014, I participated in the Pinkaiti Partnership as a field course instructor. As an international education scholar, I became interested in understanding how this transnational set of actors converged to collaborate in the forest spaces of Pinkaiti and community spaces of A'Ukre. This dissertation builds on the scholarly work and experiences of the A'Ukre community, Paiakan, Zimmerman, Chernela, Jerozolimski, Zanotti, and others who created, participated in, and continue to discuss Pinkaiti Partnership activities. Using an embedded comparative case study methodology (Bartlett & Vavrus, 2017a,b,c; Scholz & Tietje, 2002; Yin, 2014), this report tells the Pinkaiti Partnership story from perspective of the A'Ukre community, NGO, and university partners, unfolding over four overlapping eras: (1) partnership initiation; (2) early research; (3) international research and scale; and (4) the field course. Through a set of interviews, documents, and participant field observations, this dissertation unpacks Pinkaiti as a "boundary object" through which stakeholders engage and interact with one another as they move through the partnership eras. The case study that follows will address three broad domains:

1) Recreate and detail the *structure, processes,* and *outcomes* of the Pinkaiti Partnership using the perspectives of different stakeholder groups: A'Ukre community, NGOs, and university partners.
2) Apply *boundary object* theory to analyze the Pinkaiti Partnership as a transnational multi-stakeholder partnership.
3) Generate *usable knowledge* for the design, implementation, or evaluation of research or education based transnational multi-stakeholder partnerships.

Dissertation Organization

The dissertation is divided into three sections that provide theoretical, methodological, practical, and applied understandings of the Pinkaiti Partnership.

Section I (Chapters 1-3): Literature, Methodology, Setting, and Participants

In Chapter 1, I provided a basic overview, history of, and justification for the study. Chapter 2 presents the literature on partnership work and boundary objects, providing the contextual and theoretical foundation for the study's conceptual framework. First, the history and literature of "partnership" is discussed, offering an analytic model for mapping partnership structure, processes, and outcomes. Second, there is overview on the theoretical underpinnings of boundary work and boundary objects for discussing intra- and intergroup interactions and collaborations without consensus. Chapter 3 presents an overview of the setting, participants, and research methods used within the case study.

Section II (Chapters 4-6): Stakeholder Perspectives

Chapters 4-6 present the research methods and findings for each stakeholder group. Each chapter in this section "stands alone" in relation to other chapters. Chapter 4

presents the partnership history from the perspective of the A'Ukre community. Chapter 5 unpacks the NGO partner experience. Chapter 6 recounts the participation of university partners including the Brazilian and North American students, instructors, and administrators who did research or participated in the Kayapo field course. Chapters 4-6 each offer separate but complementary viewpoints to the partnership history.

Section III (Chapter 7): Synthesis, Summary, and Recommendations

Chapter 7 synthesizes Chapters 4-6 and interprets partnership organization and activities through the lenses of boundary work and boundary objects. Chapter 7 presents the big picture, highlighting key takeaways, study limits, and areas for further engagement for international education and research activities.

Chapter 2: Partnerships, Boundary Work, and Boundary Objects

The Pinkaiti Partnership brings the A'Ukre Kayapó, NGO, university, and government partners together in collaboration around a set of international education and research activities. This chapter lays outs the analytical, theoretical, and conceptual groundwork for unpacking partnership structure, processes, and outcomes. In this chapter I will first discuss partnership literature, outlining the history, characteristics, critiques, and evaluation frameworks for transnational, multi-sectoral, or multi-stakeholder[21] partnerships. The literature discussed undergirds an analytic tool for describing and understanding partnerships in action. Next, I frame partnerships as a type of *boundary work*, discussing literature on boundary work, boundary organizations, and *boundary object*s as a conceptual framing for understanding transnational multi-stakeholder partnerships. The final section maps the conceptual framework of boundary objects onto the analytic tool for partnership work, identifying the Pinkaiti Ecological Research Station as a boundary object for understanding the structure, processes, and outcomes of the Pinkaiti Partnership.

Partnership Literature

Partnerships are a hybrid form of governance that leverage finances, expertise, and strategic advantages across a set of actors to reach a series of mutually-intended outcomes (Bäckstrand, 2006; Biermann, Man-san Chan, et al., 2007; Witte et al., 2003). Concepts, features, and rationale for partnerships vary within a cross-disciplinary body of literature. The discussion around partnerships is littered with terminology including

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[21] Ros Tonen (2007), Glasbergen (2007), Biermann and Mol (2007), and others use the terms multi-sectoral and multi-stakeholder interchangeably.

collaboration, coalition, network, alliance, or joint working, but for many researchers, partnerships represent more specific, nuanced, and formal arrangements that are distinct from networks and collaboration[22] (Brinkerhoff, 2002a,c, 2007; El Ansari et al., 2001; Fowler, 2000a; Gray & Purdy, 2018; Keck & Sikkink, 1998). In practice, partnerships are socially agreed-upon arrangements reflecting and enacting the complexities of different identities, values, histories, goals, cultures, languages, and values, as well as political, social, and economic incentives across social worlds (Bijker, 2001; Brinkerhoff, 2007; Clarke & Star, 2007).

Defining Partnership

Partnership definitions vary across disciplines, but typically include the idea of collective actions toward a common goal or outcome. For example, in work on sustainable forest management, Ros Tonen (2007) defined partnerships as "formal arrangements between two or more parties from various sectors around (at least partly) shared goals, in the expectation that each party will gain from this arrangement" (p. 5). In public health, partnerships were defined as "the notion of collective actions by individuals or their organizations for a more shared communal benefit than each other could accomplish as an individual player" (El Ansari et al., 2001, p. 215). In business administration, Mohr and Spekman (1994) defined partnership as "purposive, strategic relationships between independent firms who share compatible goals, strive for mutual benefit, and acknowledge a high level of mutual interdependence. They join efforts to

[22] Depending on the level of cooperation, Brinkerhoff (2002b) identifies four categories of collaborative work: partnership, where both mutuality and separate organizational identity are maximized; contracting; extension; and co-option and gradual absorption.

achieve goals that each firm, acting alone could not attain easily" (p. 125). Similarly, Kolk (2013) referred to partnerships as "forms of collaboration that combine the competence, skills and expertise of … types of actors… to overcome their individual limitations" (p. 2).

Global governance literature defines partnership similarly. The 2002 World Summit on Sustainable Development (WSSD) defined partnership as "specific commitments by various partners intended to contribute to and reinforce the implementation of outcomes of the intergovernmental negotiations of the WSSD and to help achieve the further implementation of Agenda 21 and the Millennium Development Goals" (Kara & Quarless, 2002). In looking at partnerships for environmental governance regimes, Ivanova (2003) stated that partnerships "bring together the advantages of the public sector…and of the private sector and are often gelled together by the convening power, facilitation abilities and support framework of international organizations" (p. 13). Regarding NGOs, Alan Fowler (2000a) contended that "partnership" was "understood as a code word to reflect humanitarian, moral, political, ideological, or spiritual solidarity between NGDOs in the North and South that joined together to pursue a common cause of social change" (p. 2). Finally, Brinkerhoff (2002a) stated an ideal, if impractical, definition of partnership as "a dynamic relationship among diverse actors, based on mutually agreed objectives pursued through a shared understanding of the most rational division of labor based on the respective comparative advantages of each partner" (p. 216).

Background[23] on Transnational, Multi-Stakeholder Partnerships

While Nongovernmental Development Organizations (NGDOs) have long used the partnership concept as a theme to describe relationships among stakeholders (Fowler, 2000a), the 1992 United Nations Conference on the Environment and Development (UNCED) in Rio de Janeiro (often referred to as the Earth Summit) is typically accepted as when the discussion of multi-stakeholder partnerships became part of the global governance agenda (Bäckstrand, 2006; Dodds, 2015; Ivanova, 2003).

1992 United Nations Conference on Environment and Development

During UNCED, Agenda 21 called for:

> The active engagement of various "social groups," specifically identifying the roles and responsibilities of nine actor groups to develop and implementing sustainable development policies: Women, Children and Youth, Indigenous Peoples, Non-Governmental Organizations, Local Authorities, Trade Unions, Business and Industry, Scientific and Technological Community and Farmers. (United Nations [UN], 1992, Agenda 21, Section III)

In the decade after UNCED (1992–2002), both formal and informal partnerships proliferated in the international arena (Witte et al., 2002). Later, the 2000 Millennium Development Goals (MDG) made Global Partnership for Development (Goal 8) an international priority, stating that "global partnerships" enhanced the efficiency and transparency of global governance to meet MDG Goals 1-7, particularly in challenging

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[23] For a more detailed history of partnerships and the United Nations, see https://sustainabledevelopment.un.org/sdinaction/publication/partnerships-a-legacy-review

contexts such as the world's poorest countries, small islands, or landlocked states (UN, 2000).

2002 World Summit on Sustainable Development

The World Summit on Sustainable Development (WSSD) formalized the international community's commitment to multi-stakeholder, transnational partnerships, introducing the language of Type I and Type II development outcomes (Hemmati & Whitfield, 2003). Type I outcomes are historically typical bilateral relationships between nation states or donor agencies, while Type II outcomes represent multi-stakeholder transnational partnerships. At the time of the 2002 Summit, Type II partnerships were designed primarily to assist and compliment the work of traditional Type I bilateral partnerships (Bäckstrand, 2006; Dodds, 2015). Type II outcomes were "characterized as collaborations between national or sub-national governments, private sector actors and civil society actors, who form voluntary transnational agreements to meet specific sustainable development goals" (Dodds, 2015, p. 6). WSSD was an essential moment for the legitimacy of multinational, multi-stakeholder partnerships in the international development arena (Ivanova, 2003; Witte et al., 2002). WSSD highlighted seven criteria for partnership:

1. They should be voluntary and based on shared responsibility.
2. They must complement, rather than substitute, intergovernmental sustainable development strategies, and must meet the agreed outcomes of the Johannesburg summit.

3. They must be international in scope and reach and consist of a range of multi-level stakeholders, preferably within a given area of work and have clear objectives.
4. They must ensure transparency and accountability.
5. They must have specific targets and time-frames for their achievement and produce tangible results.
6. The partnership must be new and adequate funding must be available.
7. A follow-up process must be developed for accountability and sustainability (Kara & Quarless, 2002).

In 2003, at the Commission of Sustainable Development in Bali, Type II partnership guidelines were adjusted to incorporate the language of sustainable development. Type II outcomes "should bear in mind the economic, social and environmental dimensions of sustainable development in their design and implementation (Dodds, 2015, p. 7). This rhetorical shift toward "sustainable development" forecasted the important role of partnerships in the 2012 UN Conference on Sustainable Development and the 2015 Sustainable Development Goals.

2012 UN Conference on Sustainable Development

The 2012 UN Conference on Sustainable Development (known as Rio +20) further legitimized Type II partnerships in global governance. Rio +20 is recognized as the most inclusive UN conference to date (Cutter et al., 2013), with participation and representation from government, civil society, research, academia, and the private sector convened to discuss, deliberate, and develop formal and informal commitments for sustainable development outcomes. Still, critics argue Rio +20 wasn't inclusive enough,

citing power imbalances, structural inequality and participant exclusion from decision making processes (McDonald, 2012; Nelson, 2012; Watts & Ford, 2012). On the other hand, partnership work was a cross-cutting theme of Rio +20, which focused on the green economy, poverty eradication, and the "institutional framework for sustainable development" (UN, 2021c). At the end of the conference more than 700 voluntary partnership commitments were recorded and compiled into an online registry managed by the Rio+20 Secretariat (Cutter et al., 2013; UN, 2021b).

2015 Sustainable Development Goals

In 2015, the UN released the Sustainable Development Goals (SDGs),[24] an ambitious set of 17 goals and 169 targets for the global community to achieve by 2030 (UN, 2021a). SDG Goal 17 specifically highlighted the role of partnerships in achieving goals to "strengthen the means of implementation and revitalize the global partnership for sustainable development" (UN, 2015).

SDG goals 17.6 and 17.7 specifically identified the role of multiple stakeholder partnerships to:

> 17.6) Enhance the global partnership for sustainable development, complemented by multi-stakeholder partnerships that mobilize and share knowledge, expertise, technology and financial resources, to support the achievement of the sustainable development goals in all countries, in particular developing countries.

[24] These goals address poverty, hunger, good health and well-being, quality education, gender equality, clean water and sanitation, affordable and clean energy, decent work and economic growth, industry, innovation and infrastructure, reduced inequalities, sustainable cities and communities, responsible consumption and production, climate action, life below water, life on land, peace, justice and strong institutions, and partnerships for the goals (U, 2015).

17.7) Encourage and promote effective public, public-private and civil society partnerships, building on the experience and resourcing strategies of partnerships (http://www.un.org/sustainabledevelopment/globalpartnerships/).

An online database of SDG partnerships details more than 2000 initiatives registered across all the 16 SDGs target areas (UN, 2021a). Each partnership consists of its own set of actors and interactions.

Partnership for What and With Whom?

Transnational multi-sectoral partnerships, by definition, involve multiple actors across national boundaries. Fluidity exists within partnerships; goals are dynamic, and actors often take on different roles and responsibilities (Brinkerhoff, 2007; Sabatier et al., 2005). Ros Tonen (2007) differentiated among partnership types within forest management depending upon the actors involved. These include public-private, company-community, NGO-community, multi-sectoral, research, and political partnerships. Glasbergen (2007, p. 10) noted that partnerships are commonly organized around (a) raising awareness, (b) disseminating information on sustainable development, (c) providing technology assistance in management processes, or (d) innovation to develop a new, more sustainable product. These typologies are not mutually exclusive, and partnerships may take on more than one type at the same time or different types over the duration of the partnership (Sabatier et al., 2005).

Actors participate in partnerships based on the context, objectives, and interests of each actor and the target area of interest (Beisheim & Leise, 2014; Brinkerhoff, 2002c). Gray and Stites (2013) discussed four main motivations to partnering for NGOs and businesses: legitimacy-oriented, competency-oriented, resource-oriented, and society-

oriented motivations. Brinkerhoff (2002c) stated that actors, in ideal settings, choose to partner for at least one of the following reasons:

1. Enhance and improve effectiveness by leveraging comparative advantages and division of labor to enhance delivery of goods and services.
2. Multi-actor, integrated solutions required because of the nature of the problem/ issue at hand. Without partnering, the effort to address the issue would be impossible.
3. To move from a no-win situation among multiple actors to a compromise and potential win-win situation.
4. To open decision-making processes to promote a broad operationalization of the public good for both normative and practical reasons. Normatively, they expand and maximize representation in the decision-making process. Pragmatically, inclusiveness is often related to partnership sustainability (p. 6).

The standard “tripartite” partnership includes government, business, and NGO partners, but partnerships typically also include national and local government agencies, international and national NGOs, local communities, community-based organizations, the private sector, international donors, development agencies, universities, and the research community (Beisheim et al., 2014; Kolk, 2013). Brinkerhoff (2002c), Gray (1989) and Purdy & Gray (2018) all discuss processes for choosing appropriate partners for the right reasons, noting selection criteria for strengths and weakness of potential partners.

Governments

Governments “represent the most potent concentration of political and economic power and thus may be need to be included, consulted or at least informed” of partnership

work within their borders (Brinkerhoff, 2002c, p. 58). Government partners include local, regional, or national officials or agencies.

Governments offer important partnership advantages. The state is a convener, agenda setter, and offers legitimacy and credibility to the formation and mission of the partnership work (Gray, 2007). Governments can contribute essential financial and material assets and hold important technical expertise or data. In addition, they have the authority and capacity to set priorities and disseminate information among actors.

Potentially, governments can also hinder partnership work. Large bureaucracies may slow service delivery, decision-making, and resource allocation. Equity and representation are also concerning. Governments often do not speak for all of their constituents. Partnership may only serve certain segments of society, and governments may actively suppress civil society or marginalized communities, making the work of NGOs and community based organizations (CBOs) more difficult, dangerous, or impossible. In the international partnership arena, governments may also distrust and be suspicious of foreign government or NGO actors as fomenters of dissent or threats to national sovereignty over land and natural resources. Finally, weak national institutions and transitions of power threaten the stability and sustainability of partnerships as social and political priorities frequently shift from one government (or government official) to the next. Despite its drawbacks, government support is an important, and often necessary, feature of multi-sectoral partnerships. Partnerships typically cannot flourish without at least tacit approval from the government.

Nongovernmental Organizations.[25]

NGOs "have evolved into strategically managed development specialists, treading the fine line between knowing the technical language and processes of the development industry and maintaining responsiveness to developing country client and individual contributors" (Brinkerhoff, 2002c, p. 48). Since the 1980s, there has been a proliferation of NGOs operating across all social and development sectors (Fernandes, 1985; Fowler, 2000b). Typically, NGOs are sector- or geographically focused, but big international NGOs (BINGOs) can be cross-national and cross-sector. BINGOs play significant roles in the financing, design, implementation, and evaluation of initiatives, leveraging human and financial resources toward strategic objectives such as the environment, energy, education, public health, and so forth (Dowie, 2009).

Theoretically, partnering with NGOs offers many advantages. NGOs are understood to be more dynamic than government agencies. NGOs are also perceived to be "neutral" and autonomous actors. As a result, NGOs can be "transformational" in facilitating service delivery by navigating the spaces between and among partners (Stromquist, 2008). Similarly, NGOs can act as knowledge brokers between the different vertical and horizontal partnership linkages (Fowler, 2016; Seixas & Berkes, 2010). In ideal situations, NGOs provide a degree of neutrality, flexibility, and credibility to the partnership.

There are also several NGO weaknesses related to purported NGO strengths (Klees, 2008; Steiner-Khamsi, 2008; Stromquist, 2008). BINGOs deal with many of the

[25] The special 2007-2008 10-year anniversary issue of *Contemporary Issues in Comparative Education* extensively detailed strengths and weakness of NGOs in international education and development.

same bureaucratic service-delivery issues as governments. Similarly, NGO practices may not be neutral; relationships and priorities can create tension, conflict, and disagreement in organizational priorities (Dowie, 2009). NGOs exist within a political economy strongly influenced by political and economic conditions created by government or donor institutions (Klees, 2008; Steiner-Khamsi, 2008). An NGO marketplace exists where BINGOs compete for "big ticket" projects with smaller NGOs even if the organization is not the best suited or the project doesn't represent the most critical needs. Still, most standard multi-sectoral partnerships typically include at least one local, national, or international NGO, often responsible for service-delivery at the local level. Chapin's (2005) critique of BINGOs and Chernela's (2005a, 2005b) response on the topic of Indigenous-NGO partnerships in the Brazilian Amazon (and the Kayapó case) clearly illustrates the challenges and opportunities of NGO engagement with respect to values, finances, autonomy, and agency.

Community-Based Organizations

Community-Based Organizations (CBOs) are typically smaller, localized NGOs or community governance arrangements not often officially "registered" with the government (Brinkerhoff, 2002c). CBOs typically have a much smaller scope and portfolio than NGOs, representing communities at the most grassroots levels.

CBO partners present several advantages. The focus on local constituents provides a stronger incentive for solutions. CBOs have the most accurate community information that can lower resource costs and improve the efficiency and equity of service delivery (Brinkerhoff, 2002c). CBOs can make decisions quickly and, in the right

circumstances, can share information rapidly, contributing to "bottom up" planning and sustainability of service delivery.

CBOs also have drawbacks. Often, CBOs are resource-limited and rely on partners for important financial, material, and technical contributions. Power dynamics also play out in communities. As a result, there are concerns around representation, equity, and elite capture in service delivery. In tense or violent sociopolitical contexts, CBO staff involvement may be dangerous for people who risk oppression or violence. In particularly, the inclusion CBOs are obligatory for partnerships boasting "community-based" or "participatory" design (Beisheim et al., 2014).

Academia and Research Institutions

Academic and research institutions are perceived to be neutral actors that can provide credibility, knowledge, and technical support (Amey & Brown, 2005; Ros Tonen, 2007). In addition, academics bring a focus on knowledge production that can facilitate translation across contextual cases (Chisholm, 2003). Researchers also feature prominently in relationship-building, acting as boundary spanners between local communities and government or NGO partners (Chernela, 2005b; Tuhiwai-Smith, 2012). Academics may build credibility, legitimacy, and trust by embedding themselves within local communities for repeated or extended periods of time. Researcher backgrounds are uniquely qualified to understand the complicated boundary spaces between local, national, and global contexts.

Academia and researcher participation also has potential drawbacks. While academia may be considered "neutral," institutions or researchers may be driven by ideological, professional, or economic incentives. These perspectives reinforce external

colonial and neoliberal ideologies within local communities or so called “less developed” countries (Tuck & Yang, 2012; Tuhiwai Smith, 2012). More practically, intended partnership outcomes for the researcher or research institution may not align with the goals of other partners. University research typically operates on a funding cycle that does not match to the time frames necessary for sustainable partnership work. When funding runs outs or the “research” runs its course, academic researchers may be unable or unwilling to continue projects. Likewise, partnership projects sometimes have a single academia or research “champion.” Shifts in positions or institutions can therefore jeopardize the sustainability of the partnership.

Public and Private Sector Donors

Financing is often the primary input of donor participants. However, donors also may offer important technical assistance for program design, implementation, and evaluation. Donors typically represent multilateral and bilateral agencies, foundations, BINGOs, and the private sector. The business sector increasingly contributes technical knowledge and funding support for development work in the form of corporate philanthropy and corporate social responsibility (Brinkerhoff, 2002c; Gray & Stites, 2017). Beyond traditional business, social entrepreneurs are increasingly engaged in partnership and development work (Beisheim et al., 2014; Fowler 2000b). Donors leverage their resources to convene actors and set agenda priorities (Dowie, 2009; Steiner-Khamsi, 2008). Donors can use their significant financial leverage as an incentive to identify and organize partnership actors. Increasingly, foundations and the private sector have contributed funds to their own areas of priority or strategic interest (Brinkerhoff, 2002c; Dodds, 2015; Kolk, 2013).

Critiques of donors and the private sector often relate to administrative procedures. As in academia, donor-funding cycles often do not match the needs of social or environmental issues, which require a longer time frame than a typical donor cycle allows. Over time, donor fatigue impacts partnership and program sustainability. With respect to implementation, donors may be unaware of the contextual issues "in the field." Donor finances can also adversely affect partnership work. Funding conditions shift incentives for NGO and CBO organizational identities to chase funding (Klees, 2008; Steiner-Khamsi, 2008). These incentives may shift organizational resources away from needs on the ground toward the institutional priorities of the donor agency rather than those of the NGO or CBO. Private sector actors may be self-motivated to partner in order to enhance their own public perception rather than for the purpose of reaching development outcomes (Morsello, 2006; Turner, 1995b). Furthermore, the private sector may only reinforce or support existing power structures and dynamics, creating mistrust among traditionally marginalized communities or populations already skeptical or wary of private business interests (Tuhiwai Smith, 2012).

Partnership Characteristics

Literature on partnership organizes partnerships into dimensions of structure, processes, and outcomes as a descriptive framework and starting point for understanding how partnerships are constructed and analyzed. These dimensions and underlying characteristics often reinforce one another, are fluid, and are not mutually exclusive (Brinkerhoff, 2002b,c; Sabatier et al., 2005; van Tulder, 2013; see Table 2).

Table 2

Features and Characteristics of Partnerships

Structure		Processes and activities	Outcomes
Internal	External		
Category and function	Political environment	Decision-making	Project duration and sustainability
Actors	Community and social environment	Conflict management	Accountability
Leadership	Financial and economic context	Knowledge and Information	Legitimacy
Organizational identity		Communication	Effectiveness and efficiency
Partnership fit		Partnership activities	
Transparency			
Equity and empowerment			
Financial and economic context			

Partnership Structure

Partnership structure refers to the internal and external make-up of the partnership. Internal and external features often overlap. For example, financial considerations refer to the internal finances of the partnering organizations and external funds available.

Internal Structure. Internal features are partnership characteristics that exist within and between partnering organizations to include the category and function, actors, leadership, organizational identity, fit, transparency, and equity and empowerment.

Category and Function. The category and function reference the problem arena or institutional field and the strategies or activities used to address the problem (Biermann, Pattberg, et al., 2007; Gray & Purdy, 2018; Witte et al., 2002). For example, category and function may correspond to one of the Sustainable Development Goals (UN, 2015). The category and function of the partnership is typically defined by its mission and vision (Brinkerhoff, 2002a; van Tulder et al., 2016).

Partnership Actors. Identifying actors and their role in the partnership is important for determining partnership activities, as well as for measuring outcomes and effectiveness (Biermann, Pattberg, et al., 2007; Kolk, 2013). As discussed above, partnership actors come from across the stakeholder spectrum.

Leadership. Leadership is an essential feature for driving partnership activities and shaping partnership dynamics (Biermann, Pattberg, et al., 2007). Leadership occurs within individual partners and between partnering organizations. Institutional support from leaders at the highest levels of partnering institutions lends legitimacy and credibility to partnerships (Brinkerhoff, 2002a).

Leaders in multi-sectoral partnerships are often facilitated by individuals with relationships and roles across partner organizations, who are able to link actors to facilitate partnership development and program implementation (Amey et al., 2007; Fowler & Beikart, 2017; Seixas & Berkes, 2010; Williams, 2019). These individuals, called champions, knowledge brokers, policy entrepreneurs, or boundary spanners, take on multiple roles by linking institutional actors in partnership design and implementation (Amey et al., 2007; Brinkerhoff, 2002a,c; Seixas & Berkes, 2010; Shediac-Rizkallah & Bone, 1998; Williams, 2013; Williams, 2019).

Organizational identity. Organizational identity highlights two levels of partnership. First, at the institutional (meso) level, organizational identity unpacks the distinctive character of partnering organizations. More broadly, organizational identity also addresses the partnership as a whole (Brinkerhoff, 2002c; van Tulder et al., 2016). First, organizational identity represents the mission, vision, goals, resources, and activities of individual partners (meso level). Second, the partnership takes on its own

identity as different institutions link together to identify and develop its own mission, vision, goals, and activities (macro level). Tension exists between individual autonomy versus cross-institutional dynamics in the partnership arena (Brinkerhoff, 2002c; Glasbergen et al., 2007; Gray & Purdy, 2018). In an ideal partnership environment, stakeholders do not undermine their own missions or values (Brinkerhoff, 2002a, 2002b; Fowler, 2000a). Organizational identity is not static and may shift due to other structural features.

Partnership fit. Fit, interdependence, compatibility, or complementarity refers to the way in which partners align their comparative and strategic advantages to maximize outcomes (Biermann, Pattberg, et al., 2007; Brinkerhoff, 2002a,c; Granovetter, 1973; Gray & Stites, 2013; Kolk, 2013). By definition, partnerships exist because no single organization can adequately address the issue or problem arena in question (Fowler, 2000a; Witte et al., 2002). As a result, partners are dependent upon one another to achieve target outcomes. Berger et al. (2004) detailed multiple kinds of fit including mission, resource, management, and evaluation, pointing out that while fit is important, it may be difficult to fit on everything without jeopardizing the organizational identity of the partners.

Transparency. Transparency discusses the clarity of information regarding decision-making, organizational process, and partnership evaluation (Dodds, 2015; Ivanova, 2003) Transparency exists not only within the partnership (internal transparency), but also to outsiders who may wish to see how decisions led to particular activities and outcomes (external transparency; Ivanova, 2003). Transparency is often

facilitated by the documentation, recording, and publication of partner proceedings to demonstrate processes and activities toward targeted outcomes (Dodds, 2015).

Equity and empowerment. Equity and empowerment illustrate partnership power dynamics, participation, and representation (Purdy & Gray, 2018; Tuhiwai Smith, 2012). In transnational partnerships, power is an important consideration when traditionally powerful government or international agencies partner with much smaller or historically marginalized local communities or organizations (Dodds, 2015). At the same time, partnerships are unique in allowing "weaker" partners essential decision-making input where they may not otherwise have had a voice in the process (Brinkerhoff, 2002b; Clark et al., 2011; Keck & Sikkink, 1998). Focusing on multi-stakeholder partnerships, Gray and Purdy (2018) discussed three forms of power including *authority, resource, and discursive* power (p. 121). Equity within these forms of power is built into partnership design and impacts processes and activities (Biermann, Pattberg, et al., 2007).

External Structure. External features are those that occur within the wider social, political, and financial context of partnership activities.

The political environment. The political environment includes the local, national, regional, and international contexts with respect to the partnership arena. Partners may have allies at different levels of local, national, or international political arenas (Keck & Sikkink, 1998). The political environment may also be an indicator of partnership sustainability. For example, Bossert (1990) found that partnership projects in Central America were more likely to be sustained than projects in Africa due to sociopolitical factors existing within internal partnership arrangements. Similarly, political transitions have important impacts as political priorities and situations evolve (Biermann, Pattberg,

et al., 2007). In Brazil, for example, shifting government priorities and concerns regarding higher education, biopiracy, and Indigenous rights affected partnerships in relation to research, the environment, and social programs (Escobar, 2015; Monteiro, 2020).

The community and social context. Partnerships are socially constructed, voluntary agreements. Therefore, it is important to consider the community and social environments in which partnerships are "embedded" (Biermann, Pattberg, et al., 2007). Like the political environment, the social environment is also dynamic, so context and scale may change over time, impacting partnership relationships (Amey et al., 2007).

Financial and economic context. The financial and economic context is the availability of the financial resources to implement and sustain partnership activities. Finances are a significant catalyst for partnership inception or termination (Fowler, 2000a; Shediac-Rizkallah & Bone, 1998). Linked to the political and social context, financing often depends on donor priorities. Increasingly, finances and corresponding partnership networks shift with government, foundation, NGO, and international priorities (Biermann, Man-san Chan, et al., 2007).

Partnership Processes and Activities

Process features include actions and activities such as partnership decision-making, conflict resolution, knowledge and information management, and communication (Purdy & Gray, 2018).

Decision-Making. Decision-making is the choices partners make about the shared vision, activities, and results of partnerships activities (Brinkerhoff, 2002b; Dodds, 2015;

Ivanova, 2003). Inclusive decision-making processes differentiate partnerships from more traditional global policy networks (Clark et al., 2011; Witte et al., 2002).

Conflict Management. Conflicts arise when partners interact and negotiate with one another, resulting in stagnating or advancing partnership goals. Partnerships deploy processes for identifying, engaging, and resolving conflict (Brinkerhoff, 2002a, 2007; Mohr & Spekman, 1994; Witte et al., 2002). Different transnational partnerships demonstrate different degrees and frequency of conflict avoidance and resolution (Brinkerhoff, 2002a). Conflict management processes can differentiate between successful and failed partnerships, particularly where "the number of partners is large [or] partners are distributed geographically" (Purdy & Gray, 2018, p. 85).

Knowledge and Information Management. Knowledge generation and information sharing are often critical pieces of partnership processes (Babiak, 2009; El Ansari et al., 2001; Seixas & Berkes, 2010; Shediac-Rizkallah & Bone, 1998). Knowledge is created and shared internally in order to drive processes and activities. Capacity building and technical support are key rationales for the inception of partnership (Fowler, 2000a; Mohr & Spekman, 1994). Partnership networks draw upon and learn from prior knowledge to adapt information for new situations (Witte et al., 2002). Externally, knowledge may be generated for public use and external review. Partnerships also create new knowledge for the public and "facilitate building greater capacity in science and technology through improved collaboration among research institutions, the private sector and governments" (Ivanova, 2003, pp. 18-19). Cash et al. (2002; 2003) investigated knowledge practices within a set of transnational case studies that include agricultural research and development within the Consultative Group on International

Agricultural Research (CGIAR) system; water management in the U.S. Great Plains; El Niño Southern Oscillation (ENSO); transboundary air pollution in Europe; and fisheries management in the North Atlantic. The authors determined knowledge translates into action when multiple stakeholders view knowledge as salient, legitimate, and credible (Cash et al. 2002; 2003).

Communication. Partnership communication is both internal and external. First, internal communication occurs within the partnership, with quality communication ensuring confidence and trust in the information shared across stakeholders (Brinkerhoff, 2002a,c; Mohr & Spekman, 1994; Witte et al., 2002). Second, external communication occurs to facilitate knowledge exchange and partnership transparency. To facilitate communication, organizations create or utilize countless information and communication technology products including reports, videos, podcasts, websites, blogs, databases, and so forth.

Outcome Features

Outcome features describe the "results" of partnership activities including partnership duration and sustainability, accountability, legitimacy, and effectiveness and efficiency. Partnership outcomes are often measured in timed increments of short-term outputs, medium-term outcomes, and long-term impact (Bakewell & Gabutt, 2005; van Tulder et al., 2016).

Partnership Duration and Sustainability. Partnership duration considers *what* is to be sustained, *how* or *by whom, how much,* and *by when.* Typically, partnerships are designed for extended durations (Fowler, 2000a, 2016), but partnerships can be time-bound or terminate with project or program completion, while others may just outgrow

their function (Shediac-Rizkallah & Bone, 1998). Three factors help explain partnership sustainability: (a) project design and implementation factors, (b) factors within the organizational setting, and (c) factors within the broader community environment (Shediac-Rizkallah & Bone, 1998).

Accountability. Accountability is the assumption of responsibility for the actions of the partnership (Dodds, 2015; Ivanova, 2003). Witte et al. (2003) detailed four linked kinds of partnership accountability:

1. Professional/peer accountability is the responsibility that partners have with one another.
2. Public reputational accountability is accountability to the general public for the execution of stated goals.
3. Market accountability refers to opportunity for future partnership work based on prior partnership success.
4. Fiscal financial accountability refers to the appropriate use of funds to deliver partnership activities.

Legitimacy. Legitimacy refers to the procedure logic regarding institutions, norms, and rules (Bäckstrand, 2006; Clark et al., 2011; Trackenberg & Focht, 2005; White et al., 2010). Input legitimacy and output legitimacy are both important in partnerships (Bäckstrand, 2006). Input legitimacy relates to procedural norms of partnership work dealing with inclusion, representativeness, accountability, transparency, and mutual understanding of rules between institutional partners. Output legitimacy underscores implementation, compliance, and effectiveness (Bäckstrand, 2006). In effect,

output legitimacy measures the success by which partnerships accomplish intended outcomes which are accepted or acknowledged within the greater sociopolitical context.

Effectiveness and Efficiency. Effectiveness is the ability to meet performance expectations and intended partnership goals (Brinkerhoff, 2002a; Bäckstrand, 2006; Dodds, 2015; Shediac-Rizkallah & Bone, 1998). Efficiency focuses on the resources required to achieve target outcomes (Witte et al., 2002). Efficient partnerships maximize resource use toward intended outcomes. Partnerships can be effective in achieving their goals, but inefficient with resources. Similarly, partnerships may be ineffective in reaching intended outcomes, but highly efficient with their resources. Effectiveness and efficiency may influence both legitimacy and accountability.

Partnership Critiques

As partnerships became increasingly prominent and common place within the global governance agenda, many scholars have been critical of transnational multi-sectoral partnerships (Andonova & Levy, 2003; Bäckstrand & Kylsäter, 2014; Ivanova, 2003; Witte et al., 2003). Partnerships are not a panacea (Kolk, 2013; Purdy & Gray, 2018) for the world's *wicked problems* (Rittel & Weber, 1973), but in fact they may reinforce or amplify existing inequities or inequalities, particularly with respect to the domains of funding, governance, inclusivity, transparency, and evaluation (Buse & Harmer, 2006).

Availability and Allocation of Funding

The availability and allocation of funds is a limiting factor for the formation, execution, and sustainability of partnership activities (Fowler, 2000a, Kolk, 2013). Particularly at risk are NGOs and CBOs that rely on outside funding for their operations.

In the process of chasing funds, NGOs and CBOs may be co-opted by donor priorities, resulting in sacrificing organizational identity to align with the priorities of funding agents (Steiner-Khamsi, 2008). Similarly, funding often drives the issues around which partnerships form (Biermann, Man-san Chan et al., 2007), raising “questions about their independence, representativeness, legitimacy, ideological position and key competencies (Kolk, 2013, p. 15).”

Lack of Government Accountability

Partnerships provide an opportunity for governments to ignore or push aside their own national and international commitments (Ivanova, 2003; Witte et al., 2002). Partnerships are not emblematic of distributed responsible, but rather they may represent a lack of political will by governments and the international community to enforce previously ratified international agreements (Andonova & Levy, 2003; Witte et al., 2002). Ivanova warns that “unfortunately, if not properly managed, partnerships and networks can easily be used as smokescreens behind which unwilling governments can hide inaction and indifference” (p. 25). At the 2002 WSSD, many countries lobbied against the adoption of the partnership language because of fear that it would take “the pressure off industrialized countries to provide additional resources for sustainable development” (Witte et al., 2002).

Partnerships are Not Inclusive or Representative

While Agenda 21 of the Rio Summit highlights a mandate for inclusive partnerships, critics have argued that this is just a reorganization of the same governance actors and agenda items (Ivanova, 2003). Marginalized stakeholder groups continue to take insignificant roles in the partnership accord and risk sacrificing their own objectives

and livelihoods for global agenda items (Kolk, 2013). For example, Organization of Economic Cooperation and Development (OECD)[26] countries were the most frequently represented countries of partnership group implementation (61.7%), followed by Non-OECD Asian countries (47.0%), in the Global Sustainability Database of partnership (Biermann, Man-san Chan, et al., 2007). Despite the framing of partnerships as nontraditional forms of governance, the Global Sustainability Database found that only 16% of partnerships did not include government partners (Biermann, Man-san Chan, et al., 2007a). In fact, Bäckstrand and Kylsäter (2014) shared that the "UN's legitimation claims for the Johannesburg partnerships as deliberative and participatory arrangements are not mirrored in the practice of partnerships, being heavily dominated by governments, UN agencies, and large international NGOs" (p. 338).

Partnership critics also warn against the increasing influence of business interests in transnational partnerships (Bäckstrand, 2006; Biermann et al., 2007; Hemmati & Whitfield, 2003; Martens, 2007). Witte et al. (2002) argued that the push for partnership is "a simple strategy to help multinational companies gloss over their often tarnished environmental or human rights records" (p. 60). Critiquing the Body Shop's "Trade Not Aid" partnership with the Kayapó in Brazil, Turner (1995) stated that these business relationships may be "smoke screens concealing the economic desperation that drives such communities to open themselves to the most environmentally, physically and culturally damaging forms of 'Trade'" (p. 118).

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[26] OECD brings together 37 Member countries and a range of partners that collaborate on key global issues at national, regional and local levels (see https://www.oecd.org/about/members-and-partners/)

Strong Rhetoric, Weak Evidence

While the term "partnership" brings to mind positive outcomes, evidence proven partnership outcomes and impacts is weak (Brinkerhoff, 2002b, 2002c; Pattberg & Widerberg, 2014). A 2014 survey found that 38% of 330 WSSD partnerships did not have measurable output and 26% demonstrated activities unrelated to their stated mission and scope (Pattberg & Widerberg, 2014). These findings indicate that partnerships may not actually be achieving or even working toward their intended outcomes. Partnerships tend to focus their assessments on processes within the partnership versus the targeted development outcomes that partners seek to achieve. While these interactions are important, they do not indicate success toward target outcomes (Sabatier et al., 2005).

Lack of Transparency

Partnerships are dynamic systems of multilevel governance with multiple actors, priorities, and activities that change over time (Bäckstrand, 2006). Consequently, partnerships are difficult to monitor, which makes transparency difficult (Bäckstrand, 2006; Beisheim et al., 2014; Glasbergen, et al., 2007). Because many NGOs exist within a competitive funding environment emphasizing "return on investment," partnering organizations often generate exceedingly positive reports, obscuring potentially important information about failures and processes (Brinkerhoff, 2002b). Partnership scholars point out that negative outcomes or lessons learned are seldom shared publicly (Brinkerhoff, 2002b; Buse & Harmer, 2007).

Understanding and Evaluating Partnerships

A number of frameworks exist for unpacking, understanding, and evaluating partnership work. After WSSD, Witte et al. (2002) presented a framework for monitoring

and evaluating that consisted of several features of partnership including the category and function of the partnership, equity, procedural rules, costs and benefits, stability of partnerships, degree of formalization, and results. The framework was the first attempt to analyze and categorize partnerships in order to address the potential and limitations of the partnership model in the international arena. Building on this framework, Bäckstrand (2006) argued that any assessment of partnership must rethink issues of legitimacy, accountability, and effectiveness. In differentiating between input and output legitimacy, this framework takes into account both the processes (input legitimacy) and outcomes (output legitimacy).

While earlier frameworks typically researched single partnership cases, Biermann, Pattberg, et al. (2007) used program evaluation techniques and a traditional logic framework to create a model for multiple *n* comparisons using a set of explanatory variables including the types of actors, partnership design, problem type, domestic factors (context), leadership, and embedding (within a larger context). Biermann et al.'s model created a standardized evaluation mechanism to investigate how similar explanatory variables may explain partnership outputs, outcomes, and impacts across multiple partnership cases (Biermann, Pattberg, et al., 2007; Sabatier et al., 2005).

Brinkerhoff (2002a, 2007) and Kamya et al. (2016) developed a framework focused on partnership relationships. Previous partnership frameworks ignored relationships and focused primarily on outputs, outcome, and impact. However, Brinkerhoff (2002c) noted, "while partnership relationships ideally occur at the institutional level, in practice, they are most often rooted in the relationships, between individuals" (p. 64). In Brinkerhoff's conceptual model, prerequisites for success help

explain the partnership structure. These prerequisites include many of the explanatory variables of previous models (Bäckstrand, 2006; Biermann, Pattberg, et al., 2007; Witte et al., 2002). The partnership structure provides the foundation for partnership practice and processes, which indicate performance. Feedback loops among partner activities reinforce and reestablish the success factors for partnerships (see Figure 7 below).

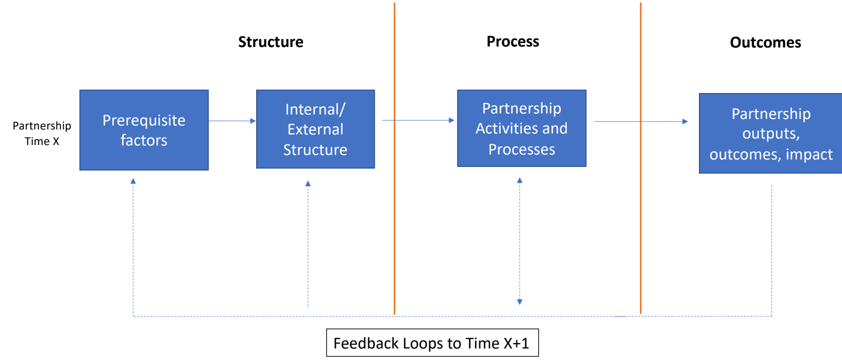
Like Brinkerhoff (2007), Kolk (2013) investigated the vertical interactions between different levels of the partnership from the micro (individual), meso (organizational), and macro (partnership) perspectives. These considerations are important for assembling and assessing partnership structures, processes, and outcomes. The reality is that partner interactions occur at multiple locations and scales with individuals or institutions acting as "boundary spanners" within the same partnership framework, moving between temporal, geographic, or institutional spaces (Berkes, 2009; Berkes & Adhikari, 2006; Butler et al., 2010; Kolk, 2013; Seixas & Berkes, 2010; Williams, 2019). Seixas and Berkes (2010) closely considered linkages across ten case studies of the Equator Initiative, "cases that seek to reduce poverty and conserve biodiversity at the same time" (p. 186). The number of and redundancy of vertical and horizontal linkages between and among actors in the relationship help describe success and failure of partnership outcomes (more dense networks and linkages have more successful outcomes). More specifically, the authors identified the number and kind of linkages, the role of partnerships, and the nature of the linkages, as well as observed linkage dynamics, formality, direction, magnitude, and outcome in order to provide insights to partnership success or failure (Seixas & Berkes, 2010).

A Framework for Understanding Partnership Structures, Processes, and Outcomes

The partnership literature reviewed above (Brinkerhoff, 2002c, 2007; Kolk, 2013; Seixas & Berkes, 2010; van Tulder et al., 2016) anchors a framework for describing partnership structures, processes, and outcomes through arrangements and linkages among actors across vertical, horizontal, and temporal scales (Figure 7).

Figure 7

Framework for Describing Partnership Structure, Process, and Outcomes



Note. Adapted from Brinkerhoff, 2002b, 2007; Kamya et al., 2016; Sabatier et al., 2005; van Tulder et al., 2016)

Prerequisite Factors

Prerequisites for success include internal and external partnership structure features outlined above. For example, prerequisite factors consider much of the context including the problem field; funding; and local, national, and international political environments. As the partnership "feeds back" into different time periods, prerequisite factors and social relationships which were not in place at the inception of the partnership may develop and reinforce partnership structures at *Time X +1* (Brinkerhoff, 2007; Gray, 2007; Figure 7). These new prerequisite factors account for feedback loops with the

process, activities, and outcome components over time (Biermann, Pattberg, et al., 2007; Brinkerhoff, 2002a).[27]

Partnership Structure

Partnership structure includes internal and external structure and process features of the partnership (see Table 2; see Figure 7). Partnership structure consists of relationships between and among the stakeholders including the rules and norms around how and with whom each partner engages and is held accountable, both formally and informally (Bäckstrand, 2006; Brinkerhoff, 2007). Explanatory variables such as types of actors and partnership design are explained through partnership structure (Biermann, Pattberg, et al., 2007). At the meso level, structure includes the organizational identity of each actor. At the macro level, structure also refers to governance and process features of the partnership with respect to communication, knowledge sharing, conflict management, and decision-making (Kolk, 2013; van Tulder et al., 2016). Partnership structure is both derived from and drives the issue, mission, and inputs of the partnership (van Tulder et al., 2016). The partnership structure describes linkages and assemblages between stakeholders (Callon, et al., 2001; Kolk, 2013; Seixas & Berkes, 2010). These linkages and assemblages shift over time as external factors shift and the partnership evolves through different phases (Franco-Torres et al., 2020).

Partnership Process and Activities

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[27] Brinkerhoff (2002a, Table 1) details a list of prerequisite and success factors and appropriate methodology to assess them. Box 1 and 2 delineate the prerequisite and facilitative factors and success factors.

Partnership process includes partnership practice and partner performance at individual (micro), organizational (meso), and partnership (macro) levels (Kolk, 2013; van Tulder et al., 2016). Partner performance includes the inputs and activities of each partner, taking into account the partnership governance structures. Partnership practice is the aggregation of all partner activities. The performance of each partner informs partnership practice to deliver partnership outcomes (Kolk, 2013; van Tulder et al., 2016). Partnership processes and activities strengthen or weaken success factors, which feed back to the prerequisite factors for success as the partnership continues to develop and adapt for future projects and collaborations at subsequent time periods (see Figure 7).

Partnership Outcomes

Partnership outcomes are partnership results. Evaluation literature differentiates between outputs, outcomes, and impacts (Bakewell & Gabutt, 2005; Monaghan & King, 2018; van Tulder et al., 2016). Outputs are the immediate or short-term effects. For example, these may be evaluated by counting the number of individuals affected, finances exchanged, hours spent on a project, and so forth (van Tulder et al., 2016). Outcomes are the intermediate effects that occur after the partnership has worked together for some time. Externally, these may be benefits or changes for individuals, communities, or society due to the activities of the organizations and the partnerships (van Tulder et al., 2016). Internal partnership outcomes are equally important to consider including knowledge and learning, personal relationships, linkages, and partnership "spin-offs" or residuals (Star, 2010)that feed back into the structure and throughputs of the partnership (Brinkerhoff, 2007; Franco-Torres et al., 2020; Seixas & Berkes, 2010). Finally, the impact is the long-term, long-standing changes generated by the partnership –

the impact of the partnership in addressing the problem issue. Partnership outcomes feed back into partnership structure and processes, potentially reinforcing or undermining prerequisite factors as the partnership evolves over time.

Boundary Organizations, Boundary Work, and Boundary Objects

Partnerships bring diverse groups of actors and stakeholders together to work toward a common goal. However, these arrangements and practices frequently result in collaboration without consensus or agreement (Glasbergen, 2007; Gray, 1989). In transnational partnerships, these disagreements are often located at interactional boundaries "or shared spaces, where here and there are confounded" (Star, 2010, p.603). Within transnational partnerships, according to Star (2010, p.603) boundaries are "places of action" that may represent geographic, cultural, linguistic, or institutional (or other) forms where partnership work arrangements and actions converge. To help understand these partnership engagements, there is a related literature on boundary work (Clark et al., 2010; 2011; Gieryn, 1983; 1995; 1999), boundary organizations, (Guston, 2001; Gustafsson & Lidskog, 2018; Miller, 2001; Clark et al., and boundary objects (Star, 1989; Star & Griesemer, 1989; Star, 2010).

Like partnerships, boundary organizations, are an intertwined "set of social arrangements, networks, and institutions" (Miller, 2001, p. 482) that "integrat[e] elements from scientific and political worlds to facilitate the negotiation and exchange of multiple types of knowledge and action" (White et al., 2010, p. 221). Boundary organizations are an articulation of the interrelationship and interaction of different stakeholder groups or actors, often across scientific, political, cultural, or knowledge boundaries (Gustafsson & Lidskog, 2018; Guston, 2001). Boundary organizations engage in boundary work and

frequently use boundary objects to facilitate collaboration among "unexpected allies" (O'Mahony & Bechky, 2008; Star, 2010).

Boundary Work

Boundary work is the "composite set of claims, activities, and activity structures that define and protect knowledge practices" (Klein, 1996, p.1). Initially drawn from the sociology of science, boundary work investigates the demarcation of knowledge and practice among diverse stakeholders. Thomas Gieryn's (1983, 1995, 1999) initial discussion of boundary work demarcated scientific knowledge from non-science or pseudoscience, highlighting circumstances in which boundary work contributes to expansion, monopolization, and protection regarding scientific authority and communities of practice. Gieryn's concept has become a standard conceptual tool for the analysis of scientific groups and rivals within science and technology studies (STS) (Riesch, 2010). However, boundary work theory is featured in disciplines beyond STS studies. Gieryn (1983) points out that "the utility of boundary-work is not limited to demarcations of science from non-science. The same rhetorical style is no doubt useful for ideological demarcations of disciplines, specialties or theoretical orientations within science" (p. 792).

More recent scholarship uses boundary work as a model for bridging interdisciplinary research and practice (Cash et al., 2003). Clark et al. (2010) stated that:

> The central idea of boundary work is that tensions arise at the interface between actors with different views of what constitutes reliable or useful knowledge, and that those tensions must be managed effectively if the potential benefits of research-based knowledge are to be realized by society (p. 1).

In the last two decades, boundary work has increased considerably due to two trends in social science research (Akkerman & Bakker, 2011). First, boundary work "includes analyzing the various institutions and different viewpoints of actors involved to understand how boundaries are encountered and crossed" (Akkerman & Bakker, 2011, p.135). Second, boundary work represents an increased interest in different epistemological and ontological viewpoints that focus on alternative discourse of power including postmodernism, post-structuralism, postcolonialism, and feminism (Edwards & Fowler, 2007). Prominent boundary work scholarship has taken a practical turn where "active boundary work is required to construct and manage effectively the interfaces among various stakeholders engaged in harnessing [usable] knowledge to promote action" (Clark et al., 2011, p. 4615; Clark et al., 2016). Boundary work has been used to describe the science-policy interface (Guston, 2001; Jasanoff, 1987; Leith et al., 2016) and integrated knowledge systems for action (Cash et al., 2003; Clark et al., 2011).

Clark et al. (2010, 2011) investigated the research-policy-practice interface of the Consultative Group on International Agricultural Research (CGIAR) Alternative to Slash and Burn (ASB) program. Like the Pinkaiti Partnership, CGIAR ASB is a "global partnership of research institutes; NGOs; universities; community organizations; farmers' groups; and other local, national, and international organizations" (Clark et al., 2011, p. 19; Nelles, 2011). Clark and colleagues uncovered six kinds of boundary work that exist between and among stakeholders. They determine that boundary work is impacted by the *sources of knowledge* available to stakeholders and the *potential uses* for the results at the following interfaces:

- new discoveries and established knowledge;

- research disciplines;
- context specific and generalizable research;
- scientists and farmers, and scientists and national policy makers;
- ASB and multinational negotiations; and
- multiple knowledge sources and multiple users.

Successful boundary work or brokering knowledge into action occurred when stakeholders met three important criteria:

1) There was participation across stakeholders in agenda setting, communication, and activities.
2) There was a mechanism for governance and accountability.
3) Successful boundary work was depended on the production of useful, appropriate boundary objects to mesh different stakeholders for shared knowledge-decision making arrangements.

In the previous section on partnership structures, processes, and outcomes, I discussed at length the concepts of participation, governance, and accountability (criteria one and two). However, criteria three, boundary objects, requires further discussion as a conceptual framework for investigating how diverse stakeholder groups navigate boundary work in collaborative or partnership enterprises.

Boundary Objects

A commonly used description for boundary objects is that they are “plastic enough to adapt to the local needs and the constraints of several parties employing them, yet robust to maintain a common identity across sites. They are weakly structured in common use and become strongly structured in individual use” (Star & Griesemer, 1989,

p. 393). Boundary objects are widely-recognized conceptual tools used to investigate collaborative work without consensus across social worlds (Bowker & Star, 1999; Griesemer, 2015; Star, 2010; Star & Griesemer, 1989). Star (1989), in the context of distributed artificial intelligence, coined the term "boundary objects" to describe "objects that are plastic enough to be adaptable across multiple viewpoints, yet maintain continuity of identity" (p. 37). The concept is more widely known from Star and Griesemer's (1989) discussion of the Museum of Vertebrate Zoology (MVZ) at the University of California Berkeley. The work of the museum was of interest to a diverse set of actors including "university administrators, professors, research scientists, curators, amateur collectors, private sponsors…etc." (p.396). Star and Griesemer's work highlighted the social construction among communities of practice (Knorr-Cetina, 1999; Lave & Wenger, 1991; Wenger, 2000) in the MVZ and the need for objects to facilitate translation across social worlds to create shared and sustained meaning and activity (Callon et al., 2001; Fujimora 1992; Latour, 2005; Star & Griesemer, 1989).

As Star (2010) shared:

> My initial framing of the [boundary object] concept was motivated by a desire to analyze the nature of cooperative work in the absence of consensus. Many models… of cooperation often began conceptually, with the idea that first consensus must be reached, and the cooperation could begin. From my own field work among scientists and others cooperating across disciplinary borders… it seemed to me that the consensus model was untrue. Consensus was rarely reached, and fragile when it was, but cooperation continued, often unproblematically (p. 604).

In the MVZ, objects such as state maps and processes such as field notes created common spaces for collaboration despite differences in use and understanding of the MVZ's work. Thus, in examples of multi-actor collaboration, boundary objects "inhabit several communities of practice and satisfy the informational requirements of each of them" (Bowker & Star, 1999, p. 17). White et al., (2010) unpacked a water management simulation model to differentiate between boundary organization and boundary objects across diverse stakeholders and stated that while "boundary organizations are more durable… institutional forms, boundary objects are more portable, transportable, and material representations that may be adopted by actors… on both sides of a boundary" (p. 221).

This study explores the multiple processes and activities that permit research and education based collaboration amongst transnational partners at Pinkaiti. In essence Pinkaiti "forms the boundary between groups through flexibility and shared structure" (Star, 2010, p. 603). At these boundary points of convergence, boundary objects (Pinkaiti) becomes the site of the partnership engagement and "action." Diverse stakeholders are able to converge and coordinate activities due to four related dimensions of boundary objects (Bowker & Star, 1999; Star, 2010; Star & Griesemer, 1989):

1. *Interpretive flexibility* is the social and cultural construction of artifacts with respect to both their design and use (Bijker, 2001; Bijker et al., 1987; Meyer & Schultz-Shaefer, 2006). Different actor groups have different relationships to the design and use of the boundary object.
2. *Standardized processes* include the arrangements and needs such as the rules, norms, and legitimacy of procedures between actors around the boundary object

itself (Bäckstrand, 2006; Clark et al., 2011; Star, 2010). For instance, in the MVZ example, rules and norms for collecting and archiving specimens made collaborative work possible among amateurs, professionals, and scientists (Star & Griesemer, 1989). Fujimora (1992) expanded the notion to describe "standardized packages" for coordinated scientific work around boundary objects.

3. *Ambiguous work* permits "the dynamic between ill-structured and more tailored uses of the object" (p. 601). Basically, there is some commonality when the whole group is working together, but individual actors or groups may have specific or "tailored" uses for the boundary object. The ambiguous nature of boundary objects has two important effects. First, the object can reside between social worlds or actor groups, and second, the object can be "well-structured on both sides of the boundary space (standardized processes) yet ill structured within it" (Griesemer, 2015, p. 202). Thus, the boundary object can be worked on or with by multiple groups. Specific groups may have their own set of work arrangements when using the object, while a different set of common rules may apply when the object is used by different social groups (Griesemer, 2015). Ambiguous work permits the object to "travel" between social worlds and arrangements (White et al., 2010).
4. *Tacking back and forth* occurs among actors as action and negotiation takes place across the boundary (Akkerman & Bakker, 2011; Griesemer, 2015; Star, 2010; Star & Griesemer, 1989; see Figure 8). Multiple actor groups join in assemblages to work together, based on a back and forth movement (tacking) between ill-structured use in cross site work and well-structured use in local work (ambiguous

work). These assemblages may be different depending on the actors and work being done within the boundary object. Griesemer (2015) pointed out that "working in the boundary space meant learning to tolerate the dissonances as you tacked back and forth through it" (p. 203). Eventually, a kind of equilibrium may be reached amongst actors, creating standardized procedures or "residuals" for the building blocks of "boundary infrastructures" (Star, 2010).

Boundary objects facilitate collaborative enterprises in multiple forms across disciplinary areas. While Star and Griesemer (1989) initially identified four kinds of boundary objects-- repositories, ideal types, coincident boundaries, and standardized forms-- this was intended as a starting point for the concept (Star, 2010). Since then, boundary objects have been used to discuss collaborative work within literature and disciplines including natural resource management and ecosystem services (Brand & Jax, 2007; Hoogstra-Klein et al., 2017; Mollinga, 2008; Nel et al., 2016; Steger et al., 2018; Sunberg, 2007), disciplinary jargon and terminology (Abson et al., 2014; Baggio et al., 2015; Dar, 2018), design spaces and innovation (Balint & Pangaro, 2017; Fox, 2011; Kimbel et al., 2013), information systems (Doolin & McLeod, 2012; Fong et al., 2007; Huvila, 2016; Lee 2007), organic farming (Favilli et al., 2015), international development (Dar, 2018; Green, 2010; Sapsed & Salter, 2004; Tisenkopfs et al., 2015), GIS technologies (Harvey & Chrisman, 1998), engineering systems (Nicolini et al., 2012), air traffic control (Landry et al., 2010), and education (Akkerman & Bakker, 2011), among others. Table 3 articulates the four dimensions of boundary objects as they compare to MVZ and the Pinkaiti Ecological Research Station.

Table 3

Pinkaiti Research Station as a Boundary Object

	MVZ Examples (Star & Griesemer, 1989)	**Pinkaiti Examples**
Actors (visions) involved	Grinnell (museum administrator); Alexander (donor); Amateur collectors; Animal trappers; University administration	A'Ukre community; Brazilian government; local, national, international NGOs; University students and researchers
Interpretive flexibility	Specimen collection has different motivations, interpretations, and outcomes for each of the actors (visions) listed above.	Visiting and working at Pinkaiti has different motivations, interpretations, and outcomes for each of the actors (visions) listed above.
Standardized processes	Creation of standardized protocols for specimen collection and data entry.	Standardized protocols to conduct research at Pinkaiti within Indigenous territories that includes forms and permissions for all actors above. Common activities when all actors are at the Pinkaiti space.
Ambiguous work	Amateurs, collectors, and museum staff all work independently on the specimens in their own way or in different configurations depending on who is involved.	The A'Ukre community utilizes the Pinkaiti space (fishing, ritual, and festival preparation) differently when kuben are not present. Universities recruit student and create curriculum. NGOs leverage Pinkaiti for fundraising and negotiate with Brazilian government when away from the physical space.
Tacking back and forth	Continued engagement, tension, and conflict in specimen collection creates new expectations, norms, and behaviors.	Continued engagement, tension, and conflict at Pinkaiti create new expectations, norms, and behaviors.

Critiques of Boundary Object Theory

Critics of boundary object theory wonder if boundary objects can simply be anything to anyone. They ask, "what is *not* a boundary object?" (Cantwell Smith, 2015; Riesch, 2010; Star, 2010). Star (2010) revisited the question of what is or isn't a boundary object by pointing to issues of interpretive flexibility and highlighting both scale and scope. For Star (2010), the concept was most useful at the organizational level. However, it is less important *what* the object is, but rather how the object *fits* within context and use (Clark et al., 2011; Griesemer, 2015; Star, 2010). Griesemer (2015) stated:

> Any object can be a boundary object if users have an interest in tracking the movement of that object across pairs of social worlds…[however]… whether this will be a *good* boundary object depends on its suitability both to the subjects engaging with the object as well as its suitability for the researchers studying those subjects (p. 206).

Bowker & Star (1999) stated that "objects include… stuff and things, tools, artifacts, ideas, stories, and memories- objects that are treated as consequential by community members….something actually *becomes* an object only in the context of action and use" (p. 298).

Boundary objects also run the risk of reinforcing power structures or colonial identities (Dar, 2018). Dar (2018) pointed out that conceptually, boundary objects are anchored in "Western" epistemologies and have been adopted, and sometimes co-opted, by more powerful international NGOs under the guise of participation and collaboration. Similarly, while boundary objects are considered as "bridges or anchors," boundary objects may also be structured so as to create "barricades or mazes" to reinforce structural hierarchies and power dynamics (Gieryn, 1999; Oswick & Robertson, 2009). Huvila (2016) described the digitization of archaeological reports as boundary objects that reinforce structural and disciplinary norms rather than create more inclusive participation or access to information. Along the same lines, because boundary objects are interpreted by and reflect the preferences of their users (Star, 2010). Therefore, without consideration of participation and governance norms (Clark et al., 2011), boundary objects can reinforce existing power dynamics, inhibiting participation, rather than becoming a more inclusive vehicle for collaboration (Carlile, 2002; Fox, 2011). Without a "shared syntax"

(Carlile, 2002) boundary objects are open to misinterpretation (Hasu & Engestrom, 2000); and though a means for facilitating dialogue, can never fully replace open clear communication, and explicit participation rules (Clark et al., 2011).

What Happens at the Boundary?

Boundary organizations, like some transnational multi-stakeholder partnerships, are complex networks of diverse actors engaging in boundary work mediated by boundary objects. Therefore, it is important to understand what behaviors occur at the boundary and through the boundary object. Star & Griesemer borrowed from Actor Network Theory (ANT) (see Callon, Latour, and Law), particularly ideas of “translation” where there is a “flow of objects and concepts through the network of participating allies and social worlds” (Star & Griesemer, 1989, p.389). However, boundary objects take a more ecological perspective on the collaborative landscape than actor network theorists. Whereas ANT “funnels… the concerns of several actors into a narrower passage point” (Star & Griesemer, p.173), boundary rather creates a “many to many” set of potential translations, engagements, and interactions across multiple actors or stakeholders (Franco-Torres, 2020; Fujimora, 1992; Star & Griesemer, 1989; see Figure 8). Boundary objects create multiple obligatory passage points “negotiated with several kinds of allies” or partnership participants to create “an indefinite number of ways … each cooperating social world may make their own work a passage point for the whole network of participants…” (Star & Griesemer, p. 389). Stated more clearly, boundary objects facilitate multiple voices and perspectives to engage the same object, demonstrating how multiple meanings may translate across boundary objects. Rather than using the perspective of a dominant actor or institution, multiple voices and interpretations may

engage one another simultaneously through multiple passage points (Franco-Torres, et al., 2020; Fujimora, 1992; Timmermans, 2015; Figure 8).

Akkerman and Bakker (2011) attempted to operationalize a subset of these interactions or boundary translations, researched 181 studies from disciplines including education, healthcare, design, social work that incorporate boundary objects or boundary crossing. The study details identification, coordination, reflection, and transformation as four common boundary interactions (see Table 4). These interactions represent a sample of potential interactions. They are not present within all cases of boundary work with boundary objects, nor are they mutually exclusive or exhaustive. The list below represents a starting point for discussing how knowledge or action may be translated through boundary objects.

Table 4

Overview of Different Mechanisms and Characteristic Processes of Boundary Crossing

Boundary activity	Characteristic processes
Identification	Othering Legitimating coexistence
Coordination	Communicative connection Efforts of translation Increasing boundary permeability Routinization
Reflection	Perspective making Perspective taking
Transformation	Confrontation Recognizing a shared problem space Hybridization Crystallization Maintaining uniqueness of intersecting practices Continuous joint work at the boundary

Note. Adapted from Akkerman and Bakker, 2011.

Identification

Identification focuses on boundary crossing as "a process in which previous lines of demarcation between practices are uncertain or destabilized because of feelings of threat or because of increasing similarities or overlap between practices" (Akkerman & Bakker, 2011, p. 142). Two common processes of identification include *othering* and *legitimizing coexistence*. In *othering,* one actor defines one process in light of another so as to maintain their individual perspective at the boundary (Gieryn, 1983). This process may lead to clear distinctions of organizational identity at the boundary (Brinkerhoff, 2002a,c). In the process of *legitimating coexistence,* different actors consider and recognize the value and legitimacy of the other members of the collaborative group (Clark et al., 2011).

Coordination

In coordination, boundary objects facilitate communication between stakeholders with diverse perspectives through process management. For example, health professionals share information management systems as boundary objects to locate, share, and collaborate relevant patient information or diagnostic tools such as the Nursing Interventions Classification or the World Health Organization's International Classification of Disease (Bowker & Star, 1999).

Coordination may take place through *efforts of translation* (Callon et al., 2001; Star & Griesemer, 1989). Champions, advocates, boundary spanners, or interlocutors with multiple overlapping roles in the collaboration often take responsibility for translating across stakeholder groups, acting as *obligatory passage points* or gatekeepers of knowledge and activity (Callon et al., 2009; Fowler & Biekart, 2017; Seixas & Berkes, 2010).

Coordination also occurs through *routinization* or standardization, procedures by which coordination becomes part of an automatized operational practice, standardized package, or residual (Fujimora, 1992; Star, 2010). Like MVZ field notes or Nursing Interventions Classification information, different groups coordinate even though social meaning or purpose may be different (Bowker & Star, 1999; Star & Griesemer, 1989).

In both translation and routinization, creating a community of practice around boundary objects helps overcome coordination obstacles. By tacking back and forth across boundary objects, partners or collaborators “facilitate future and effortless movement between different sites” (Akkerman & Bakker, 2011, p. 144).

Reflection

Reflection emphasizes the role of boundary objects as opportunities for reflexive understanding and empathy for collaborators. The two processes for reflection include *perspective making* and *perspective taking* (Akkerman & Bakker, 2011). Perspective making makes explicit one’s understanding and knowledge on a particular issue (Boland & Tenkasi, 1995). In perspective making, an actor articulates their understanding and expertise in relation to other partners. In perspective taking, participants gain empathy for another’s position and practice. Perspective taking allows actors to exhibit empathy toward the viewpoints and knowledge sets of collaborators (Williams & Wake, 2007). Both perspective making and perspective taking create opportunities for hybrid or “third spaces” at the boundary where new understanding, identities, and practices may take shape among partners and collaborators (Bhoba, 1990; Glasson et al., 2010; Soja, 1996).

Transformation

Transformation occurs when boundary interactions lead to changes in practice. Several practices that represent transformation include confrontation, recognizing a shared problem space, hybridization, crystallization, maintaining uniqueness of the intersecting practice, and continuous work at the boundary.

Confrontation occurs when institutional perspectives or processes become stuck at an insurmountable problem. Participating actors realize that a new form of collaboration and communication is necessary to overcome the issue. The boundary object can serve as an anchor for discussion, learning, or boundary spanning among individual or group actors to identify, address, or bridge the problem (Buxton et al., 2005). Confrontation presents opportunities for reflection to consider new alternatives through a reorganization of the problem space or hybridization.

Boundary objects may also facilitate the *reorganization of a shared problem space*. Often in direct response to a confrontation, a third perspective may be created that leads to the recognition of a unique shared problem space. The new problem presents a different problem arena, transforming the initial purposes of the collaboration. The result may be the disassembly or creation of a new boundary object (Star, 2010).

Confrontation may also lead to *hybridization*. Hybridization occurs when "ingredients from different contexts are combined into something new and unfamiliar" (Akkerman & Bakker, 2011, p. 148). These hybrid spaces may develop their own processes and activities to expand collaborations. Star (2010) discussed continued expansion of networks of collaborative activities and boundary objects as a "boundary architecture" (p. 614).

Crystallization is a more extreme version of hybridization and "takes places by means of developing new routines or procedures that embody what has been created or learned" (Akkerman & Bakker, 2011, p. 148). The new practice has significant impacts upon ongoing boundary work and partner engagement. Akkerman & Bakker (p.148) note that though crystallization is an often stated goals of transformation, it is "rarely realized" due to the inertia of institutional structures and processes.

Maintaining uniqueness of the intersecting practices exists when partners rely on their organizational identity at the boundary, reinforcing existing practices and values of the various social groups converging at the boundary (Brinkerhoff, 2002a; Fowler, 2000a). Considering ambiguous work at the boundary object, this process reinforces the mutually dependent relevance of collaborative enterprises. Building on perspective-taking as mentioned previously, this interaction recognizes the institutional advantages of each stakeholder. By understanding the core value proposition of each actor, it is easier to build on existing areas of collaboration or develop new ones (Austin, 2007).

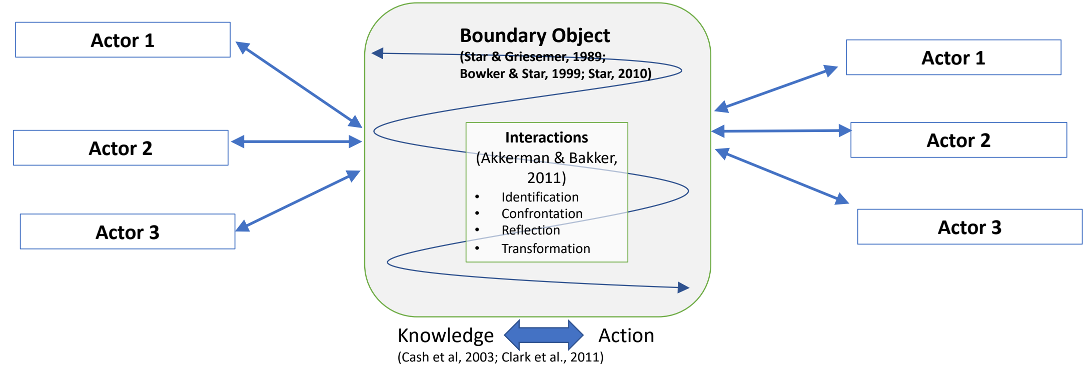
Similarly, *continuous joint work* recognizes institutional differences, but also acknowledges that despite the challenges, continuing to tack back and forth at the boundary is necessary to preserve the productivity of collaboration, as meaning is negotiated among different perspectives to maintain productivity and progress across the boundary object (Griesemer, 2015).

Figure 8 illustrates a framework where multiple actors converge and interact at the boundary. Actors and actor groups act independently until they meet at the boundary object. At the boundary object, two or more actors interact at the boundary object, demonstrating one or more of the boundary interactions (Akkerman & Bakker, 2012).

Actors move back and forth across the boundary object, demonstrated by the curved line. As they continue to interact on the boundary object, knowledge is converted into action and vice versa.

Figure 8

Boundary Object Framework for Collaboration, Knowledge, and Action Amongst Multiple Actors



Note. Actors are interacting while moving back and forth through the boundary object.

A Boundary Object Framework for Pinkaiti Partnership Research

Boundary work and boundary objects are useful conceptual tools for understanding transnational multi-stakeholder partnerships. Like boundary organizations (who undertake boundary work), transnational multi-stakeholder partnerships include multiple actors with diverse value and knowledge sets collaborating around a shared problem, often without agreement (Gray & Purdy, 2018). Given that boundary objects are understood to be common elements of successful boundary and partnership work (Clark et al., 2011), it makes sense that boundary objects are useful for investigating partnerships as " artifacts that articulate meaning and address multiple perspectives" (Akkerman & Bakker, 2001, p. 140). With respect to transnational partnerships, boundary

objects may facilitate coordination between "different groups that have different values, norms and aims, but nevertheless need to work together" (Riesch, 2010, p. 455).

At the same time, this ambiguity is why boundary work is particularly relevant for investigating partnerships because "both the enactment of multi-voicedness (both –and) and the unspecified quality (neither-nor) [of boundary objects] create a need for dialogue where meanings have to be negotiated and from which something new may emerge" (Akkerman & Bakker, 2011, p. 142). Within partnerships, increased disciplinary specialization means that partners must find "more ways to connect and mobilize themselves across social and cultural practices to avoid fragmentation" (Akkerman & Bakker, 2011, p. 132). As Griesemer (2015) stated:

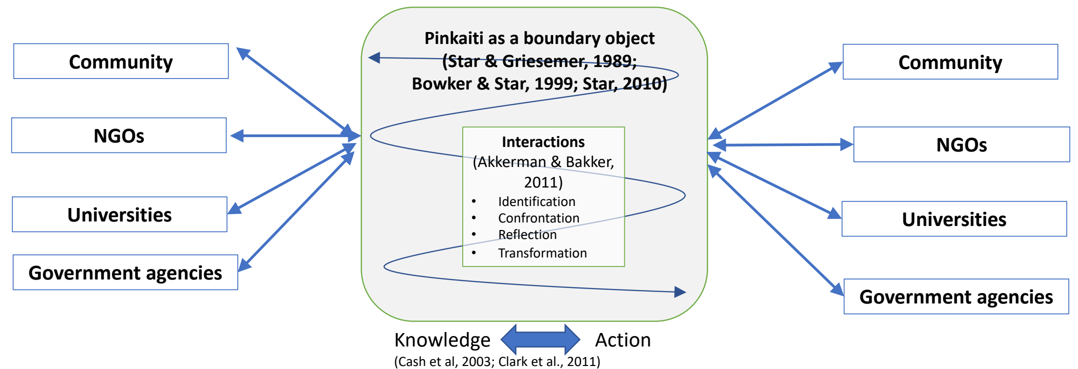
> The object has to have both "reach" – durable enough to travel between worlds, but also has to have "brackets" in place- sufficient standardization – the object can be plastic enough as it moves among social worlds, but can be custom-fit into local practice within participating worlds (p. 207).

The Pinkaiti Partnership (Chapter 1), like CGIAR (Clark et al., 2011; Nelles, 2011) and the MVZ (Star & Griesemer, 1989), involves the actions, perspectives, and visions of multiple social worlds including Indigenous communities (A'Ukre), nongovernmental organizations, government agencies, and universities. Thus, the Pinkaiti is a boundary object through which these participants interact and engage across the science-policy-action interface. Since 1991, different assemblages of actors interacted with Pinkaiti as a boundary object, both as a research station, but also as concept, making Pinkaiti portable across local, national, and transnational spaces (Huvila et al., 2017; White et al., 2010). Each actor and stakeholder group maintains both shared and distinct

sets of Pinkaiti Partnership knowledge and activities. Therefore, the boundary object framework is an appropriate conceptual model for understanding interactions across diverse stakeholder groups (see Figure 9).[28] Pinkaiti represents a boundary object where representatives from diverse cultural, linguistic, and national institutions collaborate without consensus and "boundary objects are one way that tensions between viewpoints can be managed" and understood (Bowker & Star, 1999, p. 292).

Figure 9

The Boundary Object Framework as a Conceptual Model to Understanding the Pinkaiti Partnership



Note. Stakeholders are interacting while moving back and forth through the boundary object.

Using Pinkaiti as a boundary object, one can track or trace (Bartlett & Vavrus, 2017c; Griesemer, 2015) the structure, process, and outcomes of the Pinkaiti Partnership over time as it moves (or feeds back) through the four partnership eras: partnership inception, early research, international research, and the field course (Time X+1; see

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[28] The identities, structures, processes, and outcomes of these stakeholders are discussed in more detail in the subsequent chapters

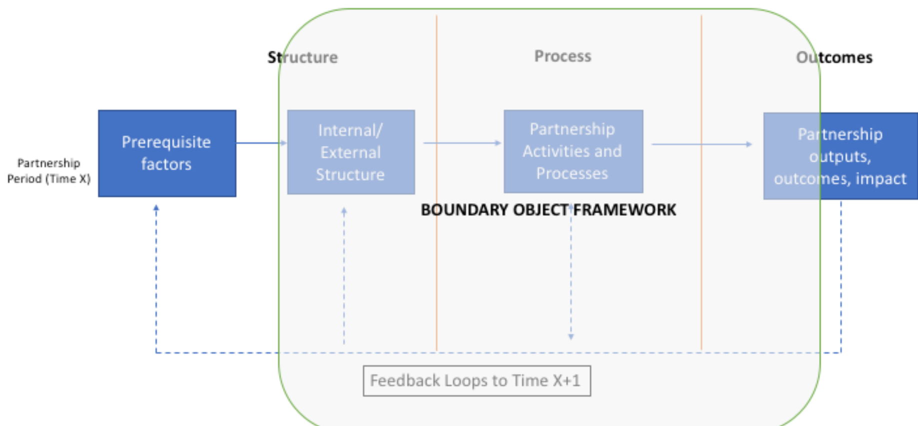
Figure 10). Boundary objects are effective tools for historical and longitudinal work, "tracking" progress by marking processes at the boundary (Griesemer, 2015). As Star (2010) stated:

> One of the things that I have become aware of in trying to capture this complex and longitudinal phenomenon is the need for new methods for capturing each aspect including the nature of the back and forth between ill structured and well-structured; the architecture of the infrastructures involved and especially the movement within and from those inhabiting residual categories, and how they form new boundary objects (p. 614).

My research takes up Star's challenge, seeking to overlay the boundary object concept (see Figure 8) over the partnership framework (see Figure 7), creating a conceptual tool for unpacking partnership dynamics among stakeholder groups over time (see Figure 10). In essence, Pinkaiti (as a boundary object) becomes a tool or lens for longitudinal "tracing" of Pinkaiti Partnership structures, processes, and outcomes.

Figure 10

A Conceptual Framework That Overlays the Boundary Object Framework (Figure 8) Onto the Analytic Framework for Partnerships (Figure 7)



Note. Chapter 7 revisits this framework to track or trace activities through the duration of the partnership.

Conclusion

Transnational multi-stakeholder partnerships increasingly occupy a privileged position within the global governance agenda as a mechanism for collaboration around complex problems. In this chapter, a broad review of interdisciplinary literature detailed the definitions, rationale, actors, and characteristics of partnerships. Drawing from this literature, this chapter presented a framework for description and analysis of partnership structure, processes, and outcomes. Boundary organizations include many elements of partnership work including the focus on knowledge and practice across diverse institutional actors from different “social worlds.” Successful boundary work is facilitated through the creation and interaction of partners at boundary objects. Boundary objects facilitate collaboration without consensus among actors. By tracking the relationships and interactions among stakeholder groups at boundary objects, one can illuminate the structure, process, and outcomes of partnership activity over time. In this research, the Pinkaiti is a boundary object across the social worlds of the Mẽbêngôkre-Kayapó of A’Ukre, NGOs, university partners, and Brazilian government agencies. The following chapter will articulate the settings, participants, and embedded comparative case study methodology employed to describe and analyze the Pinkaiti Partnership across four eras of partnership work.

Chapter 3: Methodology, Setting, and Participants

Chapter 1 introduced the Pinkaiti Partnership as a transnational network that includes the A'Ukre community, NGOs, universities, and government agencies partnering on research and education activities at Pinkaiti. Chapter 2 presented Pinkaiti as a boundary object (Star, 2010; Star & Griesemer, 1989) for tracing (Griesemer, 2015) the partnership structure, processes, and outcomes over time (Brinkerhoff, 2002b,c).

This chapter outlines the theoretical and practical application of an embedded comparative case study methodology for the description and analysis of the Pinkaiti Partnership in order to:

1) Recreate and detail the structure, processes, activities, and outcomes of the Pinkaiti Partnership using the perspectives of different stakeholder groups: A'Ukre community, NGOs, and university partners.
2) Apply boundary object theory to analyze the Pinkaiti Partnership as a transnational multi-stakeholder partnership.
3) Generate usable knowledge for the design, implementation, or evaluation of transnational research or education partnerships within or across different stakeholder groups.

First, I define and provide the theoretical background for case study methods. Next, the chapter explains and integrates embedded and comparative case study designs, presenting a heuristic for visualizing how embedded comparative case study methods can unpack the local, national, and global linkages of the Pinkaiti Partnership. I then turn to the details of the case, providing an overview of the stakeholder groups, participants, and four partnership eras, including strategies for data collection, organization, and analysis. The

chapter closes with a discussion of issues related to access, ethics, and research validity, focusing on the challenges and opportunities of conducting research within Indigenous communities.

Case Study Methods

Yin (2014) explained that case studies are:

> An empirical inquiry that investigates a contemporary phenomenon in depth and within its real world context, especially when the boundary and context may not be clearly evident…. A case study inquiry copes with… a situation where there may be many more variables of interest than data points, relies on multiple sources of evidence. (pp. 16-17)

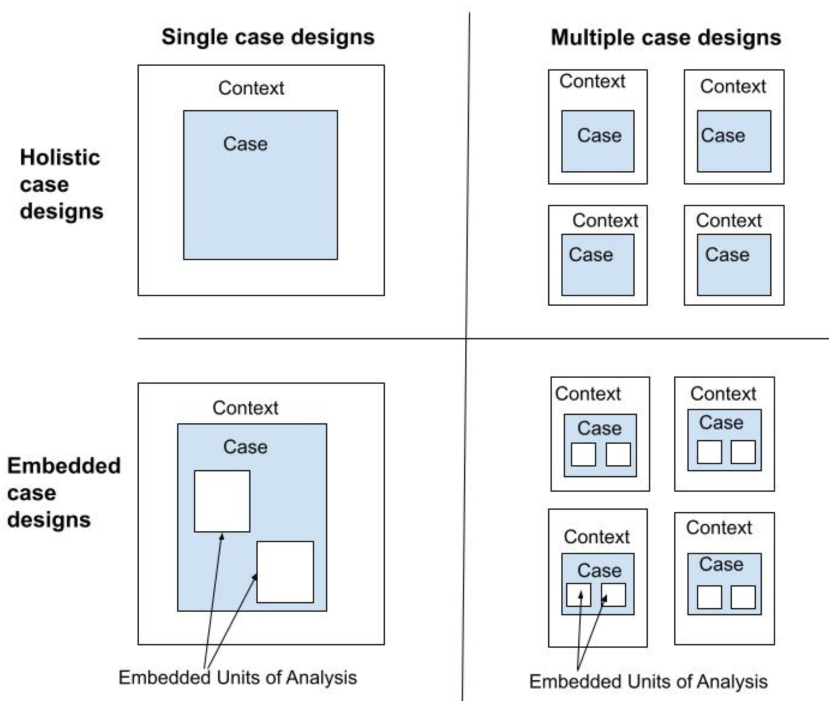
Not surprisingly, case studies are a method often used to describe and analyze partnership or boundary work that integrate diverse actors and activities (Brinkerhoff, 2002c; Glasbergen, 2007; Clark et al., 2016). Yin (2014) explained that case studies are a useful method for bringing multiple data sources to bear on research that "arises out [of] the desire to understand complex social phenomenon." Case studies therefore contribute to our "knowledge about individual, group, political, and related phenomenon" (p. 4). Transnational partnerships such as the Pinkaiti Partnership often include complex multi-spatial arrangements of actors, perspectives, and activities (Bartlett & Vavrus, 2017c; Gray & Purdy, 2018; Tsing, 2005; Vavrus & Bartlett, 2009). In applied research, case studies illuminate boundary work that links knowledge with action (Cash et al, 2002; Cash et al., 2003; Clark et al., 2010), Flyvbjerg's (2001, 2006a, 2006b), literature recognizes case studies as being particularly suited for social science research that is

reflexive and action-oriented to generate “concrete, practical and context dependent knowledge” (Flyvbjerg, 2006a, p. 221).

Yin (2014 p. 50) points out four basic case study designs that are single or multiple AND embedded or holistic (see Figure 11). All case studies include relevant context and one or more units of analysis.

Figure 11

Four Types of Case Study Designs



Note: Adapted from Yin, 2014, p.50

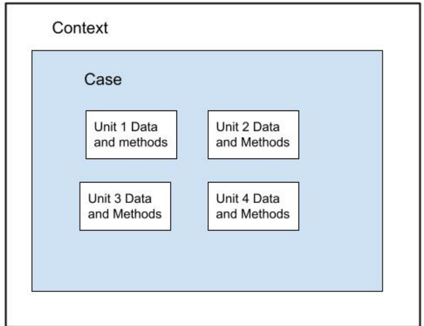
Embedded Case Studies

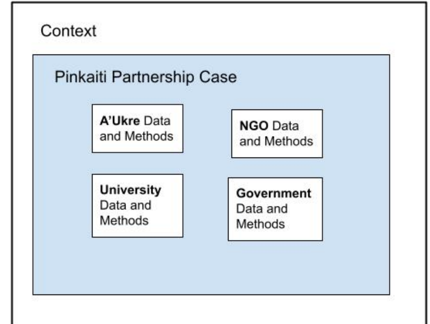
I use an embedded single case study design to investigate the Pinkaiti Partnership. Embedded single case studies analyze multiple units nested within a single case (Scholz & Tietje, 2002; Yin, 2014; Figure 12). In this study, the Pinkaiti Partnership represents the single case and the stakeholder groups are the embedded units of analysis (See Figure

12). Each embedded unit incorporates "a multiplicity of methods... and its own set of sources and methods" (Scholz & Tietje, 2002, p. 10). Embedded case studies are an effective methodology for unpacking cases such as Pinkaiti that couple social and environmental issues across multiple stakeholder groups. As Scholz and Tietje (2002) explain, embedded case studies detail "the biographic, authentic and historic dynamics and perspectives of social or natural systems" (p. 4).

Figure 12

Embedded Case Study and Subunits for the Pinkaiti Partnership





At the same time, embedded case studies are ambitious research projects. Case study scholars caution that embedded case studies can become expansive, unwieldy, and unfocused, warning that exploration of embedded subunits may deviate too far from the original inquiry. Therefore, embedded case studies require researchers to weave subunits back to the overall case of inquiry (Yin, 2014). On the other hand, the strengths of embedded case study include the ability to shape, focus, and enhance insights through extensive analysis within case subunits (Yin, 2014). In addition, the methodological flexibility of embedded analysis ensures data triangulation and prevents research "slippage" (Yin, 2014, p. 55) as the line of inquiry is shaped and reshaped through multiple data sources and repeated engagement with the case of inquiry.

Comparative Case Studies

Comparative case studies (CCS) as a form of case study closely aligns with transnational partnership research in that the "CCS approach attends simultaneously to the global, national and local dimensions of case based research…. It is particularly well suited to social research about practice and policy" (Bartlett & Vavrus, 2017c, p. 1). Most notably, CCS differentiates itself from traditional case study methodology by challenging the common practice of "bounding" cases by time, place, or activity. While many case study scholars state that bounding is the "single most defining characteristic of case study research" (Merriam, 2009, p. 40; see also Creswell, 2007, 2014), CCS methodologists encourage researchers to "unbound" case study research to permit tracing tensions and intersections of culture, context, and comparison over temporal and spatial dimensions (Bartlett & Vavrus, 2014a, 2014b, 2014c, 2017a,b,c). As CCS scholars, Bartlett and Vavrus (2017c) encourage incorporating a socio-cultural perspective that "steers us away from 'bounding' a study and makes the project one of identifying the historical and contemporary networks of actors, institutions" (pp. 14-15). In unbounding the case, the researcher is able to follow "a process approach" for an iterative, emergent, "interactive research design." (Maxwell, 2009). For example, Bartlett and Vavrus (2014b, 2017c) demonstrate how local education policies in Tanzania were shaped by national and global forces within and across a spectrum of transnational stakeholder spaces.

CCS built upon earlier vertical case study scholarship (Bartlett, 2014; Bartlett & Vavrus, 2009, 2014a, 2014b, 2017b, 2017c; Vavrus & Bartlett, 2006, 2009). Both vertical case study and CCS approaches note the horizontal and vertical axes. The *horizontal axis*, drawn from multi-sited ethnography, considers processes that may unfold in distinct

locations where connections are "socially produced and complexly connected" (Bartlett & Vavrus, 2017c, p. 3). Horizontal comparisons take place amongst units at the same scale across different locations (for example a set of schools). In the Pinkaiti Partnership, one representative example of the horizontal axis is the ability to compare across participating universities. The *vertical axis* includes concepts from actor network theory, considering assemblages, or the shifting alliances or networks of people, objects, and ideas as they move into and out of local, national, or international arenas (Bartlett & Vavrus, 2014a, 2014b, 2017b,c; Callon et al., 2009; Latour, 2005). In the Pinkaiti Partnership, the vertical axis is apparent as the A'Ukre community interacts with community-based NGOs linked to national and international NGOs and donor networks. Where CCS expounds on vertical case studies is the explicit and elaborate unpacking of the transversal axis (Bartlett & Vavrus, 2014b, 2017c). The *transversal axis* weaves together components of the vertical and horizontal axes over time. Notable for transnational partnership research, the transversal axis is process-oriented in that

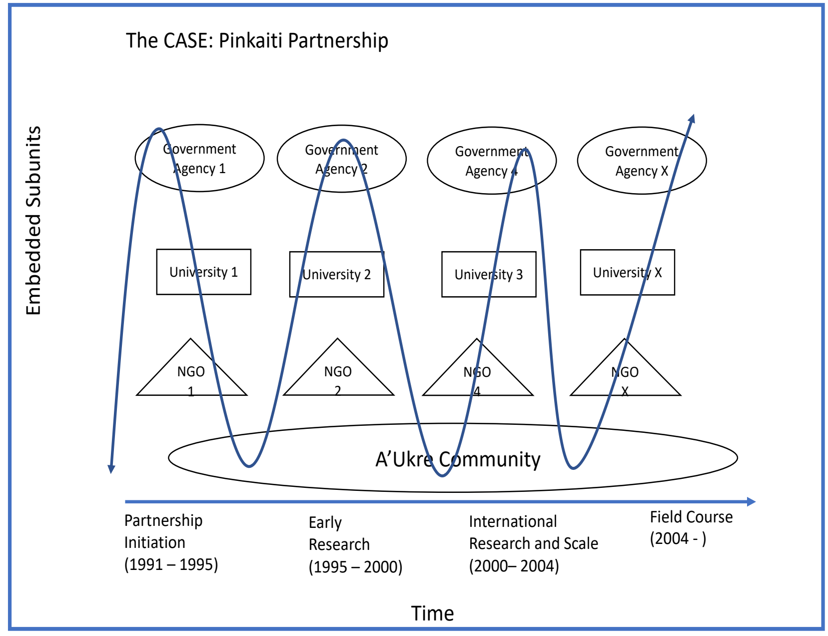
> it considers the cultural production of places and events, as well as the articulation and de-articulation of networks and actors over time and space… it constantly compares and contrasts phenomena and processes in one locale with what has happened in other places and historical moments. (Bartlett & Vavrus, 2017c, p. 19)

Within the Pinkaiti Partnership, the transversal axis represents the four partnership eras. In Figure 13, the curved line represents Pinkaiti as boundary object "traced" through the horizontal, vertical, and transversal axes. At each partnership era, there are different

assemblages of partners. By following Pinkaiti, we can study interactions and relationships within and among stakeholder groups.

Figure 13

Tracing the Boundary Object Across Embedded Subunits at Vertical, Horizontal, and Transversal Axes in the Pinkaiti Partnership



Note. Adapted From Bartlett and Vavrus (2014b, 2017c, p. 3, Figure 1.1).

CCS uses similar terminology as the boundary object theory described in Chapter 2. Where Star and Griesemer (1989) discussed collaboration without consensus across social worlds, CCS embraces the idea of "fuzzy fields" where "social worlds… formed by sets of common or joint activities or concerns bound together by a network of communications… focused on a common concern and [act] on the basis of a minimal working consensus" (Nadai & Maider, 2005, p.4). Where Bartlett and Vavrus (2017c) use CCS to "trace" policies across time and space, Griesemer (2015) notes that boundary objects "track" artifacts in design and implementation across different social worlds.

Similarly, CCS's transversal axis answers Star's (2010) call to find "new methods" for boundary objects "to capture [the] complex and longitudinal phenomenon" (p. 614). Finally, comparable to the social and boundary crossing discussed by Akkerman and Bakker (2011; see Table 4), Bartlett and Vavrus (2017c) indicate CCS as a tool for unpacking how "social actors adopt and develop practices in relation to other groups-sometimes to distinguish themselves and sometimes to declare group membership" (p. 1).

Pinkaiti as an Embedded Comparative Case Study

Figure 13 borrows from CCS methodology established by Bartlett and Vavrus (2014b, 2017c), but uses embedded case study design. Therefore, the Pinkaiti case could best be described as an embedded comparative case study (ECCS). In this dissertation, the story of Pinkaiti is told three times from the perspective of different stakeholder groups (A'Ukre, NGOs, and universities). In the Pinkaiti case, embedded subunits are organized categorically by stakeholder group and investigated over four partnership eras. Pinkaiti Partnership stakeholder interactions occur at the local, national, and international levels. Vertically, using Pinkaiti as a boundary object, one can track and analyze stakeholder engagement through local, national, and international spaces. The horizontal axis permits discussion and comparison within stakeholder groups (for instance, across the different university partners). Finally, the transversal axis traces actor and institutional interactions through the lens of Pinkaiti engagement over four overlapping eras of activity.

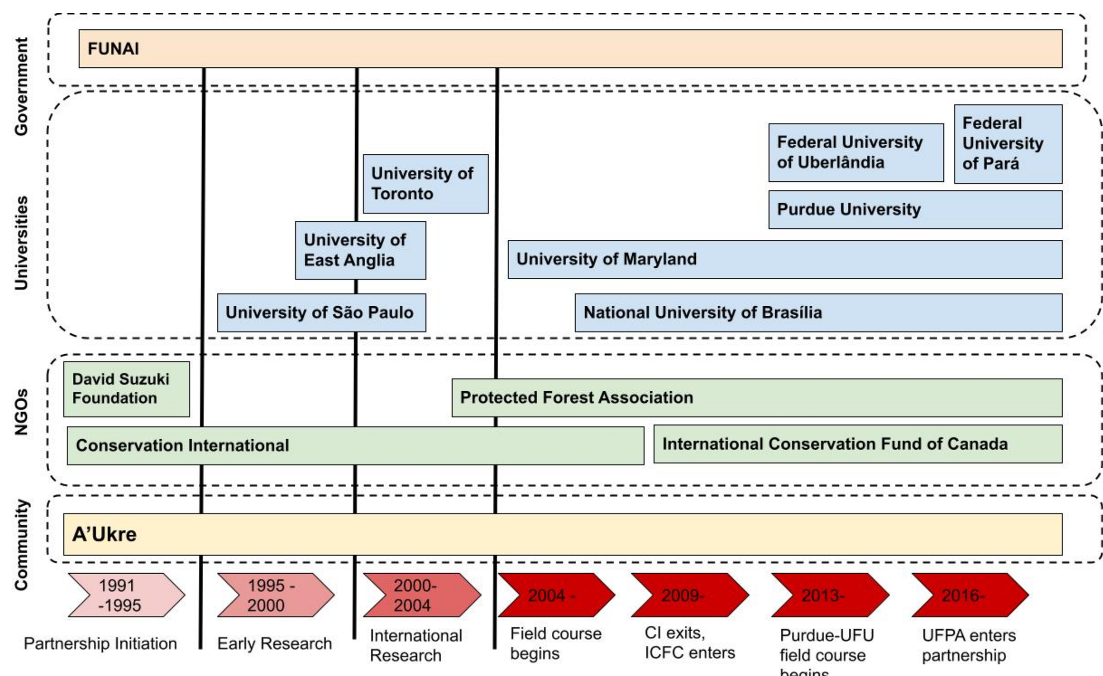
Stakeholder Groups and Participants

Pinkaiti Partnership stakeholders include the A'Ukre community, NGOs, university, and government partners. Figure 14 notes the entrance and exit of various

stakeholder groups, institutions across the various partnership eras. The dashed lines indicate the embedded stakeholder units of analysis. The solid lines demarcate the four partnership eras. Here, I provide a brief introduction and overview of the Pinkaiti Partnership actors. More details are provided in subsequent chapters.

Figure 14

Entry and Exit of Pinkaiti Partnership Actors Over Time



A'Ukre Community

A'Ukre,[29] located in the center of the Kayapó Indigenous Territories, is home to about 400 people from 38 families (AFP, 2020a; Jerozolimski et al., 2011; Zanotti, 2014a; Zanotti, 2016). The village was founded in 1979 in a fission from the ancestral village of Kubenkrãkêj (Jerozolimski et al., 2011; Kayapó et al., 2015). In 1992, A'Ukre

[29] Zanotti (2016, pp. 14-24) provided a detailed history and introduction to the A'Ukre community in her text *Radical territories in the Brazilian Amazon. The Kayapó's fight for just livelihoods.*

created the Pinkaiti Research Station (see Figure 1) about 12 km up the Riozinho River from the village (see Figure 2; Zimmerman et al., 2001). Pinkaiti Partnership research and education activities take place either at Pinkaiti or in A'Ukre.

The NGOs

The Pinkaiti Partnership includes a myriad of NGO institutions that have participated at local, national, and international levels. Over time, NGOs have entered or exited partnership activities. NGOs include Brazilian, US, and Canadian-based organizations (see Figure 14).

Conservation International

CI, a BINGO, is one of the five largest international conservation organizations in the world (Dowie, 2009). Founded in 1987, CI has a broad global portfolio, working in more than thirty countries. CI states its mission as "building upon a strong foundation of science, partnership and field demonstration, CI empowers societies to responsibly and sustainably care for nature, our global biodiversity, for the well-being of humanity" (CI, 2020a). CI's vision is to "imagine a healthy, prosperous world in which societies are forever committed to caring for and valuing nature, for the long-term benefit of people and all life on Earth" (CI, 2020a).

CI's global headquarters is located in Washington, DC, with regional CI Brazil offices in Belo Horizonte and Brasília (CI Brazil, 2020). The CI Brazil offices coordinated most of the in-country partnership logistics, administration, and government relations during their involvement in Pinkaiti Partnership activities.

Today, CI is no longer directly involved at Pinkaiti, but it continues to support the Kayapó

> to help them protect their land and cultural tradition by strengthening surveillance and institutional capacities of indigenous associations as well as providing economic alternatives to logging….[CI is] strongly committed to ensuring long-term support for the conservation of the Kayapó's natural resources and cultural traditions. (CI, 2020b)

The David Suzuki Foundation

DSF, founded in 1990, was the first financial backer of Pinkaiti (DSF, 2020a; Suzuki, 2006). David Suzuki had personal relationships with Paiakan and Zimmerman (Suzuki, 2006). Today, DSF's project portfolio focuses on Canada-based initiatives, with a mission "to protect nature's diversity and the well-being of all life, now and for the future" through the domains of environmental rights, climate solutions, and biodiversity (DSF, 2020a). Still, DSF remains loosely connected to the Kayapó. The organization recently sponsored Maial Panhpunu Paiakan Kaiapo,[30] a lawyer and Kayapó woman, as their first International Indigenous Research Fellow (DSF, 2020b).

International Conservation Fund of Canada

Founded in 2007, the International Conservation Fund of Canada (ICFC) "has carried out conservation work in Latin America, Africa and Asia… [partnering] with local conservation organizations who conduct project activities in the field and who work with ICFC to develop project plans and budgets" (ICFC, 2020b). ICFC's mission is "to advance the long-term preservation of nature and biodiversity in the tropics and other priority areas worldwide" (ICFC, 2020b).

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[30] Maial Panhpunu Paiakan Kaiapo is one of Paulinho Paiakan's daughters.

ICFC's Kayapó project was one of the first in ICFC's portfolio. The goal of the project is to "empower the Kayapó Indigenous people to continue to protect over nine million hectares of their lands from degradation and deforestation, and to build the capacity of Kayapó NGOs to manage territorial surveillance and sustainable economic activities" (ICFC, 2020a). Since 2007, ICFC raised and contributed close to six million dollars to the Kayapó Project (ICFC, 2020a). The field course in A'Ukre and Pinkaiti is one small income generation activity within a Kayapó Project portfolio that includes supporting three Kayapó associations (AFP, Instituto Kabu, and Instituto Raoni) in territorial surveillance and monitoring, sustainable income generation, and institution building (ICFC, 2020a).

Protected Forest Association

AFP is a Mẽbêngôkre–Kayapó association based in Tucumã, Pará. Started in 2002,[31] today AFP represents close to 3,000 Indigenous people in 31 villages, including A'Ukre (AFP, 2020c). AFP has four activity domains (lines of action) including knowledge and culture, income generation, territorial and environmental monitoring, and political action and institution building. AFP's mission is to "promote the culture, political, and economic autonomy of the Mẽbêngôkre people, the protection and conservation of traditional territories, and the defense of Indigenous rights, with the guiding principle of legality, sustainability, dialogue and cooperation of the represented communities"[32] (AFP, 2020c). Pinkaiti and the A'Ukre field course are two of about two-

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[31] Discussed in detail in Chapters 4 and 5, the precursor to AFP was an office in the town of Redenção recognized in 1997 as the *Centro Kayapó Estudos Ecológicos (*Kayapó Center for Ecological Studies).
[32] Translated from *Promover a cultura e a autonomia política e econômica do povo Mẽbêngôkre, a proteção e conservação dos territórios tradicionais, e a defesa dos direitos indígenas, tendo como*

dozen projects AFP currently operates across its representative communities (AFP, 2020b).

The Universities

University partners include the researchers, students, and instructors from Brazilian, Canadian, the United Kingdom and USA-based institutions that have entered and exited the partnership over time. University engagements within the partnership are typically tied to and driven by individual faculty or staff. Often, formal agreements are required by the institutions to authorize these individual activities. It is university activities and engagement that helped define the partnership eras.

During the **partnership's initiation,** researchers from National Institute for Amazon Research (INPA, 2020), the Emilio Goeldi Museum of Pará (MPEG, 2020), and the University of São Paulo (USP, 2020) visited Pinkaiti for short-term research activities. Most of these researchers had personal relationships with Zimmerman at CI.

Starting in 1995, during **early research**, extended graduate student research projects began at Pinkaiti. Most researchers at Pinkaiti were USP as graduate students under the advisement a single USP faculty advisor. When the USP professor and faculty advisor took a position at the University of East Anglia (UEA, 2020) in the United Kingdom, many Brazilian graduate students joined him at UEA to continue or develop Pinkaiti research programs.

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princípios norteadores de sua atuação a legalidade, a sustentabilidade, o diálogo e a cooperação das comunidades representadas.

Starting in 2000, during **international research,** the USP/ UEA students were joined at Pinkaiti by University of Toronto (UT) student researchers, who were supervised and supported by grants awarded to Zimmerman and a colleague in UT's Faculty of Forestry.

In 2004, the offering of the **field course** shifted the dynamics of university participation. The University of Maryland (UMD) led the first field course (Zanotti & Chernela, 2008). In 2007, the National University of Brasília (UnB, 2020) joined UMD to form the US-Brazilian university field course relationship. In 2013, Purdue University (2020a) paired with The Federal University of Uberlândia (UFU, 2020) to create a complimentary second field course. An additional Brazilian University partner, the Federal University of Pará in Belém (UFPA, 2020) [33], joined the field course team in 2016.[34]

Brazilian Government Agencies

Although Brazilian government agencies do not have a dedicated chapter in this dissertation, their relationships and interactions are discussed in great detail in Chapters 4, 5, and 6. Three Brazilian agencies provided authorization for conducting research in Brazil or working with Indigenous communities on Indigenous lands. These agencies are the National Indian Foundation (FUNAI),[35] The National Council of Scientific and

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[33] In Portuguese: Instituto Nacional de Pesquisas da Amazônia (INPA); Universidade de São Paulo; *Museu Paraense Emilio Goeldi (MPEG)*; Universidade de Brasília; Universidade Federal de Uberlândia; Universidade Federal do Pará Belém

[34] In 2019, another US institution Middle Tennessee State University participated in the field course. Their experience is not included in the dissertation beyond my own field observations in A'Ukre.

[35] In Portuguese: Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq); Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis (IBAMA); Fundação Nacional do Índio (FUNAI)

Technological Development (CNPq), and the Brazilian Institute of Environment and Renewable Natural Resources (IBAMA).

FUNAI

Formed in 1967 and situated within the Brazilian Ministry of Justice, FUNAI's institutional mission "is to protect and promote the rights of Indigenous peoples in Brazil" (FUNAI, 2020a). FUNAI's actions are guided by several principles, "including recognition of social organization, customs, languages, beliefs and traditions of Indigenous peoples, seeking to reach the full autonomy and self-determination of Indigenous peoples in Brazil, contributing to the consolidation democratic and multiethnic state" (FUNAI, 2020a). FUNAI's primary policy arenas include Indigenous policy, citizenship, regional committees, demarcation of Indigenous lands, social rights, ethnodevelopment, supervision and monitoring, environmental management, environmental licensing, isolated Indigenous peoples and recent contact, and partnerships (FUNAI, 2020a).

FUNAI provides legal permissions for all non-Indigenous Brazilians and non-Brazilians to visit, work, or conduct research in federally demarcated Indigenous territories (FUNAI, 2020c; Gomes, 2006). A 1995 FUNAI decree articulated twelve steps for conduct of researchers within Indigenous territories including health verifications, researcher credentials, proposal authorizations, and Indigenous consultations (FUNAI, 2020c; Santilli, 1995). Research or education proposals for activities with Indigenous

communities are first reviewed by CNPq for scientific merit before being reviewed and authorized by FUNAI (Gomes, 2006; Gusman et al., 2016; Santilli, 1995).

The national FUNAI headquarters is located in Brasília with regional and local offices throughout the country. Historically, three FUNAI offices (Brasília, Redenção, and Tucumã) consulted or participated in Pinkaiti Partnership activity, administration, and authorization. The Brasília headquarters received and reviewed all documents. Brasília made the final decisions on program authorizations. Between 1992 and 2005, Redenção was the regional FUNAI office responsible for coordination and administration of Pinkaiti-related activities. In 2005, FUNAI opened an office in Tucumã, PA to situate itself closer to constituent Kayapó communities (FUNAI, 2020b). Today, A'Ukre, AFP, and university staff coordinate closely with the FUNAI Tucumã office staff on the field course and other activities (AFP, 2020b; FUNAI, 2020b).

The National Council of Scientific and Technological Development

Started in 1951, CNPq promotes scientific and technological research and encourages the development of Brazilian researchers (CNPq, 2020a; ORCID, 2020). CNPq certifies research credentials and reviews research proposals. Foreigners conducting research in Brazil must collaborate with a CNPq-credentialed Brazilian *contrapartida* (counterpart) willing to support the research and submit a proposal for a scientific expedition (CNPq, 2020b). All Pinkaiti research and education proposals must be reviewed for scientific merit and feasibility by CNPq staff before being passed to FUNAI.

Brazilian Institute of Environment and Renewable Natural Resources

Founded in 1989, IBAMA's mission is to "formulate and implement environmental public policies aimed at protecting the environment and promoting sustainable socioeconomic development" (IBAMA, 2020). IBAMA reviews all scientific proposals for collection of biological samples at Pinkaiti. Researchers must indicate precisely what is collected, in what quantities, and for what purpose. IBAMA also works alongside and supports NGO and Indigenous partners to prevent "invasions" onto Indigenous lands by loggers, ranchers, or miners (Wallace, 2019).

Pinkaiti Partnership Eras

The Pinkaiti Partnership can be organized into four overlapping partnership eras that correspond to key activities or partnership arrangements (see Figure 14). These partnership eras and activities are discussed in greater detail in subsequent chapters.

Partnership Initiation (1991-1995)

Partnership initiation began with A'Ukre's invitation and Zimmerman's subsequent visit to A'Ukre in June 1991, setting in motion the course of events leading to the construction of Pinkaiti, recruitment and involvement of the first set of research activities, and donor visits to Pinkaiti (Zimmerman, 1991a,b). DSF and CI worked together with A'Ukre and FUNAI to facilitate short Pinkaiti visits by donors, researchers and scholars.

Early Research Era (1995-2000)

The early research era features the first long term USP graduate student research. Unlike the short-term, one-off visits that occurred during partnership initiation, USP student researchers engaged in years-long projects repeated over an extended period of

time at Pinkaiti. Repeated engagement meant close collaboration with the A'Ukre community.

International Research and Scale Era (2000–2004)

The international research and scale era was marked by two simultaneous areas of activity. At Pinkaiti, researcher activities expanded to include a cohort of mostly Canadian graduate students from UT. At the same time, CI, using Pinkaiti as a model, scaled their activities and conservation alliances beyond A'Ukre to include other Kayapó communities across the various Kayapó Territories (See Figure 3). Increased NGO activity corresponded with a series of meetings with Kayapó leadership in A'Ukre (Zimmerman et al., 2001). During these meetings, AFP was created as a local Kayapó-led organization to support CI's initiatives (Chernela & Zanotti, 2014). In 2002, CI, FUNAI, an AFP negotiated a formal partnership agreement. The ongoing negotiations between FUNAI and CI intermittently halted Pinkaiti research activities between 2000-2004.

Field Course Era (2004-Present)

The field course era shifted the focus of partnership activities from research to education. CI's role in the partnership diminished, ceding responsibility to AFP and the Canadian-based ICFC. The number of North American and Brazilian university partners increased (see Figure 13). Over time, the field course increasingly moved beyond the Pinkaiti research model of engagement to center and integrate the A'Ukre community into program design, field activities, administration, and logistics.

Data Sources and Data Collection

The Pinkaiti study drew upon interviews, documents, and observational data typical for case study research (Creswell, 2007; Merriam, 2001; Stake, 1995; Yin, 2014).

Data provided insight from all stakeholder groups and participating institutions across all four partnership eras. For each group, I collected a different set of document, interview, and observational data (Table 5).

Table 5

Stakeholder Groups, Institutional Actors, and Data Sources for the Pinkaiti Partnership

	Data Sources			
Stakeholder group	Field observations	Participant observations	Interviews	Documents
A'Ukre community (Chapter 3)				
A'Ukre[a,b,c,d]	Yes	Yes	Yes	Yes
NGOs (Chapter 4)				
David Suzuki Foundation[a]	No	No	No	Yes
Conservation International[a,b,c,d]	No	No	Yes	Yes
International Conservation Fund of Canada[d]	No	No	Yes	Yes
Protected Forest Association[c,d]	No	Yes	Yes	Yes
University partners (Chapter 5)				
Brazilian universities				
National Institute for Amazon Research[a]	No	No	No	Yes
Emilio Goeldi Museum of Pará[a,c]	No	No	No	Yes
University of São Paulo[a,b,c]	No	No	Yes	No
National University of Brasília[d]	Yes	No	Yes	Yes
Federal University of Uberlândia[d]	No	No	Yes	Yes
Federal University of Pará[c,d]	Yes	Yes	Yes	Yes
European universities				
University of East Anglia (UK)[b,c]	No	No	Yes	No
North American universities				
University of Toronto (Canada)[c]	No	No	Yes	Yes
University of Maryland (USA)[d]	Yes	Yes	Yes	Yes
Purdue University (USA)[d]	No	No	Yes	No
Government partners (no chapter)				
FUNAI[a,b,c,d]	Yes	No	Yes	Yes
CNPq[c,d]	No	No	No	Yes
IBAMA[c]	No	No	No	Yes

[a] partnership initiation; [b] early research; [c] international research and scale; [d] field course

Multiple sources of data across stakeholder groups allowed for data triangulation and convergence across embedded units to capture multiple perspectives on the same period of events (Figure 15).

Figure 15

Convergence of Data Sources by Stakeholder Group

Data collection took place between May 2017 and December 2019 in the United States, Canada, and Brazil (see Table 6). The bulk of interview data collection took place over a nine-month period between February and October 2019.

Table 6

Research Project Timeline

Dates	Key activities
July 2016	Preliminary meeting with A'Ukre community about research (Appendix B)
May 2017	Research proposal defense Research visit to Toronto, Canada • Document collection • Pilot interviews
November 2017	UMD IRB research approval
July 2018	Second meeting with A'Ukre community (Appendix B)
February 2019	Departure to Brazil on Fulbright Student Research Grant
February – April 2019	Field work in Belém, PA • Contacting research participants • Web or phone based interviews • Interview transcriptions • Receipt of FUNAI authorization (FUNAI, 2019)
April – June 2019	Field work with AFP in Tucumã and Brasília • In-person interviews with community, NGO, and government stakeholders • AFP observations and participation • A'Ukre leadership consultations
June – September 2019	Field work in A'Ukre • In-person interviews • Observations and participation in community activities • July – August university field course participation and observation
October 2019 – February 2020	Return to USA • In person interviews • Interview transcription • Document organization and review • Data organization
February 2020 – March 2021	Data organization, analysis, and writing

Interviews and Sampling Techniques

Interviews are one of "the most important sources of case study evidence" (Yin, 2014, p. 110) that bring to light personal insights and reflections on how "people interpret the world around them" and capture snapshots of "past events that are impossible to replicate" (Merriam, 2009, p. 89). I attempted to contact and interview as many Pinkaiti participants as possible to capture the full range of stories and perspectives. The number of Pinkaiti partnership participants is limited. Aside from the A'Ukre community, there are less than 250 participants[36] across the whole history of Pinkaiti activities.

Sampling techniques to recruit participants included purposeful, snowball, and opportunistic sampling (Creswell, 2007, p. 127). First, purposeful sampling targeted key partnership actors identified from within my own professional network, the literature, documents collected, Facebook groups, and listservs. Participants were directly contacted with an interview solicitation via email or internet messaging services (Appendix C). During in-person interviews, participants spoke of or recommended other important actors and possible participants (snowball sampling). Finally, ongoing, Brazil-based field work provided opportunistic and unanticipated interview opportunities. For example, at the annual AFP meeting in May 2019, I met and spoke with Paulinho Paiakan[37] and several former A'Ukre residents involved in Pinkaiti research who had moved to other villages (Aruch Field notes, 2019).

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[36] About half of the 250 are field course student participants.
[37] Paiakan is essential to the creation of Pinkaiti. Rabben (2004) noted Paiakan was difficult to track down for an interview.

In total, 170 interviews were conducted with 160 participants across the stakeholder spectrum (see Table 7). Interviews were semi-structured (Merriam, 2009; Roulston, 2010) and covered the following domains (sample interview protocols appear in Appendix D):

1) Personal motivations, affiliation(s), and experiences within the Pinkaiti Partnership.
2) Interactions and relationships with the A'Ukre community.
3) Interactions and relationships with the NGOs.
4) Interactions and relationships with the universities.
5) Interactions and relationships with government agencies.
6) Other comments or reflections.

Most interviews were conducted individually across diverse settings that included homes; offices; restaurants; over the telephone; or through web-based platforms such as Skype, Facebook, Zoom, or WhatsApp. On two occasions, pairs of participants preferred to be interviewed together. In four cases, interview questions and responses were shared over email. In one case, the participant responded directly to questions via WhatsApp audio. Except for interviews with the A'Ukre community, interviews were conducted in English or Portuguese, depending on the preference of the participant; audio recorded (with consent); and transcribed using NVivo Transcription Software (QSR International, 2020a) and an Express Scribe transcription pedal (NCH Software, 2020).

Roulston, 2010 states that "when researchers conduct interview with participants who speak a language that differs from the language of representation…. [researchers] need to explain their decision making in relation to translation" (p.108). For this study,

Portuguese language interviews were transcribed and coded in the original Portuguese. The Portuguese was later translated to English during analysis and discussion for report writing. Simply put, I found it easier and more meaningful to work with the original text in coding and discussion, before an English in the final report (see Clark et al., 2017; Roulston, 2010). Throughout the document author translations are noted in the text.

A'Ukre-based interviews were conducted in the Indigenous Mẽbêngôkre-Kayapó language with the assistance of a Kayapó research team (translator and filmmaker). I spoke with all community members interested in sharing their perspectives and experiences. Open and inclusive community participation was a valued, relational aspect of the shared research program within the community (Russell & Harshbarger, 2003; Tuhiwai Smith, 2012; Wilson, 2008). Following the interviews, I worked with the research team to review and translate each interview from Kayapó to Portuguese. The Portuguese was later translated to English by the author and converted into a detailed interview memo, not a transcription (see Chapter 4 for details).

Table 7

Total Number of Interviews and Documents by Stakeholder Group

Stakeholder group	**Number of interview participants**	**Number of documents**
A'Ukre community participants (# interviews)	88(101)	131
NGOs	20	352
Universities	56	179
Government	4	103
Total # of participants (# interviews)	160 (170)	NA
Total # of documents	NA	520

Note. Some A'Ukre, NGO, and university participants participated in multiple interviews. Some participants occupy more than one role simultaneously or over the course of the partnership. Some documents are relevant to more than one stakeholder group.

Document Data

Documents are another widely used case study data source for revisiting events and histories that cannot be recreated (Bowen, 2009; Merriam, 2001; Yin, 2014;). In my document analysis, I incorporated Bowen's (2009) five uses for document analysis in qualitative research: background and context, new questions/lines of inquiry, supplemental data, track or trace phenomenon, and to verify or corroborate evidence.

In my analysis, I recognized that documents are socially constructed artifacts (Prior, 2003). They are not neutral and should be interpreted through the lens of their author or affiliated institution. In the Pinkaiti case study, one research objective was to uncover these social constructions by revealing multiple stakeholder perspectives. In total, I drew upon more than 500 documents, written in English or Portuguese, which included project proposals and budgets, news clippings, program reports, grant applications, correspondence (letters, faxes, emails, and so forth), promotional materials, annual reports, and other relevant archival materials. Documents were collected from institutional colleagues at CI, ICFC,[38] AFP, and University of Maryland Education Abroad (UMD EA, 2020), as well as internet searches. The documents represented the spectrum of Pinkaiti Partnership actors and institutions (Table 7).

Paper documents were scanned and organized chronologically to create a digital database. Digital documents were organized by a filing convention that included Year_Date_Author_Brief descriptor.[39] Documents were transferred into digital file

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[38] Most CI and ICFC documents came from the Kayapó Project archive, generously shared by Dr. Barbara Zimmerman.
[39] For example, 1993_01_18_BZ_DSF_Accounting_receipts is a document from January 18th, 1993. The document came from BZ to DSF and included accounting receipts.

folders organized by year and tagged with date, source, author, title, type, and stakeholder relevance. Documents relevant to particular stakeholder group(s) were later imported into the appropriate NVivo 12 Project for coding and analysis. For corresponding stakeholder chapters, only documents that came from or went to various stakeholder groups were used in the analysis. Documents written in Portuguese were coded in Portuguese and translated during analysis and report writing.

Observations and Field Notes

Field observations and note taking were particularly important in the ethnographic, field-based research undertaken in the USA and Brazil (Emerson et al., 2011; Merriam, 2001). Schensul et al. (1999) define participant observation as "the process of learning through exposure to or involvement in the day-to-day or routine activities of participants in the researcher setting" (p. 91). Field notes were collected and recorded through a series of handwritten field notebooks (see Figure 16), with daily and weekly digital reflections written into Microsoft OneNote or Microsoft Word. These digital notes served to organize, categorize, and reflect on handwritten notes. Field notes included date, time, location, setting, event descriptions, and other important notes (Creswell, 2007; Emerson et al., 2011). Field notes and reflection generated novel data, while also supporting and informing understandings and insights of partnership activities (Emerson et al., 2011).

Figure 16

Field Equipment for Note Taking, Memo Writing, Recording, and Photographing

The intensity and typology of field observations varied depending upon the situation, context, and circumstances. Merriam's (2001, pp. 100-101) typology of case study research observations was a useful tool for describing four overlapping intensities of field observations. A *complete participant* fully engages as a member of the study group. A *participant as observer* focuses more attention on participation in the event of interest than on observation while an *observer as participant* brings greater energy to observation than participation. Finally, the *complete observer* does not participate, but rather observes in a public or hidden setting. Table 9 describes the various observation strategies and examples employed during research activities.

Table 8

Typology of Field Observations by Field Work Setting

Field work setting	Kind of observation	Example
UMD	Complete participant	Professional role as UMD instructor
AFP	Participant as observer	Observation of AFP's relationship in Tucumã while participating in NGO activities
	Observer as participant	Working with AFP in my professional role at UMD while observing AFP activities
	Complete observer	Large AFP events such the annual meeting in Tucumã and *Acampamento Terra Livre*
A'Ukre	Complete participant	Research breaks and community activities such as sporting events as festivals
	Participant as observer	Field interviews and meetings regarding the field course
	Observer as participant	Role as field course instructor during 2019 UMD field course

	Complete observer	Observation of the 2019 Purdue field course

Keeping field notes was particularly important in A'Ukre. I kept a field book with me at all times, tracking notable activities and observations. For important events (for example a community-wide meeting discussing field course roles), more robust, detailed field notes captured conversations and sequences of events. My engagement and interest in Kayapó culture and A'Ukre was important to the community. Many times, community members commented on my notebook as recognition that I was taking the time to learn about the language, culture, and activities of the community. Community members were interested in my notes and observations, often visiting with me in the evenings to revisit, verify, or correct my notes. Community members were generous with their knowledge, helping address gaps in my cultural and linguistic understanding.

During interviews, I used field notebooks to quickly jot down and recall salient responses to questions or important notes. These notes allowed me to ask clarifying questions of the community and research team. For each interview, I used the field notes and translations to write a detailed memo in Microsoft Word. At the end of each week, I used these notes to create a detailed reflection memo in Microsoft Word that articulated highlights, lowlights, and goals for the following week.

Data Organization, Coding, and Analysis

I organized and analyzed data using a computer assistance qualitative data analysis software, NVivo 12 (NVivo) for Mac (QSR International, 2020). The interview, documentation, and observational data were organized and analyzed in the following sequence:

1) I created an NVivo Project for one stakeholder group (E.g.,. A'Ukre community).

2) I imported all relevant data sources including interview transcripts and memos, documents, field notes, and so forth into NVivo created folders for each type of data (Note: Some data sources correspond to multiple stakeholder groups and were imported into multiple projects.)
3) I reviewed and coded all data using coding strategies listed below.
4) I organized, analyzed, and wrote up chapter for corresponding stakeholder group.
5) Repeated process for the next stakeholder group and set of data.

Within the NVivo interface, the first step in organizing the Pinkaiti Partnership data was to assign descriptors to individual "persons" through attribute coding (Saldaña, 2013, p. 69). Individuals were tagged with attributes to facilitate data sorting and analysis. Each NVivo stakeholder project had a different set of attributes for the people involved. Table 9 shows the attribute lists I created for individuals in corresponding stakeholder groups.

Table 9

Participant Attributes by Stakeholder Group

Stakeholder Group	Attribute	Notes
A'Ukre community	Age	Age of participant
	Cacique (leader)	Is participant a community leader
	Sex	Male or female
	Worked with researchers	Yes/ No
	Worked in field course (Pinkaiti)	Yes/ No
NGO	AFP affiliate	Yes/ No
	CI affiliate	Yes/ No
	ICFC affiliate	Yes/ No
	Interview language	English or Portuguese
	Nationality	USA, Brazil, Canada
Universities	Disciplinary background	Biology, Anthropology, other
	University affiliation	USP, Toronto, UMD, UnB, Purdue, UFU, UFPA, other
	Faculty advisor	Yes/ No

	Field course instructor	Yes/ No
	Field course student	Yes/ No
	Student researcher	Yes/ No
	Multiple visits	Yes/ No
	Research location	Pinkaiti, A'Ukre, both

After assigning attributes, I created a set of "cases" or units of analysis within NVivo. The cases corresponded to each of the four partnership eras. As I reviewed data within the NVivo project, I was able to assign coded data to these cases. Using NVivo attributes and cases permitted query structure to explore and compare how different attribute groups fit into different coding structures at different time periods within the Pinkaiti Partnership.

Codes (called nodes in NVivo 12) were created both deductively and inductively. First, I created codes that corresponded directly to other stakeholder groups to generate codes to demonstrate relationships. Simultaneously, I generated new codes for events, ideas, or concepts of interest. Often these were subcodes that corresponded to stakeholder relationships (Gibbs, 2007). Throughout the process, old codes were collapsed, combined, or reorganized as necessary (Saldaña, 2013). All coded data was assigned to a partnership era "case."

After a first pass of the data, I coded on the partnership structure, processes, activities, and outcomes in addition to already existing coding structure. For example, in the university stakeholder project, if a document referenced an important university meeting about field course authorizations that took place at the FUNAI office in Brasília, a passage would be coded within FUNAI at:

1) Case: Field course era
2) Node: FUNAI

Subnode: Brasília

3) Node: Course Authorizations

4) Node: Partnership Processes and Activities

For analysis, NVivo permitted queries of all data coded at any combination of attributes, cases, or nodes. In the example above, I could generate a report including all coded documents, interviews, observations, or other data from the field course era related to FUNAI, FUNAI Brasília, and/or course authorizations. The generated reported simplified analysis and discussion of authorizations and interactions among university partners and FUNAI during the field course.

Coding was a messy and iterative process. Each stakeholder project in NVivo took on its coding structure due to the quantity and variation in data. Not all codes I generated were used in the analysis or discussion. Each chapter in this dissertation, however, follows a similar narrative structure corresponding to the coding framework. For each partnership era, I first discuss stakeholder interactions within and across groups, followed by a discussion of partnership structure, processes, and outcomes.

Collaborative Methods and Research with Indigenous Communities

This case study was an exercise in collaboration with research partners across the stakeholder spectrum. The research design and implementation was co-constructed over a number of years with colleagues from the A'Ukre community, AFP, and universities I have collaborated with since 2014. Throughout the research process, I tried to be inclusive, transparent, and reflexive, borrowing from participatory and collaborative research methodologies (Israel et al., 2005; Wallerstein et al., 2005). The goal was to develop a research project that was participatory, reflexive, and action oriented

(Flyvbjerg, 2001). As the research idea developed, North American, Brazilian, and Kayapó colleagues offered expertise on study feasibility and appropriateness. I sought feedback on the kinds of research products that would be most useful to the organizations moving forward. Throughout the research process, I dropped in on colleagues to member check analyses and ensure the research had relevance to their organizations. For example, a FUNAI colleague suggested creating individual reports by stakeholder group. The colleague wanted a single report on FUNAI's role to see if or how the Pinkaiti model could be adapted or replicated in future FUNAI activities in the region (FUNAI Tucumã interview, 2019).

Reflexivity and participation were particularly important for collaboration with Indigenous colleagues in A'Ukre. I recognize that research with, on, and to Indigenous communities is fraught with legacies of colonialism and exploitation[40] (Tuck & Yang, 2012; Tuhiwai Smith, 2012). These imbalances in structural power dynamics are particularly relevant for research involving place-based work such as Pinkaiti (Tuck et al., 2014). Working in collaboration with the A'Ukre community, I used an iterative, qualitative research process including ongoing input from community leadership, collaborators, and research teams during design and implementation (Maxwell, 2009; Tuhiwai Smith, 2012; Wilson, 2008). In my research design, I paid particular attention to standards and ethics appropriate for research collaborations with Indigenous communities from international governance bodies (UN General Assembly, 2007), professional associations (American Association of Geographers, 2010; International Society of

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[40] I recognize there is an important body of research literature on Indigenous research ethics and methodologies. This is beyond the scope of this research but is a rich area for future work.

Ethnobiology (ISE), 1988, 2018), academic scholarship (Tuck et al., 2014; Tuhiwai Smith, 2012; Wilson, 2008), and Indigenous organizations (Instituto Kabu, 2019). I adapted a consultation protocol developed by the *Instituto Kabu*, a Menkragnoti-Kayapó-led NGO in the Mato Grosso state (Instituto Kabu, 2019) for government and other external projects to my own research (see Table 10). Consultations with A'Ukre's leadership and the community occurred in Tucumã and A'Ukre.

Table 10

Protocol for Kayapó Consultations

Instituto Kabu protocol	Instructions	Research adaptation
Project decisions that non-Kayapó cannot make without the community.	Project should be driven by and authorized by the community. Project aspects decided by the community include who participates, what kinds of participation, and what kinds of information can be shared.	Project design responded to discussions with community members to include the entire community. All research activities were authorized by community leadership. Discussions around number and organization of research teams, daily compensation, and community engagement expectations. All data and media were copied and remained property of the community.
Appropriate moments for consultation	Projects must provide appropriate time for the community to review the plans, discuss, and consult.	Consultations were arranged in 2016, 2018, and 2019 to discuss ongoing program activities.
Rules for consultation including locations, translation, and participation.	Different consultations should include meetings with community leadership and/ or the community as a whole.	Leadership meetings in Tucumã followed by community-wide meetings in A'Ukre.
	Translation services must be provided for all consultations.	Translation from Portuguese to Mẽbêngôkre by youth leaders in A'Ukre.
	In some meetings, non-Kayapó are not welcome. These meetings are intended only for internal community deliberation.	Participation only in deliberations and consultations to which I requested or was personally invited.

Note. Adapted from Instituto Kabu, 2019.

Community Consultations in Tucumã, PA

In April 2019, I arrived in Tucumã for field work with AFP and the Kayapó. Tucumã is a frontier town in southeastern Pará, the location of AFP headquarters and the launching point for the Kayapó field course. At the AFP office, I met with youth and senior leaders from A'Ukre to discuss research design and implementation. In a meeting with Patkore, a young leader and Kayapó filmmaker from A'Ukre, we talked through my original research design that proposed working with one filmmaker and one translator through the duration of my time in the community. Patkore suggested rotating the research team to get to know the community and expand work employment opportunities. Patkore also suggested alternating between male and female filmmakers each week. Finally, Patkore noted that in addition to research, it was important that I participate in community activities. Our new research design included Patkore's suggestions and left weekends open for community activities such as fishing, hiking, soccer, or celebrations. Following our meeting, Patkore agreed to share the research plan via radio with A'Ukre's leadership and community.

On May 9, 2019, I met with the three A'Ukre *Caciques* (community leaders) for about one hour to formally consult during their visit to Tucumã for a set of Kayapó leadership meetings.[41] In addition to the Caciques*,* five other A'Ukre residents

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[41] My stay overlapped with three important large NGO (AFP)-Kayapó events. These events provided a chance to meet with A'Ukre leadership, but also to interact with the Caciques of AFP's 27 associated Kayapó communities. The three events were:

1. I joined the AFP delegation for the *Acampamento Terra Livre* (Free Land Encampment) (ATL) in Brasília (APIB, 2019). ATL is a nationwide demonstration for Indigenous rights that takes place in Brasília every year. Following ATL, there were two important AFP meetings.
2. An AFP, Kayapó, Vale mining company assembly regarding the *Plano Básico Ambiental* (Environmental Plan) to discuss Kayapó mining concessions for the nickel mine in the Carajás (PA) region.

participated in our discussion. We sat in circle of white plastic chairs at the back of an open meeting hall discussing the project details and implementation Patkore previously recommended. To start the consultation, each Cacique spoke, beginning with Karanhi, who spoke the most Portuguese. Next, Krwytikre and Ngrenhkapyre, the female Cacique, spoke. Their comments were translated by Cacique Karanhi. Each Cacique spoke in support of the project and proposed new ideas or activities for me to do in or with the community. They discussed the project as a way to share the history of the community and work with all residents. The three Caciques were pleased that I would spend several months learning about A'Ukre and Kayapó culture, supporting the community, and expected me to use this research to bring future projects to the community. I shared my individual excitement to learn to speak Mẽbêngôkre and the opportunity to learn in A'Ukre without my typical field course instructional responsibilities. The Caciques and others at the meeting told me that the project was already well known and accepted by the community. For me, they shared, the next step was to arrive in A'Ukre and speak with the rest of the community in June 2019.

Aside from discussing research, the Caciques and I caught up and shared personal stories. Cacique Ngrenhkapyre asked why my wife was not with me and strongly suggested I bring her to meet the community. When I shared that my wife was pregnant with our first child, the rest of the meeting participants chimed in with their congratulations. The Caciques told me that I should sponsor a community-wide naming

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3. The AFP general assembly that reviewed AFP budgets and activities for the previous year and set the agenda for the coming year.

ceremony on my son's behalf in a few years (when he was hip height, walking, and talking). I promised to check with my wife and bring them both in the coming years.

Community Consultations in A'Ukre

During my stay in A'Ukre between June and September, 2019, there were two important community meetings about the research. The first took place upon my arrival to share the project with members of the community. The second took place about four weeks into the project to clear up confusion and misunderstandings about participation and compensation.

Initial Community Meeting

Upon my arrival to A'Ukre (June 17, 2019), after unpacking and settling into the kuben house at the end of the village, two young men came to bring me to the ngà to formally present the project to the community (See Figure 1).

In the ngà, the politically active men sat, chatted, joked, and waited for me around the perimeter of the ngà. Once I arrived, the three Caciques spoke first, sharing details from our earlier conversation in Tucumã. Then I spoke, thanking the community for welcoming me and presenting the research project. My presentation was translated by Ekaje, an education leader in the community. I asked if there were questions. The older men responded, not by asking questions, but by sharing their research experiences and stories, noting that they "liked" my project. Some younger men asked questions about the research schedule or compensation for the filmmakers, translators, and community. Once again, there was enthusiasm that the project included the entire community.

In the meeting, the community and I selected the first translator and filmmaker research team. The translator volunteered himself (with community approval) and the

filmmaker was selected by the coordinator of the Kôkôjagõti media center (www.kokojagoti.org). The translator and filmmaker were both young men with previous experiences working with kuben projects. The meeting adjourned, and the research team and I returned to the kuben house for dinner and discussion about the following morning's project activities (Aruch field notes, 6/17/2019).

Consultation on Research Clarifications

During the first weeks of research in A'Ukre (June – July, 2019), several individuals spoke to me privately about three points of community confusion: (a) who was going to be part of the research teams, (b) whether or not individuals would be paid for interviews, and (c) concern that certain individuals were going to work both with me and in the field course.[42]

At a community meeting on July 12, 2019, with translation support from youth leaders, I explained that my research was separate from the field course and tried to clarify the confusion:

1. I was only able to pay the translators and filmmakers a daily rate and could not pay money for individual interviews.[43] However, interview participation was voluntary and I could share food (juice, crackers, coffee) or other items with community members. I noted that everyone was welcome to discuss with me nonmonetary forms of compensation.

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[42] In early July 2019, the first Kayapó field course took place. The field course compensated people for their time in a way that the research project did not. In addition, there were questions about who would work with me versus the field course and the distribution of opportunities.

[43] During the field course, individuals were compensated for their time and expertise. This was part of the confusion.

2. While it was a community decision, my preference was that research team translators and filmmakers were different from the individuals who worked during the field course. For me, one goal was to spread opportunities around the community.
3. If anyone had any questions about the research, the video recordings, or data, they were encouraged to ask me questions or review the films. I stressed that the research was transparent and all photos and videos would remain in A'Ukre archived in the Kôkôjagõti media center.
4. We finalized research teams for the remaining weeks I would be in A'Ukre. As in the first meeting, translators volunteered themselves and filmmakers were selected by the Kôkôjagõti coordinator.

Informal and Individual Consultations

Outside these community-wide meetings, individuals and small groups continued to come and speak with me throughout the duration of the research project. Often, we reviewed an individual's interview and member checked their responses against my translation notes.

Community discussions and consultations resulted in a research project I believe was inclusive, relational, and beneficial for A'Ukre. The project drew inspiration from Tuhiwai Smith's (2012, p. 143) "Indigenous Projects" including *story telling* community histories and experiences with outsiders, *Indigenizing* and recognizing the value of Kayapó knowledge in Pinkaiti research and field course activities, and (re)*connecting* and *networking* the A'Ukre community with former Pinkaiti colleagues and friends from the past. Revitalizing these relationships through storytelling was one of the project's shared

goals.[44] Similarly, discussing the history of activities generated discussion for future partnership activities and collaborations with the community.

Access, Authorizations, Positionality, and Confidentiality, and Positionality

Since 2014, I have been directly involved in the Pinkaiti Partnership as the co-Director for UMD's Kayapó field course. My instructional position within the UMD field course offered repeated access to talk through the research with Indigenous and non-Indigenous colleagues and peers. As a result, this was not a "fly in/fly out" research project, but one built on six years of relationships and consultations with colleagues in A'Ukre, Brazil, and North America. Consultations with A'Ukre residents took place in August 2016, August 2018, and May 2019. During the same period, a Brazilian colleague obtained the necessary CNPq and FUNAI authorizations for research in Brazil and with Indigenous peoples (FUNAI, 2019). Recognition by the Brazilian government through the Fulbright Research Grant provided administrative and financial support. In the United States, UMD's institutional review board (IRB) reviewed and approved the research project in November 2017.

My identity, prior knowledge and experiences influenced the design, implementation, and analysis of the research. I recognize that being a white, middle class North American male from a large research university provided me significant access and privilege to move within and among transnational research spaces in the United States, Canada, Brazil, and TIK. The research spanned three countries and included diverse

[44] During my last week in the field, rather than conducting interviews, we (filmmaker, translator, and I) collected video messages to share with former researchers and students. When I left A'Ukre, I forwarded them these messages. The expectation is that students and researchers will create video messages for me to bring to A'Ukre moving forward.

research settings that included the A'Ukre's ngà, university classrooms, NGO board rooms, and private homes of research participants. At the same time, my own professional and academic background includes experiences in biology, science and technology studies, and international education throughout Central and South America. Combined with my role as a field course co-Director, the Pinkaiti Partnership was of personal, professional, and scholarly interest. in the To address (but not eliminate) potential biases, I reviewed multiple data sources and spoke with a diverse set of partnership participants. In the reporting, I attempted to maintain fidelity to the words and perspectives of research participants. In addition, research participants were involved at every step of the research process. Periodically, research ideas and drafts were shared with participants from A'Ukre, NGO, and university partners to "member check" for accuracy and understanding.

Regarding confidentiality, the Pinkaiti Partnership community is small. In subsequent chapters I make an effort to protect the identities of the research participants. Pseudonyms are used throughout this dissertation unless permission was granted or the information was publicly available. Throughout the research process, I checked in with participants to ensure individuals felt comfortable with the level of privacy and confidentiality of reporting in this case study.

Case Study Research Validity and Trustworthiness

Scholarly debates continue regarding the degrees to which case study research is valid, trustworthy, or generalizable (Bartlett & Vavrus, 2017b, 2017c; Becker, 2000; Creswell, 2014; Merriam, 2009; Stake, 2007; Steinberg, 2015; Yin, 2014). Flyvbjerg's (2006a) article directly addressed five common case study critiques regarding reliability

and validity of case studies. Flyvbjerg reframed the utility of case study research, pointing out that case studies are important for building theory, testing hypotheses, drawing conclusions, and generating useable knowledge, as I have outlined in Table 11.

Table 11

Flyvbjerg (2006) Responses to Common Case Study Critiques

Common case study critique (Flyvbjerg (2006, p. 221)	**Flyvbjerg (2006) response**
General, theoretical (context-independent) knowledge is more valuable than concrete, practical (context-dependent) knowledge.	Predictive theories and universals cannot be found in the study of human affairs. Concrete, context-dependent knowledge is, therefore, more valuable than the vain search for predictive theories and universals (p. 224)
One cannot generalize on the basis of an individual case; therefore, the case study cannot contribute to scientific development.	One can often generalize on the basis of a single case, and the case study may be central to scientific development via generalization as supplement or alter-native to other methods. But formal generalization is overvalued as a source of scientific development, whereas “the force of example” is underestimated (p. 228).
The case study is most useful for generating hypotheses; that is, in the first stage of a total research process, whereas other methods are more suitable for hypotheses testing and theory building.	The case study is useful for both generating and testing of hypotheses but is not limited to these research activities alone (p. 229). Case studies provide deeper, complex levels of inquiry.
The case study contains a bias toward verification; that is, a tendency to confirm the researcher’s preconceived notions.	The case study contains no greater bias toward verification of the researcher’s preconceived notions than other methods of inquiry. On the contrary, experience indicates that the case study contains a greater bias toward falsification of preconceived notions than toward verification (p. 237).
It is often difficult to summarize and develop general propositions and theories on the basis of specific case studies.	It is correct that summarizing case studies is often difficult, especially as it concerns case process. It is less correct as it regards case outcomes. The problems in summarizing case studies, however, are due more often to the properties of the reality studied than to the case study as a research method. Often it is not desirable to summarize and generalize case studies. Good studies should be read as narratives in their entirety (p. 241).

In fact, in case study research, the use of multiple data sources and “thick description” makes validity “one of the strengths of qualitative research… determining

whether findings are accurate from the standpoint of the researcher, the participant, or the readers of the account" (Creswell, 2007, p. 201). Lincoln and Guba (1985) presented a process-oriented framework for generating valid or trustworthy qualitative research using criteria of credibility, transferability, dependability, confirmability, and reflexivity in qualitative research. Table 12 defines these criteria and describes how this case study research used Creswell's (2014) validity strategies to address Lincoln and Guba's trustworthiness domains.

Table 12

Addressing Research Trustworthiness in the Pinkaiti Partnership Case Study

Criteria (Lincoln & Guba, 1985)	**Definition**	**Strategy** (Creswell, 2014)	**Example from Pinkaiti case study**
Credibility	Can be research be believed?	Prolonged engagement	• Several years of experience with research setting and participants • Extended field work
		Persistent observation	• Several years of experience with research setting and participants
		Triangulation	• The use of multiple interviews from different stakeholder groups and institutional actors • Use of multiple data sources
		Member check	• Member checks throughout the research process • Sharing early drafts with research participants
		Peer debrief	• Sharing early drafts for comment and review
Transferability	Can the research be applied in other settings?	Thick description	• Layered description of Pinkaiti partnership history from different perspectives
Dependability	Are the findings internally consistent with study participants?	Member checking	• Research participants provided feedback of preliminary findings and discussion.
		Audit trail	• Detailed notes on research process
Confirmability	Can other researchers follow the research design or data to come to similar findings?	Audit trail	• Detailed research notes and calendar to research process

		Open data and transparency	• Research participants have access to data and documents. • Preliminary findings are shared throughout the project
Reflexivity	Self-reflection and recognition of personal relationship to the research.	Research journals and analytic memo	• Reflexive memos • Personal awareness of my roles as instructor and researcher, my values, and my research intent • Confining data sources to each stakeholder group avoided slippage • Personal accountability to research participants

Note. Adapted from Korstjens & Moser, 2018.

Paying specific attention to case studies, Lincoln and Guba (1990) shifted from research *process* to criteria for assessing qualitative case study research *products.* These criteria included resonance, rhetoric, empowerment, and applicability. Resonance is the agreement between the methodology employed and the philosophical underpinnings of the research endeavor. Chapters 2 and 3 have addressed the issues of case study resonance, linking discussions of partnership, boundary objects, and ECCS. Rhetoric deals with the clarity and fairness of the case study report. Subsequent chapters (4, 5, and 6) will address the issues of rhetoric, presenting detailed accounts of each stakeholder group. Empowerment is the manner in which the case study evokes a call to action in a way that Flyvbjerg (2001, 2006b) called social science that matters, a phronetic social science focused on values, praxis, and reflexivity. Similarly, applicability considers how the case study can generate salient, legitimate, and credible knowledge for action (Cash et al., 2002; Clark et al., 2016).

My intent is that this study is both empowering and applicable; empowering in the sense that it captures an important part of various stakeholder group (A'Ukre community, NGO, university, and so forth) history, and applicable in offering critiques or suggestions

for process improvements for the field course or other Kayapó initiatives. Hopefully, the chapters that follow provide useable knowledge for research partners beyond Pinkaiti and encourages thoughtful discussion on creating and understanding international research and education collaborations.

Conclusion and What's Next

This chapter provided the methodology, setting, participants, and timeline for undertaking an ECCS to investigate the Pinkaiti Partnership. ECCS investigates nested units across vertical, horizontal, and transversal axes. In the Pinkaiti Partnership, embedded units represent the A'Ukre community, NGOs, universities, and government agencies as stakeholders involved in partnership interactions. Using Pinkaiti as a boundary object, we can trace and compare across and within each stakeholder group within local, national, and international spaces over four partnership eras.

This study relied upon more than 170 interviews, 520 documents, and prolonged periods of field observations in Brazil, the United States, and Canada. Data was organized, coded, and analyzed separately by stakeholder group to capture distinct, but sometimes overlapping, perspectives. I paid special attention to collaborative, participatory research processes, particularly with respect to Indigenous research ethics and community consultations. The study employed a number of strategies to address issues of validity or trustworthiness with the goal of creating an empowering and actionable case study report. Starting with A'Ukre, the following three chapters use relevant data to detail each stakeholder group's experiences in the Pinkaiti Partnership.

Chapter 4: A'Ukre

> Over the years, I started thinking about A'Ukre as "*aldeia do mundo* [Village of the world]" because of all the *kuben* [foreigners]. – Bepkro Kayapó

At the center of the Pinkaiti Partnership is the Mẽbêngôkre-Kayapo village of A'Ukre. Pinkaiti is located within A'Ukre's territory and it is with A'Ukre's permission that all Pinkaiti or A'Ukre based research or education activities take place. This chapter details the partnership's history from initiation through the field course, using the perspectives and experiences of the A'Ukre Kayapó (see Appendix A for Mẽbêngôkre-Portuguese-English language translations). First, this chapter provides an overview of data sources, participant demographics, and a closer look at my field work with A'Ukre (see Chapter 3 for additional methodology details). Subsequent sections unpack A'Ukre's interactions with respect to other stakeholders across Pinkaiti Partnership eras: initiation, early and international[45] research, and the field course. Finally, I provide some discussion on the structure, activities, processes, and outcomes of A'Ukre's Pinkaiti Partnership history.

Data Collection and Organization

A'Ukre-related data sources included community consultations, interviews, documents, and participant observations during six months of field work between April and September 2019 in Tucumã[46] (April–June) and A'Ukre (June–September). Interview

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[45] A'Ukre participants did not distinguish between the early and international research eras. Therefore, I discuss only one ongoing phase of research in this chapter.

[46] In Tucumã, the bulk of my time was spent with AFP and coordinating the research program. Still, in Tucumã, I interviewed eight former A'Ukre residents who worked with AFP or moved to other villages. These interviews took place in the AFP office or the Vale or AFP assemblies. Of note, I spoke with Paulinho Paiakan for three hours about partnership initiation and Pinkaiti research.

data was drawn from 101 interviews with 88 current and former A'Ukre residents (see Table 13). Participants varied in age, experiences, and level of engagement across the history of the partnership. Of the 520 documents collected and reviewed, 88 documents related to A'Ukre's partnership participation. Field observations were ongoing and included participation in NGO-Kayapó meetings in Tucumã, A'Ukre community preparations and activities, and the 2019 university field courses.

Field Work in the A'Ukre Community

The bulk of my field work in A'Ukre took place over 11 weeks between June 17 and September 3, 2019. For nine weeks, I conducted interviews with the community in collaboration with A'Ukre based research teams. Each research team included a filmmaker and translator. The team rotated each week and I worked with 9 different translator-filmmaker teams. During two weeks of field course activities, (July 21–August 5, 2019), I paused research activities to participate in the field course as a UMD course instructor and observer.

Table 13

A'Ukre Community Interview Participant Demographics

Demographic		Number of interviews
Total number of interviews conducted		101[47]
Number of individual participants		88
Location of interview		
	Tucumã	8
	A'Ukre	93
Sex of participant		
	Male	59
	Female	29

[47] I conducted interviews with some individuals more than once. In the final week of interviews, I did exit interviews with each of the three Caciques, and some individuals requested multiple interviews.

Current A'Ukre resident	
Yes	77
A'Ukre resident participation across partnership eras	
Partnership initiation	7
Early or international research	21
Field course	78
Age	
18-25	21
26-35	20
36-45	15
46-55	15
56-65	9
Older than 65	8

Field Work Schedule and Interview Protocol

Table 14 outlines a typical weekly schedule for data collection in A'Ukre. Research teams usually started on Monday[48] with a team orientation to outline the project goals and activities. We discussed schedules, preferences, workflow, and interview protocols. Depending on the research team, their preferences, and scheduled community activities, there was some variation on start times, research team-generated interview questions, and filming styles. At the end of each week, the research team and I conducted a brief reflections/ evaluation of the week's work. The research team was encouraged to provide feedback and suggestions for the upcoming week's research and fieldwork.

With permission from the participants, all interviews were filmed and recorded (Figure 17). Interviews were translated in real time from Mẽbêngôkre to Portuguese. Interviews were semi-structured and followed a protocol (Appendix D) that included an opportunity for research team-generated inquiry. During the course of a given week, the

[48] On two occasions we shifted these to be Tuesday–Saturday, once due to my arrival on a Monday and second, due to a community festival in August.

research team and I set aside time to review each interview for more detailed translations. All interviews were downloaded to an external hard drive, organized by research team and interview, and archived in the Kôkôjagõti Media Center (Kôkôjagõti) as a community archive.

Table 14

Typical Weekly Schedule for Research Team

	Monday	Tuesday	Wednesday	Thursday	Friday
8:00 – 9:00	Breakfast, project orientation	Breakfast/daily agenda	Breakfast/daily agenda	Breakfast/daily agenda	Breakfast/daily agenda
9:00 – 10:00	Interviews	Interviews	Interviews	Interviews	Interview
10:00 – 11:00	Interviews/ translation	Interviews/ Translation	Interviews/ translation	Interviews/ translation	Translation/file organization
11:00 – 12:00	Translation/ lunch	Translation/ lunch	Translation/ lunch	Translation/ lunch	Translation/ lunch
12:00 – 1:00	Lunch	Lunch	Lunch	Lunch	Lunch
1:00 – 2:00	Break	Break	Break	Break	Break
2:00 – 3:00	Interviews	Interviews	Interviews	Interviews	Translation/file organization
3:00 – 4:00	Interviews/ translation	Interviews/ translation	Interviews/ translation	Interviews/ translation	Translation/file organization
4:00 – 5:00	Translation	Translation	Translation	Translation	Translation/ evaluation and feedback
5:00 – 6:00	Break	Break	Break	Break	
6:00 – 7:00	Break	Break	Break	Break	
7:00 – 8:00	Dinner/goals for tomorrow	Dinner/goals for tomorrow	Dinner/goals for tomorrow	Dinner/goals for tomorrow	Dinner/wrap up/payment

Mẽbêngôkre → Portuguese → English Translations

A'Ukre-based interviews were conducted in Mẽbêngôkre-Kayapó.[49] These interviews required translation, first to Portuguese via Kayapó translator and then to English. Interviews were translated in the following steps:

1) I asked questions in Portuguese.

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[49] There were three exceptions where participants chose to speak with me in Portuguese. I note the direct translations in text. No interviews were conducted in English.

2) The translator translated the question into Mẽbêngôkre.
3) A'Ukre resident responded to the question in Mẽbêngôkre.
4) The translator translated the respondent's answer to Portuguese. I recorded the translations in my field book, highlighting particularly important or very long responses for later review.
5) Steps 1-4 were repeated for a new question.
6) Following the interview session, I translated the interview into English and created a detailed interview memo.

Following the first week of community interviews (June 18 -22, 2019), the research team determined it was not practical or feasible to closely review all interview questions and responses while the interview was occurring. Assuming that real-time translations were accurate, research teams and I marked passages or responses in our field notebooks as "important" during the interviews to revisit later. Longer answers (more than 30 seconds) were particularly difficult to translate in real time and warranted additional review. On rare occasions, the team reviewed an entire interview. A typical translation session followed the protocol:

1) Following a set of interviews, the research team met at the kuben house or Kôkôjagõti.
2) The media files were transferred to an external hard drive and organized by team, date, and interview participant.
3) The research teams selected an interview and checked field notes to locate responses of interest or length.

4) After targeting a response for review, we played the complete video file of the question and response to get a general idea of the total response.
5) We played back the response in ten-second intervals, pausing the video for translation to Portuguese, comparing the new translations to the real-time translations.
6) Field notes were accordingly edited for accuracy.
7) The video file was resumed and the process repeated until translation review was complete.
8) We moved on to the next target response in the interview.
9) Once all target responses were completed, another interview was selected for review, repeating steps 1-7.

Each week, Fridays were devoted to interview review and translation (see Table 14; Figure 17). On evenings and weekends, I used notes from each interviews and translation session to create detailed interview notes in Microsoft Word. These interview notes were imported into NVivo as the interview transcripts for coding and data analysis (see Figure 17 for field work images).

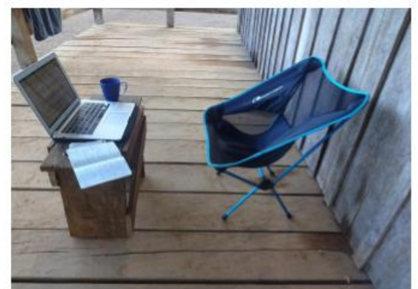
Figure 17

Example Images of Research Team Interview Process

(a) Setting up an interview

(b) Conducting an interview

(c) Translation and interview review in Kôkôjagõti media center



(d) Creating interview notes and memos

Note. All photos from M. Aruch, 2019.

A'Ukre-Based Participant Observation

My mid-June arrival in A'Ukre coincided with community preparations already underway for the organization and implementation of the 2019 field courses. I observed and participated in ongoing discussions and meetings regarding course planning, payments, participation, and activities. I observed the first field course in A'Ukre with Purdue, UFPA, and AFP staff and students. For the second field course, with UMD and UFPA students, I took on the roles of course instructor and participant observer. At the end of the field courses, I remained in A'Ukre for four weeks observing the community transition after the courses. Throughout the lead-up, implementation, and take-down of the courses, I recorded detailed notes, memos, and reflections in field notebooks. These

notes, observations, and reflections provide background and context for my results, analysis, and discussion of the field course era of the partnership.

Pinkaiti Partnership Initiation in A'Ukre (1991–1995)

In August 1988 Paulinho Paiakan, a young, charismatic, and politically active Kayapó leader from the A'Ukre community, met Canadian broadcaster David Suzuki while Suzuki filmed a documentary about the Brazilian Amazon (Suzuki, 2006). After learning of Paiakan and the Kayapó's political struggle for territorial and cultural sovereignty, Suzuki invited Paiakan to Canada to fundraise for the 1989 Altamira Gathering, an Indigenous protest against the Kararaô (Belo Monte) Dam in Altamira (Dewar, 1995; Paiakan, personal communication; Suzuki, 2006; Turner, 1993; 1999).

In Canada, Paiakan's translator was Dr. Barbara Zimmerman. Zimmerman had recently completed her PhD at the University of Florida, where she conducted fieldwork in Manaus at the Biological Diversity of Forest Fragments Project (BDFF; Amazon Biodiversity Center, 2020). While touring through Canada, Paiakan and Zimmerman discussed sustainable development and environmental conservation opportunities for the Kayapó. One idea that came out of their conversation was an ecological research station based in Kayapó territory modeled on Zimmerman's BDFF experience. The research station would couple Kayapó culture and knowledge with forest conservation and research (Paiakan, personal communication; Zimmerman, personal communication). In a 2019 field interview Paiakan recalled of that time, "so, her [Zimmerman's] thoughts overlapped with my thought and so with both ideas, together we were able to realize this movement of environmental preservation" (author translation).

A'Ukre Invites Zimmerman for Project Consultation

At the Altamira gathering, A'Ukre leadership and Paiakan[50] invited Zimmerman to visit A'Ukre and discuss project ideas for community support and forest conservation. A'Ukre saw an opportunity to increase financial and material resources for the community, building on the recently started Body Shop project.[51] Furthermore, A'Ukre leadership saw an opportunity to expand their international network and promote territorial and cultural sovereignty (Paiakan, 2019 personal communication).

In 1991, Zimmerman visited A'Ukre to discuss the development of these project ideas. Interview participant Cacique Krwytikre[52] remembered the initial meetings and project discussions with Zimmerman, noting that at the time Zimmerman knew little about Kayapó culture:

> When Barbara [Zimmerman] came, she didn't understand our language. When she came she had no kids, no husband. Now she understands [our language and culture]. When she came, she asked the community to pick a good place for the project. We are going to mark a place where there is mahogany to protect. We wanted the kuben to come here to breathe well and enjoy the nature.

---

[50] Some in the community expressed discomfort with the credit that Paiakan receives for creating Pinkaiti. At the same time, most community elders pointed out that Zimmerman "arrived to A'Ukre on the plane with Paiakan" (Aruch, field notes, 2019)

[51] Another outcome of Paiakan's international celebrity was a relationship with Anita and Gordon Roddick of the Body Shop International, who purchased the infrastructure for pressing Brazil nut oil in 1989–1990. For more information on the Body Shop Project see Morsello, 2006; Morsello & Adger, 2007; Petean,1996; Santilli, 1992; Suzuki, 2006.

[52] With the exception Paiakan, all A'Ukre Kayapó names are pseudonyms unless otherwise authorized by the participant. Participant quotes come all come from 2019 interview notes of the translation process detailed in this chapter.

Nreingy, an older woman who participated in a research interview, also noted Zimmerman's age grade and how little she knew about the Kayapó when she first went with a handful of men to scout project sites:

> Yes. Barbara was *mekurere* [younger woman with no kids] when I met her the first time. Barbara had a meeting in the ngà and then she went with some warriors to start a project. In the beginning, she did not know [our culture].

One goal for A'Ukre was to protect and preserve a section of forest for community use. In 1991, A'Ukre and many other Kayapó communities entered into mahogany logging agreements with business interests from nearby Redenção (Santilli, 1992; Zimmerman et al., 2001). In fact, a logging road was reconstructed each dry season (May–October) that connected Redenção, through the forest, with several Kayapó communities. Participant Mohnokra, one of the men who joined Zimmerman to find the project site, shared that "at the time, Barbara arrived with Paiakan. They came with the idea first. The chiefs at the time were taking trees with the loggers. We [A'Ukre] thought it was a good idea to have the project." In our conversation, participant Paiakan remembered scouting potential sites with other community members:

> I returned to A'Ukre. I slept one night in A'Ukre and the next day, I called the chief, an older warrior and two young warriors. They went with me and we went up [the river]. There we camped. I have a photograph of the campsite. I said, "let's start here in *Kenpyre*." There we started to consider sites, not cutting a trail, just thinking. The next day, we went to the left side of Pinkaiti, going up the mountain. "Now we are going to start to make a trail."' There, the trail wasn't very long and wasn't finished. When I told Barbara, she wanted to see. I took her, showing her the area. The area was full of

mahogany, the area was full of animals and she was very interested in helping to demarcate that area for preservation.

Cacique Krwytikre (2019, participant interview) noted that the community picked out an excellent space, previously known to them as a rubber tappers camp with lots of mahogany and Brazil nuts, for the project: “We found a good place. We used a GPS to mark the distance and went to the place *Kukojnhokrein* [Monkey Mountain]–The place they chose was already known …it was a place used by the *serengeiros* [rubber tappers].” After her first visit, Krwytikre remembered Zimmerman telling the community, “the kuben [foreigners] are going to really like this [Pinkaiti project site]. That here [in A’Ukre] there is forest and in *kubenkayaka* [North America], we have already cut all our forest.” Zimmerman left A’Ukre with the promise of returning with additional financial and technical support. As Paiakan recalled in June 1991, “she [Zimmerman] left and the next time she returned, she came with the team from Conservation International” (Paiakan, 2019 participant interview).

A’Ukre Enters Into Partnership With CI

A’Ukre (usually via Paiakan) maintained fax communication with Zimmerman through the Body Shop office in Redenção. On August 2, 1991, Zimmerman faxed Paiakan, sharing that she would soon arrive in A’Ukre with “the president of Conservation International the last week of August (we are leaving here on or about the 25)” (Zimmerman, 1991c). Later in August, director of CI Dr. Russ Mittermeier, his wife, and a colleague from the CI Brazil office visited A’Ukre and the community selected the Pinkaiti site. CI was enthusiastic about the project and provided financial,

technical, and administrative support (see Chapter 5 for further details about CI and NGOs).

Older A'Ukre community participants recalled in their interviews some of the goals and norms for the research station. Participant Bepkwyky, an elder A'Ukre Cacique, spoke about these first meetings between A'Ukre, Zimmerman, and CI, noting that when

> Barbara [Zimmerman] arrived she talked about our traditions and Barbara came and told us to protect our Indigenous culture. She didn't want us to forget our culture and lose it to white culture. She wanted us to preserve our nature, not contaminate the river. She asked us, "if the river is contaminated, then what?

Participant Khakryt, an older woman, recalled how the meetings discussed the scope of the Pinkaiti project:

> In the first meeting, Barbara brought the community together to talk about Pinkaiti. We talked about how you can't kill the animals. That the researchers are here to study the animals. Everyone in the community understood. The preserve [research station] is for us and we need to protect the land.

A'Ukre, CI, and the Canadian International Development Agency (CIDA)

Paiakan and A'Ukre began to navigate the cross-cultural, transnational world of fundraising, grant writing, and project proposals with support from Zimmerman and CI. Together, they pursued a grant awarded by the Canadian government's International Development Agency (CIDA; see Chapter 5 for more grant details). At the time, the CIDA grant required the support of a local Brazilian organization to administer distributed funds. Zimmerman asked Paiakan and the Body Shop's Brazilian

representative to establish the A'Ukre Association–A'Ukre's first attempt at a community-based organization.

Between 1992 and 1993, Paiakan and Zimmerman corresponded about the project proposals, budgets, and the creation of the A'Ukre Association. On February 25, 1992, Zimmerman wrote to Paiakan, "the good news I have is that the Canadian government wants to finance the whole project…[but] you will need to have the Kayapó Association before the Canadian government can send the money" (1992a). On March 10, 1992 A'Ukre, via the Body Shop representative, responded by indicating that A'Ukre was "doing all they can to get the [account] as quickly as possible," but that A'Ukre sought additional information about the project, including:

- a copy of the project proposal
- the timeline of the activities and financing for the project
- who is financing the project aside from the Canadian government
- your [Zimmerman's] plan for starting work and others you are interested in involving in the work (paraphrased from Petean, 1992)

The letter went on to state that "the community of A'Ukre is curious to know the details of the project, financing, priorities, etc." (Petean, 1992).

Zimmerman responded to Petean and Paiakan on March 12, 1992, sharing the purpose of the proposal:

> I am going to send you the proposal tomorrow. I think it will explain everything. I want you to know that this is a proposal that can change as the community wants. In the meantime, this proposal is for obtaining money. (Zimmerman, 1992d)

Zimmerman also invited Paiakan to visit her in Toronto during his upcoming international travel to New York because compared to Brazil, "Toronto and New York are more or less close." Once in Canada, the two could go together "to meet the people at CIDA who are supporting the project," improving the chances of winning the grant (Zimmerman, 1992d).

On March 13, 1992, Zimmerman sent another fax to Paiakan, including the project proposal, anticipating and clarifying two potential points of confusion: government relations and salaries (Zimmerman, 1992e). First, she encouraged Paiakan to visit FUNAI and the Canadian Embassy in Brasília while in transit to New York. Paiakan would help ensure proposal support from both the Brazilian and Canadian governments. Second, she noted that her salary in the proposal was four times greater than that of the Kayapó coordinator, explaining, "we are going to earn the same salary, only I am going to be living a part of the time in Canada… things are about four times more expensive here." Finally, she addressed the Kayapó concern that the Brazilian government would intercept some of A'Ukre's finances by sharing that "the money will be administered by CI. The Brazilian government will not touch the funds" (Zimmerman, 1992e).

Paiakan and Petean were confused by Zimmerman's letter and responded with a letter sent directly to the Canadian embassy in Brasília. On March 19, 1992, Paiakan signed and mailed a letter to the Canadian embassy highlighting nine points of contention, including the need for the David Suzuki Foundation (DSF) as a partner with CI for the dispersal of funds, because "I [Paiakan] have experience working with David [Suzuki] and with Conservation International I have none" (Paiakan, 1992b). The letter also suggested that the proposal focus on three areas to ensure A'Ukre's acceptance:

- creating a permanent reserve in the A'Ukre territory
- providing a reserve for researchers and scientists to share experiences with the A'Ukre community members
- a viability study for seeds for mahogany, cedar, Brazil nut and other commercial forest species.

In addition, Paiakan's letter underscored that "ecotourism" should not be part of the proposal. The letter emphasized that activities between the Body Shop and researchers should be kept separate: "I don't want, at this time to mix scientific research with business….if we are successful with this work, after we can try to develop future work." Finally, Paiakan wrote "that if the conditions stated … are not met, I will not be [supportive of] the approval of the project [by] the Government of Brazil and FUNAI" (Paiakan, 1992b).

On March 31, 1992, Paiakan arrived in Toronto and Zimmerman learned of Paiakan's letter to the Canadian Embassy. Paiakan informed Zimmerman that he did not read the proposal and that the letter was written and sent by the Body Shop representative without prior approval (Suzuki, 1992). Needless to say, the letter raised concerns within CIDA regarding grant authorization. Fortunately, in Toronto, Paiakan, Zimmerman, and Suzuki spoke directly to CIDA to address the confusion in the letter. By the end of the Toronto visit, Paiakan and Zimmerman were confident the project would be funded bilaterally, with Zimmerman writing to colleagues at CI Brazil:

> Now, we need to convince the Brazilian Agency of Cooperation[53] [ABC] that they want CIDA to finance the project. It seems that Paiakan, Suzuki, and I have convinced CIDA that this project has a future. Now begins the campaign with ABC. (Zimmerman, 1992g)

On April 20, 1992, Zimmerman faxed Paiakan to share that CI Brazil believed ABC would fund the project:

> I want to let you know that all is going well with the financing of the project "Kayapó Biological Reserve and Research Station" with CIDA. I spoke with [CI Brazil employee] just now. She said that CI is going to be able to convince ABC to accept the project. That is very good news because CIDA says if ABC accepts the project, they are ready to fund the whole thing… I want you to know… I said nothing about tourism and that word won't be stated…you can be confident I am going to respect your recommendations. (Zimmerman, 1992j)

The letter also gave Paiakan two tasks to drum up institutional support in Brazil. Zimmerman asked Paiakan to seek support from FUNAI or The Nucleus of Indigenous Rights (NDI)[54] to set up the A'Ukre Association and grant appropriate authorization to enter A'Ukre. She wrote Paiakan with two specific requests:

1) "Do everything to register the Kayapó Indigenous Association" in order to access CIDA funding when made available, and

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[53] Translated from *Agencia Brasileira de Cooperação*
[54] Translated from *Núcleo Direitos Indígenas*. NDI was the precursor to Instituto Socioambiental, a Brazilian NGO focused on Indigenous rights and based in Brasília (https://www.socioambiental.org/en/about-isa).

2) Go to Brasília and "take care of FUNAI" to obtain the authorizations for [Zimmerman's] entry to A'Ukre to begin project construction. (Zimmerman, 1992i)

By May 1992, the A'Ukre–CI–DSF partnership seemed to have administrative, financial, and political support in A'Ukre, Brazil, and Canada. Unfortunately, in June, 1992 there was a major setback when Paiakan was accused of sexual assault in Redenção.

Paiakan is Accused of Sexual Assault

In early June 1992, Zimmerman received an urgent call from Paiakan's brother-in-law informing her that something unfortunate had occurred. Paiakan and his wife were accused of sexually assaulting a young girl in Redenção[55] (Cockburn, 1992; Gomes & Silber, 1992). At the time, Paiakan was a significant figure in the global environmental movement expected to participate in the approaching 1992 Earth Summit on Sustainable Development in Rio de Janeiro. Just months after being declared "a man who would save the world" by *Parade Magazine*, Paiakan's face covered Brazil's popular *Veja* magazine as *O Selvagem* (The Savage; see Figure 18). Paiakan, under the threat of arrest, fled to the safety of A'Ukre.[56]

Figure 18

Paiakan on the Covers of Parade and Veja Magazine Covers: April, 1992 and June 10th, 1992

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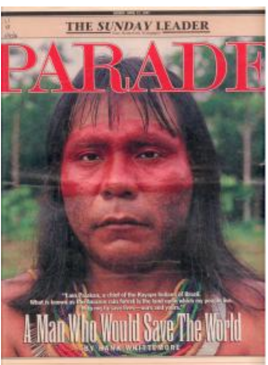
[55] There were doubts regarding the veracity of the accusation (see Cockburn, 1992). Paiakan would be acquitted in 1994, but during a retrial in 1999 he was sentenced to six years in prison. He did not go to prison but instead spent his time in A'Ukre.



Note. Sources:
https://hankmemoir.wordpress.com/tag/paiakan/; http://www.ideiasadman.com.br/hotsiteveja/

Zimmerman remained in communication with the A'Ukre community, but shared that CIDA funding was suspended. On June 10, 1992, Zimmerman explained to Paiakan through an NDI intermediary that CIDA funding was on hold and that it was politically and practically impossible for foreigners to travel to A'Ukre until his legal situation was resolved or settled:

> It is with great sadness I write this letter to inform you that the project can't continue until your [Paiakan] situation is resolved… the Canadian government can't fund a project in which you are director… I am also not going to A'Ukre. Foreigners can't enter there now. If that were to happen, there would be so much publicity that it would be bad and be very difficult for the Kayapó to receive outside help. (Zimmerman, 1992l)

Zimmerman also asked Paiakan to pass along a message to the rest of A'Ukre that she would continue working in support of the community and research center:

> I promise you and the leadership of the village that I will continue fighting to realize the "Biological Reserve and Kayapó Research Center Project" if that is the project continues to be the wish of the community. There is still the possibility to save the project. I will wait for news from you and the decisions of the leadership.

I will want to continue working toward the A'Ukre Association. (Zimmerman, 1992l)

Despite the accusation and suspension of CIDA funds, A'Ukre was still enthusiastic about the project. With approval from A'Ukre and the financial support of CI and DSF, Zimmerman, traveled to A'Ukre in July 1992 to help with research station construction.[57]

Pinkaiti Research Station Construction

Throughout 1991 and 1992, about 10 warrior men from A'Ukre kept the research station site clear and cut trails in anticipation of the arrival of more permanent construction materials. In Redenção, on May 29–30, 1992, the Kayapó purchased construction materials in preparation for Zimmerman's July arrival. The purchase receipt, made (before the accusation) with Paiakan's account, included labor and materials for "25 days of work and workers, including a carpenter, bricklayer, painter and attendant" (Construtora Neginho, 1992). Highlighting the fluidity of social interactions between Indigenous communities and Brazilians in nearby towns, the contractor's invoice also indicated that, "Indigenous [Kayapó] will also help us [contractors] because they like to work with me, as I've worked with them before" (Construtora Neginho, 1992).

Construction materials (and Zimmerman) hitched a ride on an empty logging truck when the mahogany logging road to A'Ukre opened for the dry season in July 1992 (Zimmerman, personal communication). There, 10 Kayapó, plus Zimmerman and a stonemason from Redenção, built the first Pinkaiti "project house" (Figure 19).

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[57] NGO deliberations about whether or not Zimmerman could visit A'Ukre in July 1992 are discussed in greater detail in chapter 5.

Participant Mohnokra, one of the 10 men, recalled the series of Zimmerman's visits that led to construction:

> The first days that Barbara arrived; she took a group of warriors to look for a place for a project. On the first trip, she did not find a place. The second time she went, they found a place…. went to make a project. Barbara left and came back with the materials to make the *barracas* [tents]. She brought in food. We cleaned the area and made a house. The house was built with materials that would last a long time. The first house was made out of thatch. The community agreed with Barbara to create Pinkaiti. She came with a mason to make the house. After a year, people [researchers] started coming. It [the research station] began in 1993.

On July 20, 1992, after a month in A'Ukre, Zimmerman reported to CI, Suzuki, and other stakeholders on that the project house was:

> Being built by A'Ukre Kayapó in local fashion and using largely local materials. However, in accordance with their wishes and practicality, the center will have a cement floor, brasilit roofing and door and window frames milled in Redenção. We also hope to cover the mud brick with a cement stucco for durability. (Zimmerman, 1992o)

Figure 19

Photos of the Original Pinkaiti House

Photo courtesy of B. Zimmerman collection

Photo courtesy of R. Salm collection

A'Ukre Governance of the Pinkaiti Research Station

With construction underway, A'Ukre began creating a governance structure to manage the research station. Zimmerman provided an update on the internal A'Ukre community organization of the research station to her DSF and CI colleagues. Zimmerman shared that A'Ukre had created a "management committee":

> This group will formulate guidelines for operation of the project, arbitrate disputes and control revenue. The committee includes representation from the female leadership which was an idea welcomed by the elders and the entire village. The community was particularly pleased with this idea of an all Kayapó management committee chosen by the chiefs. (Zimmerman, 1992o)

The A'Ukre management committee and project was led by young men with the support of elder leadership. In a letter to CIDA to restart funding discussions, Zimmerman described A'Ukre's governance structure in more detail:

> While community leadership was supportive of the project, the project was driven by younger members of the warrior class. As community leaders, the chiefs are involved in this project. They have lent their full support and helped to accomplish building the research center this summer… Indeed, no project would be possible without such leadership support. However, so far their involvement

> has been indirect. It is non-chief members of the community who have been directing project progress, acquiring funding, and making decisions. Until now, these people are nine men and myself. The men told me that the formal management committee will be named in November although at least two of its members are already chosen. (Zimmerman, 1992r)

However, A'Ukre still had not created the community organization required to receive external CIDA funding. Keeping with community deliberative norms, A'Ukre wanted to make final decisions about its internal committee before completing the official paperwork for an external association. Through phone calls and faxes to Redenção, Zimmerman attempted to explain the A'Ukre Association as a kuben-required administrative tool for A'Ukre to receive resources. On September 28, 1992, Zimmerman faxed a note to Paiakan sharing that committee members and focus were not requirements for receipt of funding:

> I spoke with the Cacique today and he explained that you spoke about the A'Ukre Indigenous Association. From what I understand, when I arrive, you are going to make a meeting to resolve the organization of the Association…. Right now, we need to register the association so that it is the official registry. We don't have to say anything about who is going to be in the Association and also we don't need to explain about the organization of the association. We only need to register the name of the association so that the Canada Fund can free up the money for the Association. (Zimmerman, 1992q)

Ultimately, The CIDA award was administered through NDI because the A'Ukre Kayapó Association had not yet been created. On December 23, 1992, Zimmerman wrote

to the A'Ukre team, "great news! The Canadian embassy is going to buy our radios, two outboard motors and solar energy" (Zimmerman, 1992x). CIDA was the first external (non-NGO) grant received for Pinkaiti activities.

A'Ukre's First Research Visits to Pinkaiti

In November 1992, A'Ukre hosted the first set of researchers at Pinkaiti.[58] The first two visitors came with Zimmerman to the research station from USP and INPA, two Brazilian research institutions. Zimmerman wrote to A'Ukre in September 1992:

> I am coming the first week of November for three weeks. We are going to fix up the house and cut more trails. I am bringing 2 researchers that want to start a research using our center. The two are very good friends of mine and are very good researchers. (Zimmerman, 1992p)

The first researchers from USP and INPA were herpetologist colleagues of Zimmerman. The initial A'Ukre–researcher encounters at Pinkaiti were awkward exchanges of intercultural understandings of knowledge and science regarding regional flora and fauna. Cacique Krwytikre recounted his first experiences talking about frogs and snakes with Marcio, a herpetologist from USP:

> I [Krwytikre] asked, "Why do you like the frog?"

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[58]Between 1992 and 1995, A'Ukre hosted a series of short-term visitors for research or tourism expeditions. These visitors were not particularly memorable in community recollections. For example, 1993 saw visits from a prominent North American biologist and journalist from *Scientific America* who wrote the first news story about the Kayapó project in a popular magazine (Holloway, 1993). In 1993 and 1994, there were several CI and DSF donor trips to drum up resources for the community and continued project maintenance (see Chapter 5). 1993 also saw the first PhD student researcher from the University of Guelph in Canada (Check, 1999).

> Marcio answered, "The frog is good. He is very smart. He doesn't bite back. He is smart." I responded, "We don't like that frog. That frog takes things from people.”
>
> Marcio also did a project with snakes. I was afraid of the snake, but Marcio has some kind of medicine that temporarily would paralyze the snake. He gave me some of that medicine, but it has gone bad over the years. In exchange for my work with the researcher, I received money. However, another elder Kayapó once got a gun [for his help].

The community members involved in the research were enthusiastic about the program as well, often continuing projects in the absence of researchers. For example, in December 1994, one Pinkaiti coordinator wrote to Zimmerman about ongoing research projects, sharing, “today I worked hard. I measured and weighed turtles, monkeys, and birds… Please tell Marcio and Charles that I am well so they will be happy” (Kayapó, 1994). Generally speaking, A’Ukre welcomed the visitors. Bepkro, another male, warrior participant with many years of Pinkaiti experience shared that, “the community accepted the project and when the researchers arrived we accepted them with open arms.”

Initial Compensation and Payment for A’Ukre

The arrival of researchers and tourists brought revenue streams to A’Ukre. The revenue streams came in the form of money that was designated for specific purposes by donors. Other funds were provided by the visitors themselves and set aside for community or individual discretion. As Irepoiti, an older female warrior participant, recalled, “in the beginning… there was money set aside for the community and money set aside for those who worked with Barbara.”

Donor and Grant Funding.

Donor funds came from the NGOs and granting organizations such as CIDA. Funds were deposited into a community bank account and were designated for specific projects or material purchases: motors, solar panels, construction materials, staffing, and so forth. When possible, the community deliberated on community-wide projects to finance. For example, between 1993 and 1995, A'Ukre also used donor funds to pay important airplane maintenance costs. Paiakan, on behalf of A'Ukre, wrote to CI's President in Washington DC:

> The purpose of this card is to thank you for the money of $3,000 that Conservation International got for the A'Ukre community to complete the necessary payments to substitute the motor of our plane… As you know, the A'Ukre community in addition the Pinkaiti Reserve needs the airplane to advance the work of research and conservation that we are doing as well as the transport of sick Indians to the hospital in Redenção. (Paiakan, 1994)

Community Fees

Community fees were also paid to A'Ukre by visitors to A'Ukre or Pinkaiti. Fees were negotiated by the community, NGOs, and visitors. The community later decided as a whole how to spend the funds. Zimmerman recruited visitors and communicated in any way possible with A'Ukre. For example, on February 17, 1993, Zimmerman enlisted a Redenção-based Catholic priest on his way to A'Ukre to

> ask Paiakan if he wants me to send those two visitors…I think the two are very important for us… As our project is a business, they will pay you between $400-$500 dollars for their visit (depending on how many days they stay)… I was

> thinking of asking [two young Kayapó guys] to take care of them…. Do you want me to send them? (Zimmerman, 1993a)

Individual Payments

Individual payments and salaries were paid to community members who worked with visitors in A'Ukre or at Pinkaiti as research associates or guides. Depending upon individual preferences, individuals received cash or goods flown in from the city with A'Ukre's visitors. Someone from A'Ukre radioed out their *pedidos* (requests) to a team in Redenção, and the materials would be purchased by Zimmerman or another Kayapó Project representative and then flown in. About the first research visits Zimmerman (1992p) wrote on September 25:[59]

> tell the project team that as soon as I arrive to Redenção, I will speak to each one on the radio. I am going to buy their things in Redenção before going to A'Ukre. It would be impossible for the project to pay for the plane for everyone to leave. So, if each person makes a list of their items that they want, I am going to buy them for them and hold onto whatever money is left over.

Early on there were four salaried Kayapó positions at Pinkaiti for one Kayapó Project director and three Kayapó technicians (Zimmerman, 1994a). In addition, there was ongoing temporary work in project construction or as field guides. Older men who worked with Zimmerman during partnership initiation complained that the work was hard and they were paid little. One male interview participant, Kokti, described how the salaries changed over time:

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[59] This practice continues today in the field course, only with many more people and purchases.

> I moved to A'Ukre in 1990. When they decided on the project, Barbara took 8 guys to work. In the early days, they only paid 15Rs per day. Then 20Rs. It went up to 60. Now [2019] it is 100R per day which is *mejkumrej* [great].

Others who worked on the project remembered the goods exchanged at the time. In one famous instance cited by several Kayapó participants, a research associate received a new rifle and ammunition. Zimmerman announced the purchase in a letter to the community on July 5, 1994, writing "tell Kajet that we bought a 44 rifle[60] for him in São Paulo for R$700. Marcio is going to bring it to him when he arrives" (Zimmerman, 1994b).

Initial A'Ukre – FUNAI Relationships Regarding the Pinkaiti Research Station

A'Ukre residents, in particular Paiakan, recognized the importance of the early involvement of FUNAI and avoided politically sensitive topics such as ecotourism and biopiracy. A'Ukre coordinated closely with Zimmerman, CI, and Brazil-based Indigenous rights organizations like NDI to ensure government support for Pinkaiti, particularly with FUNAI.

In 1991-1992, Paiakan traveled frequently throughout Brazil and abroad. Paiakan met often with FUNAI representatives and Canadian embassy officials during stops in Brasília to build government support in Brazil and Canada. However, most "official" government relations for project approval were managed by Zimmerman and CI (see Chapter 5), beginning with Zimmerman's meeting in October 1992 with then-president of FUNAI Sydney Possuelo (Zimmerman, 1992v). FUNAI officially recognized Pinkaiti in

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[60] The Kayapó use rifles for hunting.

1993 as the "Kayapó Center for Ecological Studies[61]" through document number 0530/93 (Hass, 2004).

Closer to A'Ukre, community leaders had more dynamic formal and informal relationships with FUNAI representatives in Redenção. Local FUNAI officials worked closely alongside Kayapó *chefes de posto* (heads of post). Bôti, an A'Ukre participant and former FUNAI chefe de posto shared, "things were different then…. if you had the written authorization from the community, you could go there [to Pinkaiti] to work." Many older men and women from A'Ukre shared that *amre bê* (in the past), if you had a relationship and approval from the Caciques and the community, you could visit A'Ukre with no issues. Interview participants recalled that with regard to Pinkaiti activities, good research relationships between the community and government at the local level were always contingent upon community consent and consultation.

Moving Into the Research Era of the Partnership

Despite some setbacks, by 1995 A'Ukre had successfully partnered with DSF and CI, built the research station, received government approval and external funding, and hosted the first set of Pinkaiti visitors. A'Ukre and its partners overcame cultural, practical, and bureaucratic hurdles to initiate the Pinkaiti Research Station. The community learned important lessons about working with the kuben. Cacique Krwytikre noted a few important lessons for working, teaching, and learning at Pinkaiti:

> After Marcio left, his project ended, and I shared the following lessons with the community: You have to work. You can't steal from the kuben. You will have an

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[61] Translated from *Centro Kayapó de Estudos Ecológicos*.

opportunity to teach about the *kukradjà Mẽbêngôkre* [Kayapó knowledge and culture], but also you need to also be willing to learn.

These lessons set the stage for the next decade of university research activities at Pinkaiti.

Early and International Research Eras at Pinkaiti (1995–2004)

A'Ukre participants discussed their memories and experiences with Brazilian and North American student researchers who made repeated visits and conducted months-long (or even year-long) research projects, mostly at Pinkaiti. Between 1995 -1999, A'Ukre hosted a steady stream of mostly Brazilian graduate student researchers from USP. In 2000, a second wave of international researchers came from North American universities, primarily UT. The Kayapó did not distinguish between these two eras, so they are discussed together below as a single, continuous research era.

Researcher Arrival, Preparation, and Organization

During the research era, A'Ukre kept in close contact via radio with a CI-supported office in Redenção (see Chapter 5). Once research logistics were completed, the date and time of the researchers' arrival was sent via radio to A'Ukre. Upon receipt of the radio announcement, the community prepared for their arrival. Participant Bepkwyky shared, "when the first researchers came, we cleaned everything [in the village]. Everyone was painted [with genipapo], they shaved their heads and put *urucum*– even the women and children."

Typically, A'Ukre's interactions with researchers were brief. The researchers held a meeting in the ngà and stayed only a day or two in A'Ukre before heading to and returning from Pinkaiti. Participant Irepoiti, an older female warrior, explained:

> When the researchers came, before they went to Pinkaiti, they would come to the ngà and speak with the community to exchange ideas about their projects. The Mẽbêngôkre would also share ideas about the research projects with the community. They would talk about if they liked or did not like the project. They would talk about the projects. At the end of the research project, the researcher would talk about the project and then go to the city.

The community also prepared Pinkaiti and surrounding trails in anticipation of researcher arrival. Bepkro shared some details of preparation: "when the researchers came, we opened up the different trails. We opened the *Mokokti* [electric eel] trail, the *castanhal* [Brazil nut grove], the *kukojnhokrein* trail [Monkey Mountain], the Pinkaiti trail, the *Kanhok* [named for one of the Pinkaiti coordinators] trail and the *Cachoeira* [waterfall] trail." These trails were used for data collection and recreation by the A'Ukre Kayapó and researchers (Appendix E).

Coordination of the Pinkaiti Research Station

The research station was managed by A'Ukre's project committee, which included a project director and two coordinators. These were full-time positions responsible for coordinating the project with external partners (in the case of the director) and organizing the community and the visiting researchers (for the coordinators). Salaried by CI, the Pinkaiti team handled staffing, transportation, and research logistics. The coordinators also managed the Kayapó research teams and engaged in interactions with the student researchers. Participant Takmej, a Pinkaiti coordinator, discussed his roles and responsibilities:

> I would pick up the kuben here at the project [Pinkaiti]. I worked as *motorista* [boat driver], mechanic, and coordinator to speak with kuben and Mẽbêngôkre…. If things got mixed up or something bad happens, the *kubenkayaka* would leave and say that Mẽbêngôkre are *penure* [bad]….[At Pinkaiti] we worked in the forest. In my work, I woke up early or I had to make a meeting with the people. If my team, Mẽbêngôkre team, didn't want to work at night, I went. I was already used to learning with them and they got used to learning with me too. We exchanged ideas.

Kayapó research associates worked closely with one another and university students in the field to determine what projects and tasks were necessary. Participant Kanhok explained, "when we worked, during the resting times, we would talk about who goes on what trail, who goes to the river to fish, who goes to cook." Sometimes, Kayapó research associates asked to return to the village. Kanhok continued, "when people did not want to continue working, it was up to the coordinator to find a replacement. If someone didn't want to work, they could call someone from the aldeia and exchange them."

Selection of Kayapó Research Associates

A'Ukre participants shared two ways people were selected or "called" to work. Research associates were selected by either the visiting researcher or the Pinkaiti coordinators. All research associates were approved by the community and were typically older, warrior class men. Participants noted that research associates were selected because they were known to be strong, honest, and hard working. As participant Ekaje noted, Karanhi was often called to work by the researchers because "when a researcher

arrived, they already knew people. For example, people knew Karanhi because he was strong. When a researcher came, they called him." Likewise, participant Bepkapiti spoke about his own experience. He proudly shared, "I have now worked at Pinkaiti for 20 years with researchers and Barbara. People know me, they trust me, they know my work and they know I am strong. When researchers came, they called for me."

The Pinkaiti coordinator also identified research associates, particularly for new research projects or if previous Kayapó research associates did not want to continue at Pinkaiti. On rare occasions, the coordinator intervened if kuben–Kayapó relationships became strained. Takmej, the Pinkaiti coordinator, explained the process:

> the professor or researcher had to speak with me to call two Mẽbêngôkre to stay there with him, to work together. If they don't work well, we talk with him [Kayapó], that he is going to come to the aldeia [village], and another [Kayapó research associate] is going to enter.

A'Ukre Interactions With University Researchers

Often, Kayapó research associates spent several weeks or months each year at Pinkaiti, over the course of several years.[62] Takmej, the Kayapo coordinator, described how typical Kayapó-research interactions focused on knowledge exchange and support in the forest:

> We [Mẽbêngôkre] taught things to the student [researchers] in the forest. They also taught us new things too. When we went to the forest, each researcher had

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[62] Incredibly, there only seems to be two serious injuries at Pinkaiti. A Brazilian woman, as part of a film project, broke her arm while getting onto a boat at Pinkaiti. A Kayapó research associate suffered a serious injury falling from a tree. AFP and the researchers helped him to obtain the necessary medical care and navigate the necessary government bureaucracy.

> their *ajudante* [helper], carrying the things, camera or food, water. They went with them. Always they had an associate going with them. A Mẽbêngôkre guy going with a kuben."[63]

Pinkaiti became a teaching and learning environment where older, more experienced Kayapó men shared their wisdom and knowledge with younger Kayapó men as well as Brazilian and North American researchers. Bepkro recalled that for younger Kayapó and student researchers, "the professor was Kajet [an older Kayapó warrior]. He [Kajet] helped us [Kayapó] to work together with the kuben. And [Kajet] taught the kuben to work with Mẽbêngôkre." Overall, there was mutual respect and comradery between the kuben and Kayapó. Bepkro continued, "for me, the work and the people are the same between the kuben and the Mẽbêngôkre. We are equals. We didn't speak badly to one another."

Kayapó research associates remembered many stories about their time working alongside the student researchers, walking in the forest and working on specific projects related to Brazil nuts, agoutis, mahogany, rats, land tortoises, and so forth (see https://tinyurl.com/de5r56b5). In addition to the *djàpêj* (work) there were also many shared experiences around food; fishing; music; jokes; stories of forest *megarons* [spirits]; and animal encounters with jaguar, anteaters, bullet ants, and snakes. The most commonly shared story of Kayapó and researchers was that of the "little white man." Kanhok recounted:

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[63] An area for future exploration is gender dynamics at Pinkaiti. However, there was no discernible difference in the way the Kayapó talked about men or women as researchers. When I specific asked about women researchers, I was often told, "they are the same." One Pinkaiti coordinator bluntly noted "it was never a problem. The *kubenire* (foreign women) are tough."

> We always had fun at the research station. Timothy, Jordan, Karanhi we told jokes while we played cards at night. One night after we were tired and went to sleep, Timothy was in his tent and it felt like someone started to shake it. He said, “What is Kanhok doing? What does he want?” He thought I was shaking the tent. Timothy opened his tent and saw a little white man ghost walking toward the bathroom. He woke everyone up and when [he] walked over to the bathroom, the ghost was gone.

Bepkro continued the story, “Kremajti [Timothy] called everyone to the bathroom because he saw a ghost near the bathroom. Everyone went to see the ghost who was gone. Kremajti went to get his camera trap and the camera caught the ghost. It was all white [all of the film was overexposed].”

Intercultural Challenges With University Researchers

Research routines, norms, and behaviors were the most cited intercultural challenges the Kayapó encountered at Pinkaiti. Research teams woke up early and spent long days clearing trails, looking for plants or animals, and collecting data in the forest. At times, the work could be painful. Participant Beponhti, who assisted a researcher studying beetles in part by climbing trees and clearing brush and trails, said that “one time, there were a whole bunch of wasps close by and I didn't notice. This made the work challenging and painful."

After research activities were completed for the day, kuben researchers and their Kayapó counterparts had different understandings of leisure. Upon returning to the Pinkaiti camp, researchers often continued working, telling jokes, or talking into the night, while the Kayapó wanted to rest. Participant Ekaje reminisced that “when you

were in the field with [Andres, Roberto, Jordan, and Jeffrey], these guys did not relax. They would not settle down. They told jokes and stories and did not stop." Similarly, food consumption and snack breaks generated tension between researchers and Kayapó associates. Kayapó associates looked forward to consuming kuben food brought from the city, but researchers wanted to ration these items over the duration of their field work. As Kanhok told it, "food was a source of tension. Jeffrey wanted to ration out all the food… but Mẽbêngôkre wanted to eat it."

Research activity sometimes strained personal relationships in the A'Ukre community. Husbands could spend several months away from their wives and children with limited contact via radio. Participant Ponoire, a female warrior, shared that "my husband was the one who worked. He never really spoke about his time doing research. He would come home and then he would immediately go back, for 1 month or 2 months or 3 months at a time." In a separate interview, Ponoire's husband, Mohnokra, shared that he sometimes "invented" reasons to return to A'Ukre to see his family: "I would tell [researcher] I had a headache, so I had to come back to the village. I didn't want to go back [to Pinkaiti] so I stayed at the village."

Despite the challenges, university researchers are remembered fondly and Pinkaiti was a place for making friends, sharing kuben and Kayapó traditions, and research activity. The A'Ukre community came to see many student researchers as part of the community. Many kuben researchers were "adopted" into Mẽbêngôkre families as siblings or children (see Chernela, 2005b), as Irepoiti explained:

> The *kubenkayaka* [foreign] researchers came. There were friendships between the community and the researchers. Whoever wanted to, made friends. We are here

> with open arms waiting for the researchers. Each person was able to make friends and able to make friends or find his or her kids and siblings.

Research Era Critiques

Pinkaiti research did not include the whole community in participation or distribution of benefits and resources. Over the duration of the research era, interviews and documents revealed that about 30 adult men[64] participated as Pinkaiti coordinators or research associates. For the most part, women and younger men were excluded from research participation. Consequently, during interviews, younger men and most women I spoke with did not feel they "knew well" or had authority to speak about the research era. Bepkanhy, now a young adult, shared a common refrain among his age group, male or female:

> In that time, during the project, I was *menoronyre* [a male youth]. I didn't work. I only worked when I was older. I only knew [researchers by sight]. I didn't work with them. Only *mebenget* [older warrior, men] that were experienced worked with the researchers at the [Pinkaiti] project. I was young and only saw and heard their stories.

Similarly, project benefits were not equitably shared throughout the community. A'Ukre participants pointed out that while the community as whole received some benefits, for the most part, the project primarily benefited individuals who participated at Pinkaiti. Kubytpa, an older male warrior who did not participate at Pinkaiti, pointed out, "there were no benefits for the community… In that time, only those who worked with

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[64] I can't say for certain how many adult men were in the community at the time, but A'Ukre's population was likely around 300-350 people (total) during early and international research.

the researchers benefited." Others wished that the researchers had done more for their adopted Kayapó families in A'Ukre. Speaking about her adopted daughter, Irepoiti stated:

> [Researcher] was always at the project. She did not leave anything for her mom.[65] She brought things for the community and the people who worked at the project, but never for her mom. She never left any presents for us.

In 2000, the number of researchers visiting Pinkaiti increased (see Chapters 5 and 6) and the critique expanded to include uneven knowledge exchange. Some in the community noted that while the Kayapó were sharing knowledge with researchers that belonged to all the Kayapó, benefits were not evenly shared among all of the community. As the number or researchers increased, A'Ukre requested additional compensation, as Irepoiti reported:[66]

> In the last years of research there were a lot of kuben here working and only a few Mẽbêngôkre working. The community asked for more help for their families. The Kayapó helped the researchers by showing them about the trees, the names of the animals and other things in the forest.

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[65] Researchers and now students are often "adopted" into Kayapó families creating kinship ties. To try and learn about these relationships, I often asked collaborators if they had any Kuben relatives- parents, brothers, children, and so forth.

[66] This was part of the learning curve for the community, NGO, and university partners. As time went on, the number of Kayapó associates increased and began to rotate through amongst the community (Zimmerman, personal communication, 2017).

A'Ukre, Pinkaiti and Expanded NGO Operations With the Kayapó

In 1997, the Kayapo NGO, The Kayapó Center for Ecological Studies[67] (KCES), was officially created and recognized by the Brazilian government[68] (Centro Kayapó, 1999). This community-based organization (CBO) was created in coordination with CI and represented four Kayapó villages. Pinkaiti was the main CBO activity, but the organization also administered other sustainable development projects, such as sales of Brazil nuts and artisan handicrafts. The CBO created an infrastructure for more formal administrative channels between the Kayapó, CI, the Brazilian government, and external donors.

The success of Pinkaiti and A'Ukre's collaboration with kuben was noted by CI. Building on Pinkaiti's achievements, CI sought to expand conservation activities beyond A'Ukre throughout the Kayapó territories. In 2000 and 2001, A'Ukre hosted two large meetings for territory-wide Kayapó leadership. Participants included leaders from the Kayapó communities of southern and northern Mato Grosso (see Figure 3; see also Chernela & Zanotti, 2014; Schroth et al., 2006; Zimmerman et al., 2001). The meetings, funded by CI and CI Brazil, discussed a territorial surveillance program to cover the full 11 million hectares of Kayapó territories. The meeting also sought to enroll other communities into the Kayapó CBO and to prevent other communities from engagement in illegal gold mining. Cacique Bepkwyky, one of the A'Ukre representatives at these meetings, shared his recollections of the meeting discussions and tensions with other Kayapó leaders:

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[67] Translated from *Centro Kayapó Estudos Ecológicos*
[68] This was end of the process started in 1992 to create the A'Ukre Association.

> Barbara had a meeting with Paiakan. Paiakan told the community that you have to clean. You need to make a place for a meeting. The President of CI wants to meet with us. He [CI president] was a Cacique and he sent for all the Caciques- for all the leaders to meet. The president of CI arrived [sic], the president and Paiakan. The president [of CI] didn't like that other ethnic groups had been involved with *garimpo* [placer mining[69]] and were involved in selling their land. The meeting was also about creating a new NGO which became the AFP. At that time all of the Caciques were warriors. They met to exchange ideas. At the second meeting, they talked about demarcating territory and territorial limits of the Kayapó. They shared information. The aldeias near the city[70] did not like the kuben in this meeting.

For the 2000 and 2001 meetings, Bepkro remembered traveling with university researchers from Pinkaiti to A'Ukre. Echoing Bepkwyky's recollections, he noted the meeting's discussions about creating a new Kayapó association, AFP, and that CI purchased surveillance materials (boats, motors, gasoline, and so forth) for each community represented at the meetings (CI, 2001a). Bepkro recalled:

> For the meeting, the big [CI] Cacique came while Andres and Roberto were at the project. All the kuben from the project went to the aldeia for the meeting. Andres said, "let's go to the aldeia. All of the big leaders will be there." When we arrived, there were lots of Mẽbêngôkre from different aldeias there. Lots of Caciques

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[69] Mining of stream beds for precious minerals. In this region, primarily gold mining.
[70] With easier access to roads, villages near the city were often involved in illegal mining and more intensive mahogany logging.

> came to discuss the start of the Associação Floresta Protegida. The first name was [*Ba neje ka-e*; AFP in Mẽbêngôkre]. The meeting was hosted by [A'Ukre's Caciques]. Andres and Roberto were the only kuben at that first meeting to discuss the beginning of the new association. A document was created. That was the first meeting. The next year, AFP was created. The second meeting was behind Cacique Krwytikre's house. There was already the first meeting and the next year, there was another meeting and AFP had already started. That meeting also had all the Caciques and Russ [Mittermeier]. In the beginning, he wanted to help purchase computers, radios, motors and other equipment [for territorial surveillance].

CI's expanding presence across the Kayapó Indigenous Territories meant that focus, attention, and resources shifted away from A'Ukre and Pinkaiti. From 1991-2000, Pinkaiti was the flagship program within CI's "Kayapo project." Following these meetings, activities and resources scaled to include other Kayapó communities. A'Ukre noted the fact that these were the last big meetings with CI in A'Ukre. Bepkro shared that "in the beginning, [CI] wanted to help purchase computers, radios, motors and other equipment. Now all the equipment is broken or gone… After that, there were no other meetings. [CI] disappeared." At the same time, many A'Ukre participants took it as a point of honor that AFP started in their village. For example, Khakryt, a female warrior, noted proudly that "in the beginning, the community started Pinkaiti. This was the origin of the AFP organization."

On the other hand, some A'Ukre participants were critical of the NGOs and the former researchers who took positions within AFP or CI. Participants felt that with

program expansion, A'Ukre was overlooked at the expense of other communities. When I asked about A'Ukre's relationship with CI, AFP, and other NGOs, I received words of caution that I should not, as Kokti stated, "do the same as [AFP employee]. [AFP employee] said that only A'Ukre would sell *castanha* [Brazil nuts]. And then he allowed the other communities to sell castanha."

The End of the Pinkaiti Research Eras

A'Ukre participants shared that beginning in 2002, research at Pinkaiti became "weak." The primary reason cited for the decline of research activity was increased intervention and concern by FUNAI about foreigners entering Indigenous lands and conducting research at Pinkaiti.[71] FUNAI representatives were particularly concerned with biopiracy at the Pinkaiti Research Station (Escobar, 2015; FUNAI, 2004; Hass, 2004). FUNAI's concerns stalled both Pinkaiti research and CI project implementation.

CI's expansion into the Kayapó areas required increased involvement of FUNAI, IBAMA, and other Brazilian government agencies. As the Kayapó, CI, and newly formed AFP expanded their activities in the Kayapó territories, AFP, CI, and FUNAI created a comprehensive partnership agreement (FUNAI, 2002; see Chapter 5 for details). Delegations from A'Ukre went to FUNAI headquarters in Brasília in 2000 and 2001 to advocate and negotiate on behalf of Pinkaiti and the partnership arrangements in

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[71] FUNAI authorizations are likely the primary cause for the decline in research, but with fewer researchers, the community began to hunt game at Pinkaiti and take researchers' materials (mainly food) stored at Pinkaiti. Karanhi confirmed that hunting and thefts due to decline in research at Pinkaiti likely contributed to the field course transition:

> In 2003 and 2004, there was less [research] work in that time. A group of people went to the project and broke into the locked area, stealing food and other materials. Barbara didn't like that and stopped calling researchers. Now we have the field course.

collaboration with CI and AFP staff (CI, 2001b). A'Ukre representatives and CI tried to clarify research activities and explain that Pinkaiti research was separate from CI's other activities.

One FUNAI employee, Mariano, stood out vividly in community recollection of meetings in Brasília and FUNAI site visits to Pinkaiti. Bepkro recalled these meetings and the concern FUNAI had with researchers taking materials out of the forest:

> I know the story well. I helped Mariano and worked with him. He went up the mountain with him in *Kukojnhokrein* [Monkey mountain]….Later... Vanessa called me to Brasília to participate in a meeting about the project. I told her that I would participate… I went to Brasília and he [Mariano] was against Pinkaiti. He said there were problems with Pinkaiti. There were some older warriors there at the meeting who did not speak Portuguese. In Brasília, each person introduced themselves … Bôti knew Portuguese. Mariano wondered what the kuben were going to do. He was against the project. When Mariano spoke to him, he thought the kuben were [biopirates] trying to take things out of the country. He made a problem at Pinkaiti.

A'Ukre participants felt deceived by Mariano, who visited Pinkaiti, told the community one thing, and then spoke out against the project in Brasília. Kubytpa was one of several older men who remembered these visits:

> Mariano came here, and he went out to the project. He came with the kuben [researchers]. He saw the project house and when he left, he said something in the ngà asking about what happened? No one responded. After he left, he didn't let any more researchers enter… Mariano talked to the community. He went to see

> the project and he wrote down what he saw. He saw how much the community was being paid and wanted to help increase the pay, but he lied to us in the ngà. He said he was going to go to Brasília and try to increase pay, but he tried to shut down the research.

Basically, A'Ukre participants recalled that FUNAI stopped authorizing research project in the aftermath of these institutional conflicts. Since 2004, there has not been any authorized Pinkaiti-based research activity. Cacique Karanhi noted that the decline in research led directly to the field course:

> FUNAI revoked authorization to the research, but was permitting visitors. Barbara had a meeting with the community about the field course and said, "we are going to send students to Pinkaiti. They are going to walk the trails and see things. Researchers will [still] have to go through the FUNAI process.

The Field Course Era in A'Ukre (2004–present)

The first field course in A'Ukre was in 2004, modeled after previous Pinkaiti research activities. Unlike Pinkaiti research activities, all A'Ukre participants could share some idea or perspectives about the field course. In its current iteration (as of 2019), field course activities are split between Pinkaiti and A'Ukre. Participating university students who visit A'Ukre spend half their time in the A'Ukre community and half their time at the Pinkaiti research station (see Appendix F for course itinerary). Therefore, field course students are present in the community and A'Ukre residents who do not directly teach university students participate in or observe community celebrations, sporting events, or day-to-day activities in which kuben students and instructors are involved.

Community Field Course Preparation

As it did in the research era, the community tracks and marks the start of the field course through radio communication with the AFP team in Tucumã. A young woman, participant Kokonhey, described some of the A'Ukre preparation during the field course:

> We mark the day that the students are in the city. We wait for the students in the ngà and we wait for them with open arms. Then everything is *Mej djwy* [awesome]… The kuben come. We mark a day and then we clean all the houses of the community… we clean everything. We receive the students at the airport, and we take care of [them]. We welcome the students. Lots of times they have backpacks. We grab the bags from the airport and take them to the kuben house.

At the same time, Pinkaiti facilities need to be cleaned, trails cut, and infrastructure repaired. For example, in 2019, 10 older men spent 10 days replacing the roof of the kitchen with new palm thatch in preparation for the field course. One of these men, Kubytpa, described the necessary preparations at Pinkaiti:

> To get things ready for the students [in 2019], we rebuilt the roof of the kitchen. I make the places where the students sleep neat...We cut the trails, we clean the house, we clean the kitchen. In the big house, we also clean to prepare the spaces where students leave their things. There is a lot of bat shit. We also clean the rocky area where the students bathe.

Community Organization and Governance of the Field Course

Prior to the field course, the Caciques and community-appointed field course coordinators (*benadjwyre ngrere*[72]) lead community discussions in the ngà to cover community preparation, norms for working with foreigners, and field course participation opportunities.

Field Course Coordinators

There are two primary field course coordinators: one each appointed to oversee activities in A'Ukre and Pinkaiti.[73] Coordinators tend to hold their positions from year to year. Since 2004, the Pinkaiti coordinator has remained the same. The A'Ukre coordinator changed in 2013, when the previous coordinator took an NGO staff position at AFP. Field course coordinators do not receive an annual salary, but they do receive a daily rate through the duration of the field course. The position is well respected in the community and comes with considerable responsibilities to ensure the happiness and well-being of both the community and kuben (Aruch field notes, 2019). Participant Takaknhikwa, who has helped coordinate the course, shared about the importance of the coordinators:

> People who come from far away don't know our culture, so we help them to call people to work. We help them to get women to work in the garden. To get men for hunting and fishing. We are helping the kuben.

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[72] Translates to "project leader." The term is not specific to the field course but could be applied to any community-appointed project.
[73] One personal observation and space for further investigation was that the Pinkaiti coordinator is more closely aligned with the older "Pinkaiti research model" and biologists, while the younger A'Ukre coordinator (who did not participate in Pinkaiti research) embraced the newer programs around media making in the community and allied more closely with the "anthropologists."

Pinkaiti Coordinator Responsibilities. The Pinkaiti coordinator is responsible for all Pinkaiti activities related to field course planning, implementation, clean up, and completion. Through ongoing conversations and observations with Bepmraxti, the Pinkaiti coordinator, general responsibilities can be described to include:

- Before the course, selecting a team (in coordination with community) to cut trails and clean Pinkaiti for the field course.
- Selecting (in coordination with community) the 16-20 Pinkaiti instructors for Pinkaiti (8-10 instructors per group at Pinkaiti).[74]
- Overseeing the university student transition in the middle of the field course as the A'Ukre group travels to Pinkaiti and the Pinkaiti group travels to A'Ukre. This coincides with the turnover in Pinkaiti staff.
- Collaborating closely with the Pinkaiti-based kuben staff including the cook, university, and NGO instructors to ensure food, gas, motors, generators, and so forth are all available and in working condition.
- Managing and coordinating the Kayapó instructional team.
- Keeping an accounting of goods purchased from the community and transportation services to and from A'Ukre for later reimbursement.
- Collaborating with kuben instructors to note reimbursement preferences of cash or *pedidos* (material goods).

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[74] This is repeated for each field course, so in years like 2019 of two field courses (UMD-UnB-UFPA & Purdue-MTSU-UFPA) there are 32–40 Pinkaiti field course instructors.

- Cleaning up and closing down Pinkaiti at the end of the field course(s) (Aruch, field notes, 2019).

A'Ukre Field Coordinator Responsibilities. The A'Ukre field coordinator manages all A'Ukre-based field course activities in collaboration with one or two Kayapó instructors. Typically, the coordinator will work the entire field course seasons, but the two instructors rotate out during the mid-course transition (see Appendix F). The A'Ukre field coordinator and instructors make up the core of the Kayapó instructional team. Together, they organize activities and schedules, provide instruction, and facilitate translations. Generally speaking, the A'Ukre coordinator responsibilities include:

- Working closely with the two full-time A'Ukre-based instructors to organize activities, provide instructors, and translate from Mẽbêngôkre to Portuguese.
- Working closely with the A'Ukre-based kuben staff including the cook and field course instructors to set mealtimes and organize activities.
- Serving as the cultural interface between the kuben and community, "calling" community members to participate in daily course activities by sharing their expertise in body painting, gardening, filmmaking, açai harvest, and so forth. The variation in daily activities means more opportunities for paid field course participation (sometimes up to 8 individuals per day; see Appendix G).
- Ensuring that community participation in the field course is distributed evenly among age grades, gender, and families so that everyone has access to inclusive (but voluntary) participation.

- Coordinating with kuben staff to keep an accounting of goods (fruits, vegetables, fish, meat, etc.) purchased from the community and individual instructional services for later reimbursement (See Appendix G).
- Collaborating with kuben instructors to note reimbursement preferences of cash or pedidos (material goods).
- Closing and cleaning up the kuben house at the end of the field course(s) (A'Ukre field course coordinators, personal communication; Aruch field notes, 2019).

Shared Accounting Responsibilities. Accounting is an important responsibility for both the A'Ukre and Pinkaiti coordinators to regulate community participation and compensation. The coordinators work closely with kuben staff to ensure that individuals receive the correct cash payments or pedidos at the end of the course. Throughout the field course, A'Ukre families bring banana, pineapples, manioc, sweet potatoes, and other produce to the kuben house; others will sell fish or meat from hunts. Typically, the A'Ukre coordinator or course cook weighs the products, recording the weight and the amount owed. Prices are based on grocery store prices compiled prior to the field course (personal observation, 2019). The Kayapó coordinators and course chefs maintain a purchase log in a notebook (Aruch, 2019 field notes).[75] Later, the coordinator and instructors calculate how much each individual is owed. Individuals then request cash or pedidos that are flown in with the planes that pick up the students.

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[75] There is different capacity and fidelity for bookkeeping practices. The younger, school educated A'Ukre-based coordinators are typically better able to record the names of workers and amounts. The older Pinkaiti coordinator tends to rely on the Brazilian and North American staff to assist with bookkeeping.

The logistics are a challenge. Each field course involves more community participation than the entire research era combined. For example, in a single 2019 field course, there were 60 Kayapó instructors and 30 individuals who sold produce, meat, or fish (Aruch field notes, 2019; Appendix G). One young leader, participant Takakpe, shared the importance of internal organization and communication by the coordinator, coupled with collaboration with external partners:

> My thought is this. With the kuben work, within that work, there are a lot of benefits and it is very complicated because the work for the Mẽbêngôkre has a high [monetary] value and there are a lot of things that you need to remember, and it makes it confusing to explain. It is better to prepare who is going to organize things and each person's job to make it easier to work. That is my thought. Whoever is organizing things inside the aldeia, just to work on this list of who is going to work in the city [Tucumã] also to communicate with us here as well. That is how the work will be good for the Mẽbêngôkre. (Translated by the author directly from Portuguese)

Community Rules for Working With Kuben

Community meetings in the ngà also set policies for working with students during the course. On July 14, 2019 I observed a meeting where the community set clear expectations on working with foreign students and instructors. The older men spoke about their experiences working with researchers. Cacique Karanhi and other older men reminded the youth that they need to work well with the kuben by respecting the area around the kuben house, respecting the kubens' space, and to both ask and receive questions about knowledge and culture. Policies for food consumption were another topic

of conversation. The community was asked not to go to the kuben house to eat without permission, and those invited should wait for the kuben to eat first. Leadership also set guidelines for trading and selling artisan crafts during the *feira* (course fair). Unlike meat and produce sold throughout the course, the feira takes place at the end of the course. To ensure equal opportunity and participation, everyone needed to wait until the fair to trade their artisan crafts. The Caciques and older men reminded everyone that if there were questions or concerns, they should not gossip, but should instead talk to the A'Ukre coordinator, "who needs to be respected" (Aruch field notes, July 14, 2019).

If field course norms are broken, there are sanctions for individuals or age grades. Participants shared that if a rule is broken once the offender may not be allowed to work with students. However, the rule breaker is permitted to participate in nonstudent-related work such as trail cutting or project maintenance. If there is another violation, individuals may be prohibited from course participation entirely. Sometimes entire age grades are impacted. In separate incidents, community leadership decided that older men, younger men, or unmarried women should not participate in certain aspects of the field course (Aruch, field notes, 2019).

Expanded Community Participation

The field course expanded participation opportunities for the entire community. One field course includes approximately twice as many community participants as the entire research era.[76] A younger woman, participant Nhakaroti, pointed out that "in the field course, there is a lot of work in the community for women and for men…. The work

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[76] In one 2019 field course, there were 60 Kayapó field course instructors. Between 1995-2004, there were about 30 Kayapó research associates total.

is separated. Some people can work here [A'Ukre] or there [Pinkaiti] and then switch." In particular, women and younger men are able to take on instructional and leadership roles that are not possible during research.

Expanded Participation for Women

Female Kayapó participants pointed out that the field course is full of women's knowledge and expertise including body painting, gardening, açai collection, media making, and other topics of instruction. A young woman, Kokonhey, explained, "men and women's work and knowledge is separate. The women teach about açai. They teach about the gardens. They teach about painting." Nhakdjam, and other older women, pointed out the difference between the research and the field course, commenting that "in the research, it was only men because it was difficult to find the land tortoise, rats, snakes at night. Today the course is better. The course includes women's knowledge." Pahnibo agreed, again highlighting night work: "Women were not able to work in the research- it was only men and the research was at night. The field course is better for women. You work in the day and you don't go out at night."

More recently, A'Ukre and partners pushed to include single women in the course to support their families. Participant Nreingy, an older female warrior, shared that it was Zimmerman and AFP that encouraged the participation of single women:

> In the field course, the community and Barbara thought and talked with the Caciques about single women working as well. Single women should also work with the kuben. That was how women got to work. Barbara had a meeting with the community.

Another older warrior woman, participant Kokpri confirmed, “Barbara came and had a meeting with the Caciques. She said that single women should work in the project to help their families. I am earning money to help the family.”

While women are actively involved in the field course, their participation is mediated through translation services provided by men. Few women speak (or feel comfortable speaking) Portuguese. One young woman, participant Iremao, explained how the A’Ukre-based instructors support communication:

> There were two men and two women who went with the kuben to teach and show our culture [climb açai]. I only explained and taught about traditions. We don’t speak each other’s languages. To know something, we had to explain through a translator. We are women and don’t know the culture and knowledge of the kuben. Only men know Portuguese and speak with the kuben. The men translate. Women don’t know Portuguese. Women don’t translate. Only men translate.

Still, Iremao pointed out that through a translator, “women can teach and show the kuben [our culture].”

Field Course Participation Opportunities for Young Men

Young men participate as instructors and guides at Pinkaiti or A’Ukre in ways they could not during the research years. Like women, young men did not have the “forest knowledge” necessary to participate in research. Participant Bepkroiti, a research associate, explained that by using their hunting expertise, older men knew where to find animals:

> To work with Andres you had to get up early because it is difficult to find tortoises. So, the people of my age, we already know a lot about how to hunt, how

to find tortoises…. So, I was already of the age to know how to find and how to hunt tortoises.

On the other hand, Takak, a younger male participant, explained why he and his age group were not selected for research and why the field course is better: "In the past, the youth didn't know how to work [in the forest]. In the research, only the older people worked. [Today] the youth can help with the students and it is good." Participant Takakpe, another youth leader, noted that the course continues to expand and improve: "In the past, we worked like this- the older people were the first workers. Now, things are improving and now the youth are working. Things are always improving."

Field Course Exclusions

Still, members of the community, particularly older women, expressed feeling excluded from the course. Ngreingy commented how she used to participate in the field course, but as she got older there were fewer opportunities:

> In the beginning of the project [the research era], I did not see the *kubenkayaka*. Only when the project slowed down [and the field course started] did I participate at Pinkaiti. I went with the kuben to the *cachoeira* [waterfall], on the trails. Now that I am old, I don't go anymore. Sometimes, after dinner, I tell the kuben stories.

Participant Poreby, another older woman, felt excluded from course activities and the opportunity to create and trade artisan crafts at the end of the course:

> I never worked in the course. I have a garden and have planted bananas and manioc. I am waiting for students to visit me. I don't have a husband, so I don't trade in the fair. I can't make a bag out of *palha* [thatch] or a *borduna* [warclub]. I don't get to trade in the fair. Nobody has come to my house in the research or the

> students….I like when the foreigners come, and I would like to try to show them something. I would like to take the students to the gardens. I would like to show them the manioc, bananas. I am just waiting for someone to come to my house.

Also excluded from course participation are community members with government-appointed, salaried health or education positions. First, these individuals do not get time off from their jobs for the field course. Second, the community wants to spread economic opportunities to as many people as possible. Participant Poropoti, an A'Ukre health worker, explained, "the reason [I did not participate] is that I already have a full time position and am therefore unable to participate by leaving my posts and because jobs are to be shared [among the community]." Sometimes, specific circumstances created participation opportunities. In 2019, government payments were to health workers and teachers were delayed. The community made the decision that teachers and health workers could participate to support their families. Bopok explained,

> I am an employee of health since 2015. I was able to work in 2014 and again in 2019. I didn't work in the project until 2019 because the money for health [from the government] was late. That is why I got to work at Pinkaiti to earn the money to help my family.

Field Course Interactions With University Students

The field course presents opportunities for cultural exchange, teaching, and learning. As Cacique Krwytikre explained, "the kuben come and they ask a lot of questions about language. They are learning the [Kayapó] language. They are also exchanging ideas about culture." The Kayapó look forward to sharing the strength of their culture. As one woman, participant Nhakdjam, put it, "Kayapo and kuben culture

mix. I think that the Mẽbêngôkre culture is strong… The Mẽbêngôkre still dance. They still paint and they share this with the kuben."

Teaching the Kuben

In A'Ukre there are opportunities for field course students to learn about food, customs, and celebrations. Participant Betingri, a young man with experience as an instructor and translator, noted that

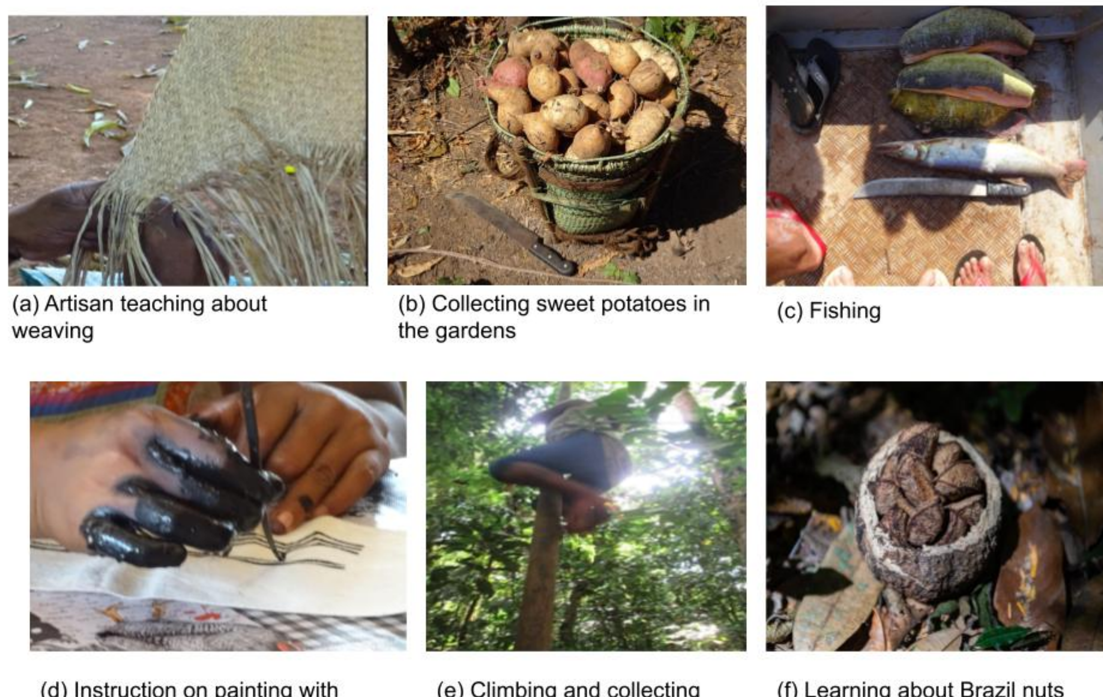
> the kuben come to A'Ukre. I work with them. They want to know about Mẽbêngôkre culture and traditions. They also want to know about Mẽbêngôkre food. I teach them about food. Some kuben want to know things [customs] about the aldeia. I teach them about the aldeia.

Participant Kokonhey, a young woman, shared the process for bringing students to the gardens around A'Ukre: "The kuben come and then the coordinator… calls me to bring the kubenkayaka team to the gardens so they can harvest potatoes or go to the forest." There are many aspects of Kayapó knowledge shared by Kayapó instructors (see Figure 20). Participant Ngrenhtabare, a warrior woman, noted specific area and challenges for instruction:

> There are some challenges teaching [the kuben]. There are some that don't know how to paint. They don't know how to do beadwork like bracelets and necklaces. They don't know how to climb açai. When the first kuben come here, they don't know about our culture. I [have to] teach and show them.

Figure 20

Example Images of Kayapó Instruction at A'Ukre and Pinkaiti



(a) Artisan teaching about weaving
(b) Collecting sweet potatoes in the gardens
(c) Fishing
(d) Instruction on painting with genipapo
(e) Climbing and collecting açai
(f) Learning about Brazil nuts

Note. Photos (a) – (e) taken by M. Aruch. Photo (f) courtesy of P. Peloso, 2018.

At Pinkaiti, there are also opportunities for engagement and teaching. Participant Takak described the rhythm of Pinkaiti instruction:

> Last year I worked with the kuben. I like to learn about their culture. We respect them when we work in the forest so if they are going slow, we go slow too. When the kuben look at some fruits or leaves to take pictures, we wait. When someone [an older Kayapó] goes to get a [forest product of interest], we wait with them. When they go slowly, we go slowly.

Some A'Ukre participants noted that many kuben on the field course are unable to complete the physical tasks of the course typical for Kayapó men and women. Ngrenhtabare continued, "some of the kuben are weak. The trails are long and some of the kuben need to turn around." At the same time, ranking who in the group is *tyx*

"strong" and who is *rerekre* "weak" is a common topic of conversation and an ongoing field course joke amongst Kayapó and kuben (personal observations, 2019).

Learning With the Kuben

The field course is an opportunity to exchange information and learn about kuben knowledge and culture. According to Ngrenhtabare, "They [the students] come here from kubenkayaka [outside of Brazil]. The kuben come to dance with us. There are some that don't know our culture. We show them. The kuben also show their culture."

Film and media are common topics of discussion. Experienced media makers and story tellers in their own right, A'Ukre community members and foreign students often discuss photography and film (Parra et al., 2016; kokojagoti.org; personal observations, 2018; 2019). Participant Bepdjyre, a male warrior, enjoyed discussing popular films and stories with students, commenting "I also exchanged questions with the kuben. In Pinkaiti, I asked the students to tell me the story of the Titanic. I asked them to tell me the stories of older people and traditions." During interviews, members of A'Ukre's Kôkôjagõti media collective frequently noted the workshops, discussions, and exchanges on Mẽbêngôkre and kuben media making.

A'Ukre participants were also curious about where students come from and what life is like outside the village in North America and other places. Participant Ngobam, an adult male warrior, took particular interest in how kuben use their knowledge to interact with their environments. Ngobam asked students, "'How do you work in your city?' This led us [Ngobam and student] to a short discussion on different knowledge. [The foreign student responded,] 'In my city, I know things. Here, [in the forest] I know nothing.'"

Takakpe also discussed the similarities and differences of travel and bureaucracy in Brazil:

> I asked, “what is the trip like from Canada to here?” And the student asked me about the challenges of the trip from here to the city. We were both asking each other… I explained to him [about going to the city] and after he told me that there is a lot of bureaucracy for us [foreigners] to enter and that we [Kayapó] don’t have bureaucracy to leave [for the city].

Language was another area of exchange, particularly among young Kayapó men and women. For many participants, language sharing was a simple and positive way for young people to engage and interact, facilitating creation of a number of valued friendships and relationships. Participant Kokomati, a young man, and 2019 first-time field course instructor shared that he, “asked Kapranti and he told me some English. I didn’t know English and he helped me. I know only a little English.” Participant Kokoprim, a young woman, similarly noted language exchange as a foundation for interacting with field course students: “I ask about our [Mẽbêngôkre] language and *kubenkayaka* [language]. I talk to them about language.” Riwy,[77] another young male participant, believes it is good to learn English and enjoyed the years he spent as a course instructor, stating “I like the work of the course. In the past few years, the students have spoken with me [in English]. It is good for me to learn and ask about English.” Participant Kokonyhre, a young woman, summarized how she and others her age felt

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[77] One evening in July 2019, Riwy, his wife, and I spent two hours reviewing English-Portuguese-Mẽbêngôkre vocabulary on hammocks at the kuben house (Aruch, 2019 field notes).

about field course knowledge exchange, "*Mejkumrej* [Awesome]. Learning is mejkumrej."

Finally, and the end of the field course, the *feira* (fair) is a final opportunity for the exchange of knowledge and goods. During the course, the Kayapó share their artisan knowledge and expertise on beadwork, woodworking, and weaving. During the fair, members of the A'Ukre community can trade their artisan crafts and "win" popular kuben items, typically outdoor and camping gear. Participant Kroti explained, "I really like the fair. Each person likes the things of the kuben, and they can win things like a mattress, a tent, a sleeping bag. We all like to trade our crafts for the kuben things. For me, the feira is great."

Intergenerational Knowledge Sharing and Feedback Loops

Kayapó knowledge and experiences are shared between generations during the field course. Younger Kayapó lean on older community members to show them and teach them about the culture of working with kuben. Many younger Kayapó participants explained that older field course coordinators assisted them the first time they participated in the field course. Takakpe noted, "the first time I worked, I was shaking. I was afraid. The first time I worked, I was like this… I was red and shaking. I was waiting for the coordinator and the [kuben] instructor to explain the situation." Today, Takakpe is a young leader with the field course and AFP. He "knows well" the work of the kuben. Kadjyre, another youth leader, noted that it takes time to get comfortable and grow into role of instructor:

> My first time with the students, I was shy to speak with the students and work with the [older men] to explain and talk about our food like açai and customs. But

> this year [2019], when I work, I won't be shy. I will speak about food, medicine, kinds of trees. The first time I went, only the mebenget [older warriors] spoke. The next time I spoke more. Every time I speak more."

Cultural knowledge is also transmitted through the course. Cacique Karanhi explained to the audience at the Belém +30 Ethnobiology Congress, "we are still keeping our culture, we are still painting our bodies, we are still practicing our rituals, our songs and through the course we are actually transmitting to the younger generations" (Kayapó & Kayapó, 2018). Participant Mohnokra pointed out that the field course is better for knowledge sharing because younger Kayapó can participate and learn alongside their elder instructors:

> Now the work is good. The youth can work [unlike research]. The older people can teach the younger people and the kuben about some of the plants like the vines. And they don't forget the names of things [in the forest].

Participant Baripok used his knowledge as a media maker to capture and record this information during the field course, explaining, "yes. I go with the mebenget to learn things I don't know about forest knowledge. I also want to learn from the mebenget about the forest and take pictures of the things they show me, so I don't forget."

These intergenerational exchanges reinforce Kayapó knowledge, practice, and culture for the next generation of field course instructors. Participant Takakati, a young man, described his experience learning directly from two older men from the community:

> Yes. I went with two older people–Kubytpa and Betikre. The two mebenget taught about forest knowledge. I also got to ask and learn from them. I can ask them to learn. Then, next year, I can show the kuben, just like the mebenget.

Younger Kayapó also learn when field course information is explained to students. Both Kayapó and kuben youth grapple with difficult explanations. Younger people see these explanations as learning opportunities for themselves. According to participant Baykajyr:

> Yes. I worked and our teachers were Kokti and Ngaire. When we came with the kuben to the forest, Ngaire and Kokti taught us things about the forest, about vines, the castanha [Brazil nuts]. For me, it was also hard. They taught the kuben and we learned, and I want to learn so that I can teach too.

The field course presents a unique opportunity for younger community members to learn about the forest so they do not "forget Kayapó knowledge." Participant Bepkamoroti explained,

> Yes. Working at Pinkaiti with older people, the older people name things for the youth to learn like trees, vines, leaves medicinal plants and other things. We take advantage of this to learn and teach so we don't forget our knowledge. When the older people can't walk anymore, the youth will be the ones teaching the kuben.

A'Ukre's Field Course Relationship and Interactions With AFP

A'Ukre currently collaborates with AFP on a number of Kayapó-wide initiatives such as the collection of Brazil nuts and other nontimber forest products, artisan crafts, and territorial surveillance projects (AFP, 2020b,c). A'Ukre's relationship with AFP is shaded by the importance of its history with AFP and other NGOs. Many A'Ukre participants recognized and noted that, "AFP exists because of Pinkaiti." Ultimately, AFP's success and programs are derived from A'Ukre. Bepkro elaborated:

> AFP started here in Pinkaiti. Here is the root of the Association. When we started talking about AFP, it was in A'Ukre. Then it moved to the city. In the beginning,

the community started Pinkaiti. This was the origin of the AFP organization… A'Ukre kept the course because it liked it.

Despite AFP's broad portfolio, A'Ukre participants repeatedly noted that the field course is unique because only A'Ukre has the field course and works so closely with kuben. Cacique Ngrenhkapyre noted that this distinguishes A'Ukre from other communities. In A'Ukre, she shared, "this aldeia has always and will always have a partnership with foreigners. Some aldeias don't want one or start one and then fight [with the kuben]. A'Ukre doesn't fight. They [the A'Ukre community] are happy to receive and host the foreigners." To host kuben for the field course, A'Ukre relies on AFP for transportation, logistics, and payment.

A'Ukre–AFP Field Course Logistics

A'Ukre is responsible for activities within the community, but depends on AFP for external program operations. Takakpe described AFP's field course responsibilities:

> The work of AFP is this. They are responsible for the logistics of the students that come here to visit the Mẽbêngôkre. They organize transportation to the hotel, lodging. Everything until they arrive inside the aldeia [A'Ukre]…. They also organize food, lodging, transportation. That is the part that the association [AFP] is organizing.

A'Ukre–AFP Course Payments. A'Ukre also coordinates with AFP for the financial and material payments from the course. Course payments are received in one of three ways (similar to the research era):

- A community fee paid by each foreign visitor. This community fee is transferred to the Caciques, who decide in community consultation how to

spend the funds. Community fees are typically used to support community festivals or maintenance projects (for instance, in 2017, a new roof for the ngà).

- Individual cash payments.
- Individual payments in material goods (pedidos).

Decisions on whether to receive cash or material goods depend on practical considerations of individual households and vary from year to year. A young woman, participant Kokonhey, shared that "in the past, I have asked for money, but sometimes I will also ask for grocery items because there is no [super]market here. If I already have items, then I will ask for cash."

Individual Cash Payments. In the past, individual cash payments created some tension between A'Ukre and AFP. Historically, in order to receive cash payments, individuals needed to bring receipts (issued by AFP or university staff during the field course) to the AFP office in Tucumã. There, an AFP employee would exchange the receipt for cash (details in Chapter 5). This process involved a long river trip, a taxi, and overnight lodging in Tucumã. Within A'Ukre, the process was highly criticized. At times, the money earned from the course did not even cover the expenses required to receive payment at the AFP office. Bepkoti explained:

> Before, you got a receipt and you had to bring the receipt to AFP to get paid. It was very difficult for us. For people without resources or older people, it was very difficult. In the city, you pay for everything. You need a car. In the past, when we did the receipts, we went to the street [city] to get the money.

Making matters worse, if an individual lost their receipt, there was no way to receive payment. Sometimes there was no money in the AFP office and an individual needed to remain in the city until money could be withdrawn. A frustrated participant, Bepunu, reported that on one trip to AFP, he "asked in AFP once and spoke with [an AFP employee]. She didn't pay me for my work. I needed money. In the time I went to get my money, she didn't have it. She didn't pay me, and I complained a lot. After 5 days, she paid me."

In 2017, A'Ukre and partners initiated a new field course payment process. During the field course, detailed records are kept by the Kayapó and kuben field course coordinators and instructors. The records are radioed to AFP within a reasonable time frame for an AFP cash withdrawal. The cash is organized by AFP staff into individual envelopes and flown to A'Ukre with material goods at the end of the field course. The payments are distributed at one time in a community meeting in the ngà. As individuals receive their envelopes, they sign a receipt that is later returned to the AFP offices for record keeping (Aruch, field notes, 2019). Participant Nreingy explained of the new procedure,

> when a group comes for the field course, the money is placed with the association. When the kuben group leaves, the money comes in on a plane. There is a kuben that pays the receipts in the ngà at the end of the project [field course].

All A'Ukre participants, if asked, shared that the community is much happier with the new payment process.

Individual Material Goods. Individuals may opt to receive payment in the form of household items or pedidos such as rice, sugar, flip flops, batteries, and other items not

easily acquired in the village. Coordinating with A'Ukre to send material goods from Tucumã to A'Ukre requires ongoing radio communication between A'Ukre and AFP. The field course coordinators keep detailed records confirming who worked in the course, how much they earned, and their list of requested items. These items are radioed out to a Kayapó staff at AFP[78] who makes a copy of the list. The list is passed to another AFP employee who will go to the supermarket, purchase the requested items, pack them individually, and send them on the plane to A'Ukre at the end of the field course (see Chapter 5). Arriving packages include the individual's name, a receipt of goods, and purchase amounts. In some cases, money earned does not cover requested items. In other cases, an envelope includes any change that is due to the individual.

For both cash and pedidos, radio communication is essential to ensuring the correct amounts and materials are received. However, the number of people and purchases invariably makes the process complicated. Items are sometimes forgotten or do not make their way to A'Ukre, creating tension between A'Ukre and the AFP logistics team (Aruch, field notes, 2019).

From AFP to Associação Pykôre

According to A'Ukre participants, for several years, A'Ukre residents considered creating their own community association to manage the logistics of the field course. In 2019, A'Ukre submitted the formal paperwork necessary to start its own CBO, Associação Pykôre (Pykôre) (pykore.org). Many in A'Ukre felt that AFP had grown too large, representing too many villages. As a result, AFP could not attend to A'Ukre

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[78] In the past, this was always done via radio. In 2019, we tried to use a GPS satellite messenger. Many of the requested items did not arrive, and this created some conflict within the community.

community needs, particularly with respect to the field course. Participants shared that because of A'Ukre-specific programs like the field course, there is a lot of *fofoca* (gossip) with other Kayapó villages. The community had additional transparency concerns about how finances enter and leave AFP's accounts. A'Ukre wanted to create accounting separate from AFP to autonomously manage their finances and programs. Participants hoped that Pykôre would address some of their issues with AFP and the Kayapó peers. Bepkoti summarized a general view of Pykôre's role:

> Pykôre will continue the same way [as AFP]. AFP has a lot of aldeias [33] that receive resources so it is difficult for us [A'Ukre]. There are lots of caciques that enter to fight about the resources and speak poorly about AFP. We made a meeting to create a new association, just for us [A'Ukre]. When the kubenkayaka come, we can enter the money into our association. We aren't going to wait a long time in AFP to get our funds. Pykôre makes things easier for us. We can go in and come back quickly. In AFP, we have to wait a long time. AFP has to attend to other caciques and it wastes time. Our association is ready to start. It is mejkumrej.

A'Ukre will draw upon their community's history and participation in KCEP and AFP to get Pykôre off the ground. Specifically, A'Ukre leadership sees AFP and Pykôre working in partnership, as Pykôre learns and develops. As Cacique Karanhi noted in our interview, "Pykôre is A'Ukre's own association…Pykôre is the *kra* [child] of AFP. When it grows up, maybe it will separate. For now, the two organizations will be partners."

A’Ukre-FUNAI Field Course Authorization

A’Ukre residents reported feeling confident about field course relationships with FUNAI. Participant Patnhin explained the difference between research and the course: “In the past, FUNAI did not authorize the kuben to enter the aldeia. We [A’Ukre] sent a document to FUNAI and FUNAI listened to us. Now they always authorize the course and the kuben always come.” A’Ukre works with FUNAI as well as university and NGO partners to ensure compliance with Brazilian Indigenous policies. Baripok described the process of consultation and authorization for foreigners to work within A’Ukre during the course or other projects:

> All the times the kuben want to come to A’Ukre, they need to let the Caciques know. The Caciques then make a document to FUNAI to permit the kuben to enter. Leah [university instructor] and Barbara [NGO] *mari mej* (know well) the FUNAI process. Other kuben that want to do a project need authorization. They need to come to A’Ukre to ask to start a project. About the field course, FUNAI already knows well the field course.

Every year, the Caciques send a document to FUNAI in Brasília detailing the course objectives and dates, requesting field course authorization. For example, the 2015 document reads:

> We the Caciques of the A’Ukre community ask [FUNAI] to the authorize two field courses in the territory of our community under the coordination of our community in partnership with our organization AFP, with Purdue University, UFU…UnB and UMD…[These courses] have the objectives of providing our community a sustainable alternative to income generation and training university

> students in relevant topics of biological conservation, Amazon cultures through a shared experience in our community and the Pinkaiti reserve. The course also contributes to the training of instructors in our community, as well as the appreciation of our culture. Students who take part in this course will be accompanied by Kayapó instructors chosen in our community and by anthropologists and biologists who … have known our community for many years (Kayapó et al., 2015, author translation).

Today, A'Ukre participants noted, the community enjoys the course and the annual visits from kuben friends and colleagues. With A'Ukre influence, FUNAI always permits the course. At the same time, A'Ukre recognized that circumstances could change, as they did during the research. During one conversation, Cacique Krwytikre warned me, "FUNAI is watching and that if we [kuben] do something wrong, they won't let us [kuben] back in."

A'Ukre Summary and Partnership Discussion

The Pinkaiti Partnership is set in A'Ukre's forest and within the community, where the village engages with a network of actors in international research and education activities. Started in 1991, the partnership began as an agreement between A'Ukre and CI. Over time, the community developed a number of activities and processes to coordinate and administer partnership activities. These activities led to a set of knowledge, financial, and social outcomes. Using the detailed account of A'Ukre's perspective as reported above, this section quickly reviews key partnership structure, processes and activities, and outcomes.

Partnership Structure

As A'Ukre's partners have changed over time to include new and increasing NGO and university partners, the **category and function** of the partnership has remained mostly consistent. Since Paiakan's first conversations with Zimmerman, A'Ukre's focus has remained on territorial and cultural sovereignty, financial independence and revenue streams, and developing and enhancing social networks.

Ostensibly, partnership **leadership** is centered within consensus-based deliberations among adult men. Decision-making arrangements are led by Caciques*,* with Pinkaiti specific decisions often delegated to younger men who have taken on leadership roles. In partnership initiation, leadership began with Paiakan and Zimmerman's relationship. Paiakan, then a young leader himself, negotiated with government and NGO institutions by traveling both domestically and internationally to generate financial and material support for A'Ukre. Following Paiakan's alleged assault, A'Ukre expanded and distributed leadership roles within the community. By the time the first researchers arrived in Pinkaiti in November 1992, A'Ukre had formed a leadership committee that included a set of Pinkaiti coordinators responsible for project management and oversight. As the research era evolved into the field course era, the leadership structure expanded to include additional coordinators and instructional roles for women and younger men.

Over time, partnership activities became more **equitable,** increasing the number of opportunities for participation, engagement, and revenue sharing. A'Ukre's success in creating the Pinkaiti station, seeing the creation of AFP, implementing the field course, and building external networks **empowered** the community. During the research era, the community increasingly placed demands upon the NGOs and researchers to enhance the

number of research associates and community benefits. In addition, while A'Ukre participants acknowledged and were proud of their role in creating AFP, they later leveraged their international networks to create Pykôre, a new organization that will exclusively manage A'Ukre-based initiatives.

Over the partnership's duration, **finances** have always been externally generated and transferred to the community. Initially, these finances came from external grants and donations secured or provided by the DSF, CI, or North American government agencies. Tourism or research visitors to A'Ukre or Pinkaiti supplemented institutional finances through community fees and/or individual Kayapó research associates. The field course has expanded on this payment infrastructure. During the field course, the universities make payments directly to AFP, who transfer money to the community or individuals as necessary. A'Ukre hopes Pykôre will handle these financial arrangements in future courses.

A'Ukre's role in the Pinkaiti Partnership has evolved within different socioenvironmental contexts and **partnership environments**. The partnership emerged in a unique moment of heightened international awareness of Amazon deforestation that included the end of the Brazilian military government (1985), the new Brazilian Constitution (1988), the Belo Monte Dam protests (1989), and the 1992 Rio Summit. Through these events, Paiakan met Suzuki and Zimmerman. Zimmerman introduced CI to the A'Ukre community. A'Ukre and its NGO partners took advantage of this moment to capture resources and momentum during partnership initiation and into the research era. Pinkaiti became a model for conservation collaborations with Indigenous communities (Dowie, 2009).

Pinkaiti's success created a new environment where CI became increasingly involved with Kayapó communities, shifting the focus away from A'Ukre. At the same time, expanded NGO activity led to increasing Brazilian government concerns of biopiracy and Brazilian sovereignty in the Amazon region. Pinkaiti activities declined precipitously with the lack of government research authorization.

Today, the field course exists in a well-established partnership environment that leverages AFP administration, FUNAI support, and university interest. Pinkaiti activities are more reliant on university faculty and student interest than on international NGO conservation agendas. The community maintains close contact with university and NGO colleagues through dramatic shifts in information and communication technologies (ICTs). The partnership has seen a transition from radio to fax and letters to emails to web messaging services.[79]

Processes and Activities

A'Ukre's partnership processes and activities have reflected increasing community agency and participation over the duration of the partnership. During partnership initiation, activities included short-term tourist and research visits. During these early visits, activities were oriented toward the interests of the tourists and researchers. Knowledge and exchange was visitor driven. In early research, extended Pinkaiti stays by student researchers offered opportunities for reciprocal exchange. Through early and international research, relationships between researchers and the community reflected deep affections, modeled on Kayapó kinship. At the same time,

[79] In August 2020, A'Ukre received satellite internet service in the village, perhaps eliminating the challenges of radio communication.

research objectives drove the knowledge focus at Pinkaiti. Kayapó researcher associates utilized their knowledge with respect to specific areas of ecological or social expertise. Throughout the research era, activities took place mainly at Pinkaiti, with the notable exception of the A'Ukre-hosted meetings of Kayapó leaders in 2000 and 2001.

The field course balanced partnership activities and re-centered Kayapó knowledge. A'Ukre community expertise drives field course curriculum and activities. These activities and processes are co-constructed with university and NGO counterparts. In addition, activity spaces are split between the research station and the community to include the knowledge sets of women, youth, and others previously excluded. In my interviews, everyone I spoke with in A'Ukre had one or more experiences working with or observing field course processes and activities.

A'Ukre Partnership Outcomes

In A'Ukre, Pinkaiti partnership activities are a **sustainable** component of village life that is fully intended to continue into the future. Participant Bepkwyky, an elder warrior who helped get Pinkaiti started, wanted to tell future A'Ukre generations,

> I want to leave a message for my grandkids. I want to tell them that I like the Pinkaiti Project. I like it because it helps the community and it continues to help the community. When my kids and grandkids grow up, they will continue to work. That is what I want.

Younger people also expect the partnership to continue. Bepro, an emerging youth leader, echoed a sentiment repeated by many peers of his age grade:

> I don’t have any grandkids yet. When my kids grow, I will tell them. I will say, “Look at my work.” In the past, I worked at Pinkaiti, the same as you. You will work too. You will work with the kuben too. The project will continue.

The community also understands its place as an attractive location for students and researchers. In some ways, this makes A’Ukre **accountable** to the students and researchers who study the Kayapó forests and culture. Participant Ngrenhpyko, a young woman, asked the field course students, “‘Why do you come here [to A’Ukre] with us to learn about things in our garden?’ The kuben responded, ‘The *Terra Indígena* has a big forest.’ That is why some kuben come to study.” Cacique Karanhi, with years of research and field course perspective added:

> the kuben come to work in our forest. Our forest is not burned down or cut. Our water is clean. The macaws are alive. We haven’t destroy or taken out everything. There is no garimpo [gold miners] entering here. There are lots of animals, clean water and fish. All kuben are welcome to work here.

The partnership is also **effective and efficient** in the support and transmission of Kayapó knowledge through important social networks and feedback loops. Participant Patnhin explained:

> in the course, the students come. They see our culture. We paint ourselves. We are still Indians. We talk about our culture and traditions….When they leave to the city, they talk about us to other kuben and other kuben come.

The research and field course networks spawned new community projects such as AFP, Kôkôjagõti, and Pykôre.

A Note on Feedback Loops

Through the four partnership eras in A'Ukre, feedback loops created the knowledge and human infrastructure necessary to develop and drive partnership evolution. Older community members frequently informed me that they mari mej (know well) how to work with kuben to develop projects. They explained that the work of the kuben means that they sometimes need to wait years for a project idea to develop and actualize. A'Ukre has patience and trust in their partners through relationships they have cultivated over decades with kuben researchers and students who return to A'Ukre annually as NGO employees or field course instructors. A'Ukre community leaders are a sounding board for other communities interested in working with kuben. A'Ukre is familiar with the long delays and ongoing administration required to work with Brazilians and foreigners. Cacique Krwytikre tells other Kayapó caciques that kuben projects often take several iterations. He noted that:

> other caciques asked me about the [Pinkaiti] project… They asked, "how can I do this?" I told them, "you need to pick a good place for the project. You need to bring the community together to make a good trail. You need to make a project house. You have to know kuben. You have to show them that the house is good. The kuben will leave to tell others there is a project and call them. They will come back with more people. They [Kuben] will leave again and come back with more people. That is how it works."

Thirty years of activity resulted in intergenerational feedback loops of grandparents, parents, and children who all participated in research or the field course. Bepkro, who planted many trees around the original Pinkaiti with his son, shared his

pride at watching the vegetation grow along with his son, who is now a Pinkaiti field course instructor:

> This year my son went with the first group. I like [that he was an instructor]. When he was small, he came here with me. I planted this mahogany and planted this lemon tree. When the mahogany grew, my kid grew and now he works here. This way, my kid will continue and not forget to work. That is an example [of intergenerational knowledge]. I am happy that he is doing some work [with the field course].

Similarly, field course activities created an intergenerational feedback loop of their own for the village side of the course. Nhakdjam explained, "I have done painting. Even my daughter has worked in the course, helping to paint. I have also taught about shaving heads. There are two generations working on the course, mother and daughter."

A'Ukre also observed that their kuben friends and family, including researchers and field course students, have their own feedback loops through continued engagement with A'Ukre. Takmej, a former Pinkaiti coordinator from the research era, noted that the first researchers continued to support A'Ukre:

> The first [student researchers] that came were Caterina and Melissa… They spent a lot of time here. I think 2 or 3 years… And then came Andres. Andres did a Master's in the city and then came to do his doctorate here. And he did, and he returned. And he is there, he is helping the Mẽbêngôkre [with AFP]… And Roberto also who did his doctorate here in Pinkaiti. He did it and returned to his lands. Today he wants to come here together with [his] students to A'Ukre.

Takmej remarked that, in his experience, many field course students are interested in pursuing research in A'Ukre, and he encourages them to return for future studies and projects, but not to forget about the community when their research is finished:

> They are saying to us, the students, when I go to do my PhD, I am going to see the way it is as it is today [in A'Ukre]. That is what the kuben, many kuben ask us. Then I ask, are you going to come back [after] your doctorate or are you going to forget us?

Finally, developing and continuing these feedback loops was part of my own experience. When I asked participants if they had any questions for me, the most common questions were, "What is going to be your next project after this one, how will you continue to support community, and who will you bring with you to the community next time?"

Conclusion

Since 1991 A'Ukre has hosted and directed research and education activities in partnership with a transnational network of NGOs, universities, and government agencies. A'Ukre initially started the project with international NGOs (DSF and CI) to protect an area of forest from mahogany logging and create a small research-based enterprise. Along the way, A'Ukre developed intercultural skills and strategies for coordinating partnership activities with an expanding set of partners. A'Ukre initiated Indigenous organizations including KCEP, AFP and Pykôre. During KCEP, the community distributed leadership to coordinate transportation, logistics, and field work relationships. Pinkaiti research and the field course served as a mechanism for both reinforcing Kayapó cultural knowledge and learning about foreign cultures and practices.

In the community's words, they came to mari mej (know well) the work of the kuben. Building on their experiences with AFP, A'Ukre created their own Pykôre Association in 2019 to manage the community's ongoing research and education projects. Over thirty years, kuben visits to the aldeia became part of A'Ukre's identity, generating longstanding friendships and opportunities for knowledge, learning, and intercultural As A'Ukre's Cacique shared with a public audience at the 2018 Belém ISE Congress:

> When I first met Barbara Zimmerman, she was young, and I [Cacique] didn't know anything about the World Bank or biologists or what it was to build this reserve that Barbara was suggesting building in [A'Ukre]… [Now, we] are used to having the kuben here all the time. (Kayapó & Kayapó, 2018)

Chapter 5: Nongovernmental Organizations

> They [the Kayapó NGOs] are doing the work and producing the results and getting that, you know, demonstrating the models of conservation development and that they do work. There is absolutely no doubt in my mind, none, that if it weren't for AFP, IR [Instituto Raoni] and Kabu [Kayapó NGOs], the Kayapó would be completely overrun now. Completely, utterly [overrun] by loggers and gold miners and the Kayapó culture would be in the process of, you know, going extinct… I know that and I think we can prove that.
>
> —B. Zimmerman, 2017 participant interview

This chapter details the participation and experiences of nongovernmental organizations (NGOs) within the Pinkaiti Partnership, specifically DSF, CI, AFP, and ICFC (see Chapter 3). After describing NGO-specific data sources and methods, I discuss how NGO actors have engaged and coordinated with one another, the A'Ukre community, university partners, and government partners across the four Pinkaiti Partnership eras including partnership inception, early research, international research and scale, and the field course. Finally, I offer a brief discussion of the partnership structure, processes, and outcomes with respect to NGO participants.

Data and Methods

NGO data sources included a cross section of interviews, documents, and observations. I interviewed twenty three NGO participants across the spectrum of partner nationalities, institutions, and partnership eras (see Table 15). Interviews were conducted face to face or via Skype, WhatsApp, or another digital platform in Portuguese (n = 11) or English (n = 9) with participants from Canada, the United States, and Brazil, including Mẽbêngôkre-Kayapó AFP staff members. Interviews were transcribed using NVivo transcription software and later reviewed for accuracy. Transcriptions were uploaded into NVivo for organization, coding, and analysis (see Chapter 3 for details).

Table 15

NGO Interview Participant Demographics

Demographic	Number of interview participants
Total number of NGO interview participants*	21
NGO institution	
Conservation International	9
Protected Forest Association	14
International Conservation Fund of Canada	3
Nationality	
Brazilian	11
Mẽbêngôkre-Kayapó	4
Canadian	3
USA	2
Partnership era participation	
Initiation	4
Early research	7
International research and scale	12
Field course	16

Note. *Some individuals represent more than one institution and/or partnership era.

In total, I reviewed 353 NGO-relevant documents (See Table 7). The documents came from individual and institutional archives, as well as internet searches. Documents included correspondence, grant proposals, project reports, budgets, and other relevant materials.

Between April and September 2019, I spent two months participating in and observing activities with AFP, mostly in Tucumã, Brazil. I spent time with the staff and participated in AFP meetings related to the preparation, implementation, and wrap up of field course activities. Observations were recorded in field notebooks and transcribed into digital notes using Microsoft Word or OneNote. Digital field notes were organized, uploaded, and coded into NVivo for analysis and discussion.

Partnership Initiation with NGO Partners (1991-1995)

NGO involvement began when Zimmerman returned from a DSF-funded visit to A'Ukre in 1991 (Suzuki, 2006). After leaving A'Ukre, Zimmerman wrote to some INPA

and BDFF colleagues on June 5, 1991, detailing three goals for a research station in A'Ukre and potential career objectives:

> I have just returned from an amazing trip to Paiakan's village, A'Ukre, in the middle of nowhere, somewhere at the end of the world in southern Para. This place is on a small tributary of the Xingu, the Riozinho, about 45 minutes ride in a small plane over virgin forest from Redenção… For two years I have cultivated a relationship with Paiakan and hoped to "get into" Aukre. I am fascinated with the potential role of Indians in conservation of the Amazon and, as you will see, hope to make this my career. Now I arrive at the point of this letter. A'Ukre presents an extraordinary and unique conservation opportunity; one where the Indians could preserve their rich culture and conservationists could preserve a vast tract of rich forest. I should mention that this area is interesting biologically as it is very rugged and has high hills, plateaus with natural campo, rivers, and lowland forest. The plan that emerged during my relations with these people is that A'Ukre become a focus of "eco- tourism" and applied conservation ecology research. The unique attraction of this project is the participation of a culturally healthy and intact Indian population in their forest. I envision three directly interacting components in the project all of which will benefit:
>
> l) The Indians who wish to pursue traditional life on their own land…
>
> 2) The "tourist" … (The idea is not to flood A'Ukre with tourists but provide an exclusive, rare, intense experience for a very modest numbers of hardcore types. The camp would not be in the village itself.)

> 3) The graduate student and conservation biologist can work in a vast tract of primary forest plus ditto number 2 above. It is the desire of the people of A'Ukre, as expressed by all the Chiefs, to pursue this goal of a tourist camp and research station on their land…. I think this is a golden opportunity for the Indians and for conservation. (Zimmerman, 1991a)

Zimmerman's colleagues suggested she reach out and "go to Conservation International. They are [were] up and coming, and cutting edge" (Zimmerman, 2017 participant interview). Zimmerman wrote to CI's president on June 6, 1991 that "I hope to interest a conservation organization in an exciting project… If you are interested, I would like to schedule a meeting as soon as possible" (Zimmerman, 1991b). Zimmerman recalled that:

> some months later I bought myself a ticket to Washington and I met with Ray [CI president] and said "look, this a really amazing area, amazing people." And then 3 months later, I was there with Ray[80] and he saw the same thing and he decided to risk a bit of money on me and that's how it started. It just started. (B. Zimmerman, 2017 participant interview)

In a 2019 participant interview Ray corroborated the 1991 meeting with Zimmerman:

> And so she [Zimmerman] comes in and she starts going on about the Kayapó and of course, I had heard about the Kayapó… And she just exudes as always energy and enthusiasm and a "can do" attitude. And she said, "you got to get down there"…

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[80] With the exception of Zimmerman, all NGO participants names are pseudonyms except for items that may appear in the public record.

> And so I said "sure, why not."... It was 1991… And I was very enthusiastic about it. And we really didn't have any money, but we pieced together small amounts of funding. (Ray, 2019, participant interview)

A few months later, in August 1991, Ray, his wife, and a CI Brazil representative visited A'Ukre. Following the visit, CI officially hired Zimmerman and provided early financial and technical support to Pinkaiti, then known institutionally within CI as the Kayapó Project*.* The Kayapó Project became one of the first initiatives within the newly created CI Brazil program portfolio (Giovanni, former CI Brazil executive, 2019 participant interview). Ray shared that Pinkaiti aligned closely with CI's institutional goals:

> Well in the early days, we were very much focused on protecting large areas of wilderness and biodiversity hotspots and this qualified as a large wilderness area… and we thought it was a very interesting opportunity. We always were interested in working with Indigenous people and that was really before working with Indigenous people was kind of the in thing to do- that has only really happened in the past 10 – 15 years where that has really become a major importance, but I think we were clearly visionary early on by saying, look- to preserve large places in areas like the Amazon, we really need to work with these Indigenous people so that was the main rationale for it. Plus it seemed like a really exciting project and something that would be highly visible for the organization. It fell down on just about every count and we also liked supporting research stations in those days…. it met a lot of our then major objectives.

By the end of 1991, the Pinkaiti Partnership had institutional support from the A'Ukre community (see Chapter 4), Conservation International offices in Washington, DC and Belo Horizonte (Brazil), and DSF.

Early CI Fundraising with the Canadian Government

In late 1991, a CI board member informed Zimmerman that the Canadian government agency the Canadian International Development Agency (CIDA) had potential funding to support the Kayapó Project. Zimmerman, a CI employee, wrote to CIDA with a project overview, proposal abstract, and request to meet at the Canadian embassy in Brasília:

> I took the CI brass to visit the site in August and they were impressed with its potential. The "A'Ukre project" is now part of their agenda and major responsibility for its operation has been allocated to CI-Canada (a recent chapter). We have entered a partnership with the Suzuki Foundation in Vancouver to further our goals. We are in the initial stages of realizing this project which only began officially in September. I have the working draft of a proposal which we will eventually submit to CIDA but I must lay a political/legal foundation for the project in Brazil before we can refine the proposal…I hope it will be convenient for embassy staff to meet with me sometime during this week to discuss the potential of this project and offer advice. I have sent the abstract and project goals for your information. (Zimmerman, 1991d)

Zimmerman first attempted to fund the project through a large bilateral agreement between CIDA and the Brazilian Cooperation Agency (ABC). The CIDA grant would cover all of the program's expenses for several years. A 1991 joint CI and DSF proposal

framed the Kayapó Project as a unique opportunity to protect the environmental and cultural integrity of Indigenous Amazon communities:

> A'Ukre is in a remarkable position to steer clear of a ruinous course of unsustainable development towards a vigorous future of cultural and ecological integrity. The opportunity is remarkable because of the largely undisturbed nature of the A'Ukre's culture and ecosystem and the extent to which this community has been prepared to undertake a market economy based on sustainably harvested resources…. Conservation International and the Suzuki Foundation believes that A'Ukre represents an extraordinary opportunity for sustainable development and conservation investment. The people live largely traditionally and retain a complex understanding of forest ecology; they occupy a vast, largely undisturbed, mountainous tract of canopy and *cerrado* [savannah] forest which promises to be biologically rich; they have reached the inevitable stage of needing income and are primed for the idea of renewable resource marketing; they have successfully thwarted serious threats to their land; they have demonstrated impressive ability and willingness to adopt new ideas. In short, the rich ecosystem is there, the owner's will is there, and an untapped repository of knowledge and ability is there; it only remains for international aid to seize this rare opportunity. (CI & DSF, 1991)

In the end, the CIDA-ABC bilateral agreement was not funded because of ABC's focus on Acre-based projects[81] (Cultural Survival, 1992). Instead, CI pursued a smaller CIDA grant, the Canada Fund for Small Projects (Canada Fund). Unlike CIDA grants that were administered by government agencies, Canada Fund proposals required explicit support from local Brazilian organizations (Cultural Survival, 1992). To secure funding, Zimmerman began working closely with Paiakan and A'Ukre to create the A'Ukre Association (see Chapter 4). The administrative processes for creating an official association with A'Ukre highlighted the cultural misunderstandings and misaligned expectations among donors, NGOs, and Indigenous communities. In May 1992, Zimmerman articulated these gaps in cultural norms to a CIDA representative who was waiting for the A'Ukre Association paperwork:

> Paiakan is a major figure in the indigenous rights and conservation world. He travels a great deal, speaks eloquently, comes up with great ideas, has amazing insight, but there's little chance of getting him to do any administrative type stuff —like putting together this proposal for example. Part of the problem that we often don't consider as it is so second nature to us is the lack of facility with reading and writing. Telling Paiakan to write a proposal for this, or draft that document, or negotiate though this bureaucracy is somewhat similar [to] expecting one of us to find our food with a bow and arrow. So the proposal the

[81] Acre is a Brazilian state on the Western side of the Brazilian Amazon. At the time, CIDA and ABC primarily funded projects related to Brazil nuts and rubber tappers in Acre in the aftermath of Chico Mendes' assassination.

embassy has is the Association's proposal, although certainly they must hear directly from Paiakan. (Zimmerman, 1992k)

NGO Support Following Paiakan's Allegation

In June 1992, in the midst of CIDA negotiations, Paiakan was accused of sexual assault (Cockburn, 1992; Gomes & Silber, 1992; see Chapter 4). The accusation occurred just days before Zimmerman's trip to Brazil and threatened to halt all NGO activity on the Kayapó Project. Just after the accusation, Zimmerman drafted and sent messages to all NGO (DSF, CI, World Wildlife Fund) and university (INPA) collaborators, stating her thoughts and desire to continue the project:

> I feel no need to apologize for it and feel very strongly that no organization needs to either. The man [Paiakan] is what we said he is —a strong leader and brilliant visionary who achieved extraordinary success… There is nothing we did wrong or could have learned from this incident. The project is well conceived, well balanced, and Paiakan had prepared his community well for its implementation. There is nothing in that proposal I would recant or rewrite… My first reaction was to go there and find out what the Kayapó leadership intended to do and what they wished for the project. Upon saner reflection and consultation, I realized that any association with foreigners while Paiakan's situation remained unresolved would likely preclude the Kayapó ever receiving any foreign aid. Undoubtedly, our presence would be interpreted as abetting an escaped criminal and this association could seriously compromise future projects by any organization with any Kayapó…. Now that I'm regaining my equilibrium, I'm starting to view this unexpected turn of events as a challenge to our wits and commitment rather than

> disaster. As Paiakan's situation floats away and takes on a life of its own, we have to work towards getting this project back on track. It's simply too good a plan with too much preparation invested in it to even consider dropping. (Zimmerman, 1992m)

For NGO partners of the Kayapó Project, Paiakan's legal situation threatened financial and institutional support, both internally and with external donors. Zimmerman convened with NGO allies in North America and Brazil, continuing to push for the project with CI Washington support. Writing to CI executives on June 22, 1992, Zimmerman shared:

> Here is the deal on the Kayapó project. Everyone feels that the project is designed well enough to withstand the downfall and potential exclusion of its most prominent participant. Paiakan was crucial to the development of this project but, having got this far, I am confident we can proceed without him or with his status diminished. In any case, if the project had been based solely on Paiakan's involvement, it would have failed eventually. With the project still sound, we will regain CIDA support. The project is sound because the community wants us in there as much as ever. So here's my proposal one endorsed by [colleagues at CI-Canada, CI- Brazil, and NDI]
>
> 1. We wait a few more weeks until things have settled down.
>
> 2. I will travel to Redenção alone around end [of] July with as much as possible of the CI-Suzuki [Foundation] money I have now.
>
> 3. Once in Redenção, I will see what we can afford. I expect we can build the station shell which is really the only construction that is restricted to the dry

season. We can equip and perfect the building later (when we get our Canadian money back). I will proceed with reserve demarcation also.

4. This work, although not all that we had hoped to accomplish this year, will consolidate the confidence of the community and prove to our backers that this "Paiakan thing" represents a setback rather than death blow.

5. On my way to Redenção, I will meet with the Canadian embassy people to discuss the terms for reinstatement of our grant.

6. I will negotiate a plan for project organization and implementation in collaboration with the community and Paiakan. Paiakan and the community may have to choose a new director of the Associação Indígena A'Ukre.

7. On my return from Para, I will stop at the Canadian embassy again to outline our achievements and modifications to project organization…

8. In the meantime, CI Brazil will continue negotiating with CIDA for NGO support after I have wooed them some more. I want to have CIDA money by Christmas….

Sooner or later, this Paiakan thing is going to blow over and recede. We are left with the same ideal site for this particular project. So, do you want to give it a try? (Zimmerman, 1992n)

DSF and CI gave it a try. In July 1992, Zimmerman traveled to A'Ukre. On July 20, Zimmerman presented a positive assessment of progress to NGO leadership from a

Redenção hotel,[82] explaining that Paiakan's situation, while unfortunate, may ultimately benefit project sustainability:

> Negotiations with A'Ukre have gone exceedingly well. The community is excited at the prospect of the project and desirous to begin immediately… the four chiefs have praised the proposal… the community was particularly pleased with this idea of an all Kayapó management team committee chosen by the chiefs…We have a couple of excellent candidates to replace Paiakan as outside project coordinator and spokesman…therefore the lamentable incident involving Paiakan has been far from injurious to the project and may even have provoked a better organization than we would have had otherwise. In short, things couldn't be going better. (Zimmerman, 1992o)

After extended work in A'Ukre during the dry season of July and August, cutting trails and coordinating project house construction (see Chapter 4), Zimmerman traveled back to Canada in September to continue fundraising and then returned to Brazil in late October. Despite the success of her A'Ukre visit, in October 1992, after a full year of negotiations and assurances, CIDA initially declined to support the Kayapó Project. A disappointed Zimmerman shared the news with colleagues at CI and DSF:

> I have just learned that our application to the Canada Fund for money to equip the station was turned down. This was a shock since they had told me that our project

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[82] Zimmerman added that in Redenção, she was fortunate enough to run into Terry Turner, a renowned Kayapó anthropologist. Zimmerman, in the letter, claimed that Turner "characterized our project as potentially, perhaps, 'the most important thing to have ever happened to the Kayapó [since contact].'" Turner would later write letters of support for Pinkaiti to the Canadian and Brazilian governments on Zimmerman's behalf.

> would be approved. However, they warned me in September that there was to be a change in ambassadors which might create a problem...and that's what happened; the new ambassador changed the Canada Fund priorities. (Zimmerman, 1992u)

However, Zimmerman wrote, the lack of "CIDA funding would not alter our progress" (1992u).

Zimmerman continued to engage with CIDA representatives. In December 1992, CIDA reversed their decision. A'Ukre and CI received the first of two CIDA grants.[83] The award came as a surprise following the October rejection note. CIDA agreed to fund the project's solar panels, motors, and radio in the amount of $21,295 Canadian dollars (CDN; Zimmerman, 1992w). The A'Ukre Association had not yet been officially recognized, so CI partnered with the Nucleus for Indigenous Rights (NDI[84]), an Indigenous rights organization based in Brasília. NDI acted as the local organization, serving as an intermediary between the Canada Fund and A'Ukre. Between November and December 1992, with funding secured, Zimmerman and CI began creating the institutional foundation for collaboration and support from Brazilian government agencies (FUNAI) and Brazilian universities (Zimmerman, 1992t).

Early NGO-FUNAI Interactions, Relationships, and Project Authorizations

From the onset, engaging FUNAI was an important activity to legitimize the project within the Brazilian government. CI Washington, CI Brazil, and NDI hoped to

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[83] In 1993, CIDA granted another $50,000 CDN to the Kayapó Project, funding transportation, field equipment, and construction of the Pinkaiti Research Station and field office in Redenção. The second round of funding was a collaboration between CI and the Apikan Indigenous Network, an NGO based in Ottawa (Brascoupe, 1993; Zimmerman, 1995b).

[84] NDI was led by Marcio Santilli, who later became president of FUNAI and helped to create the Brazilian Indigenous rights NGO Instituto Socioambiental.

leverage Paiakan's experiences as an Indigenous employee of FUNAI to ease the administrative burden. Before the accusation against him, Paiakan was responsible for securing Zimmerman's initial entry authorization to A'Ukre. In September, 1992 following her A'Ukre visit, Zimmerman stopped in Brasília to meet then-FUNAI President Sidney Possuelo to share a project outline. In October 1992, Zimmerman sent Possuelo a letter explaining Pinkaiti's progress highlighting the research station as an A'Ukre-initiated and supported project:

> This proposal was supposed to have been presented to FUNAI by Paiakan this spring. When I went to A'Ukre in July, I had no idea what the community's plans were in lieu of events and therefore, I did not stop in Brasília to discuss the proposal. When we decided to go ahead with the project, time was running very short for constructing the field station; it had to be built before the rain in September but also while there was a logging road to transport materials (there was a road only this year). I had some money from Conservation International (Brazil office in Belo Horizonte) to build the station and therefore, the people of A'Ukre went ahead and built the house this August while they had the chance. I would like to stress that this project is not to be for or to be run by "*estrangeiros*" [foreigners]. The project originated in A'Ukre and will be run by the people of A'Ukre in collaboration mostly with Brazilian researchers and students. (Zimmerman, 1992s, author translation)

At the end of November, CI Brazil arranged a meeting between Zimmerman and Gilberto Azanha, then-head of studies and research for FUNAI, to discuss Pinkaiti research authorization. According to a Kayapó Project Update, FUNAI tacitly approved

of the CI–A'Ukre partnership, contingent upon the receipt and approval of formal research proposals. Zimmerman wrote to CI with an update:

> At the end of November [1992]. I [Zimmerman] traveled to Brasília and Manaus. In Brasília, I met with the head of research at FUNAI, Dr Gilbert Azanha, to discuss the Kayapó project. (I had met previously in September with the president of FUNAI, Sidney Possuelo). Azanha and Possuelo gave the project a green light as long as we have institutional connections in Brazil and present a formal research proposal. (Zimmerman, 1992v)

By February 1993, CI was caught between CIDA and FUNAI administrative processes. The restored CIDA funding was contingent upon FUNAI approval of the project. At the same time, FUNAI project approval required the submission of a formal research proposal with detailed funding sources. On February 24, 1993, Zimmerman wrote to both Azanha at FUNAI and CIDA representatives explaining the current situation and ensuring a research proposal was on its way. To FUNAI, Zimmerman wrote:

> Recently, the project was awarded funds by the Canadian Embassy to buy equipment… I am sending you a copy of a correspondence concerning this grant. For your information, this is a project of the Associação Indígena A'Ukre which, at the Association's request, is being implemented with help from CI-Brazil, CI-Canada, and the David Suzuki Foundation. Research will be performed under the auspices of The Instituto Nacional da Pesquisas da Amazônia (INPA). We will be submitting a scientific proposal to FUNAI shortly. I hope that we are proceeding

> correctly and that you will inform us of any additional requirements or concerns. (Zimmerman, 1993c, author translation)

On the same day (February 24, 1993), Zimmerman wrote to CIDA regarding FUNAI authorization:

> I am writing to inform you that "The Kayapó Centre for Ecological Studies"[85] project has received, in principle, permission to proceed from FUNAI following conversations with the president of FUNAI, Sidney Possuelo, and head of research, Dr. Gilberto Azanha. However, official permission may be issued only after we submit a scientific research proposal. (Zimmerman, 1993b)

Azanha later authorized FUNAI document 0530/93, recognizing "the Kayapó Center for Ecological Studies… as a research station and a project of the A'Ukre community with the help of Conservation International" (Hass, 2004). In June 1993, Azanha's replacement "authorized the entrance… in exceptional character… [Zimmerman and a CI colleague] with the objective to enable the set-up of the Kayapó Center for Ecological Studies" (Correa da Escossia Nogueira, 1993, author translation).

The First NGO-Supported Researchers from Brazilian Universities

CI supported the first two Brazilian researchers to visit Pinkaiti. The researchers were long-time colleagues of Zimmerman from USP and INPA. Zimmerman and colleagues explored Pinkaiti as a space for tropical ecology research and came away

[85] In various proposals, Pinkaiti is referred to as the A'Ukre Project, the Kayapó Project, and the Centre for Ecological Studies. During partnership initiation and early research, these all refer to the Pinkaiti Research Station.

excited by the research prospects. In a December 18, 1992 CI progress report, Zimmerman wrote,

> Dr. Marcio Ramos from the University of São Paulo and myself began species surveys of reptiles and amphibians… Both Dr. Ramos and myself are impressed with the abundance of large mammals in our area… The abundance of animals and pristine uninvestigated nature of this part of the Amazon is attractive to researchers and visitors. Next summer, Dr. Ramos hopes to supervise two or three graduate students undertaking their thesis research at the Kayapó site. (Zimmerman, 1992v)

The success of the first research visits promised a burgeoning research program with established researchers and graduate students. A February 1993 CI project update touted upcoming USP "graduate student projects" and an "affiliation with INPA" (Zimmerman, 1993d) as ongoing CI Kayapó Project deliverables.

The relationship with USP flourished[86] and a 1993 CIDA budget document identified USP's Ramos as "a director of scientific programs at The Kayapó Centre For Ecological Studies [who] represents our scientific counterpart Institution in Brazil" (Kayapó Center, 1993 p. 3). Ramos recommended the Pinkaiti site to his USP colleague, Dr. Carlos Peres, who faxed Zimmerman in September 1994:

> This is but a hasty attempt to touch base with you and enquire about ongoing or planned vertebrate studies at the Kayapó area of the upper Xingu. I have for over a year now contemplated the possibility of conducting a mammal and bird census

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[86] The INPA affiliation never developed as intended (see Chapter 6 for details).

> there, largely swayed by the sheer enthusiasm of my colleague at USP Marcio, who is very keen on the Xingu sites he has seen so far…Please let me know ASAP about your plans to implement further studies in this area, and when your next visit has been scheduled. (Peres, 1994a)

Zimmerman responded immediately and invited Peres to Pinkaiti in October to join her and Marcio, writing, "I would be thrilled if you came to begin mammal census at our sites…it would be fantastic if you came in October as both Marcio and I will be there" (Zimmerman, 1994). Peres's visit in October and the USP research program were foundational for early Pinkaiti research activities (see Chapter 6).

NGO-Supported Donor Visits to A'Ukre and Pinkaiti Research Station

In 1993 and 1994, DSF and CI promoted and organized a handful of donor visits to A'Ukre and Pinkaiti to generate initial funding for Pinkaiti construction, materials, and staff. The donor visits generated important startup funds for the NGO and resources for A'Ukre, while also offering an important "proof of concept" for the research station. The first donor visit to A'Ukre was from a prominent US conservation biologist along with a journalist from *Scientific American*. The visit resulted in the first popular publication about CI's Kayapó Project and the Pinkaiti Research Station (Holloway, 1993).

In July and August 1993, three donor groups visited the research station. In advertisements, the trips highlighted the opportunity as a unique chance to visit and learn about the Kayapó, coupled with the important role of the project in conservation. While advertisements presented a romanticized view of the Amazon forest, potential visitors were made aware of the rustic amenities at the Pinkaiti camp site. An early "Kayapó Trip Itinerary" read:

> You are invited to inaugurate The Kayapó Centre For Ecological Studies, the third long term ecological study site in Amazon forest and the only one to collaborate with an indigenous society. Your presence will initiate a process of cultural valorization, education and scientific discovery that leads to environmental conservation… You will be the first group of its kind (i.e. non-government, non-anthropologist, and in this particular village, non-media) to visit a Kayapó Indian Village. Obviously, your contribution will help launch this conservation project, however, as one of the first groups in, your very presence and interest in the site are no less important. The Kayapó you will interact with have no conception that people from the outside world might value their forest and animals as much as they do or find their traditions as beautiful… Facilities at the field station are designed to keep you dry, comfortable, fed, and healthy but they are basic. The bathroom is a simple outhouse (but with a mahogany door!) and bathing is in the nearby river which is completely safe. You may sleep in a hammock with mosquito netting depending on whether we manage to transport beds in or not. Please do not attempt this trip if even moderately luxurious accommodation is important to you. (Zimmerman, 1993e)

The itinerary included detailed activities, a packing list, and a request for a contribution toward Kayapó Project startup costs:

> Contribution to the Kayapó Centre for Ecological Studies: $5,000. Your contribution will be a catalyst. The project is designed to be financially self-sustaining within three years, however, we need seed money to buy equipment,

> establish research projects by experts, and pay worker's salaries until the project is functioning fully. (Zimmerman, 1993e)

Finally, the itinerary came with a note requiring all visitors to submit documentation to the CI Brazil office to apply for and receive appropriate FUNAI authorizations to enter the Indigenous areas. This paperwork included a copy of passport, copy of vaccination booklet, and health certification signed by a doctor (Zimmerman, 1993g).

By all accounts, the trips were successful for fundraising, project development, and community support. In 1993, according to Zimmerman's calculations, one DSF trip raised close to $20,000 CDN. That funding was split between covering outstanding program debts (5,000 CDN), project maintenance and infrastructure costs (7,000 CDN), and DSF fundraising (8,000 CDN). Zimmerman suggested a community fee to A'Ukre of $100 CDN per visitor per night in addition to salaries for Kayapó staff (Zimmerman, 1993i). One 1993 tourism participant donated an additional $25,000 USD to the Kayapó Project.

In 1994, DSF sponsored two more donor trips to A'Ukre. After 1994, there were no more donor visits due to a lack of NGO capacity to promote and market the visits, questions about appropriate FUNAI tourism authorizations, and inadequate tourism infrastructure. Reflecting on the donor visits, a 1997 CI Report explained,

> There have been no tours since the original experimental tours with donors in 199[3] and 199[4]. Although our project staff can run tours once they arrive at

> A'Ukre, they are not capable of marketing and organizing the tours which requires professionals.[87] (CI, 1997, p. 15)

The donor trips, though unsustainable, offered important lessons for the NGO and Kayapó team about potential future visits and activities:

> These first visitor experiences familiarized station staff and the community with visitor expectations. Most importantly, these first trips gave the Kayapó their first experience with paying foreigners interested in learning about Kayapó culture and forest ecosystem, a totally different social experience than was provided almost exclusively by loggers and miners before 1993. (CI Brazil, 1997, p. 11)

Setting Up the Redenção Office

Between 1992 and 1994, donor funds paid for the purchase and construction of a satellite office facility in Redenção. CI recognized the need for an office outside of A'Ukre that could serve as a hub for communication and a staging area for NGO activities. In 1992, the first "office" was Paiakan's Redenção home. In 1993, external donors supported the purchase of a separate building for the construction, and renovation of a new office space in Redenção:

> In the summer of 1993, with funding from the Metcalf Foundation of Canada, we bought a small house in central Redenção with the objective of setting up office headquarters. (Redenção is the Brazilian town nearest A'Ukre and the staging point for project personnel and supplies)… However, the house that must serve as

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[87] At one point, in 1994, Zimmerman reached out to a for-profit tourism provider to promote ecotours. This created a small conflict between Zimmerman, CI, and DSF. DSF felt involving a for-profit tourism enterprise undermined the community development goals of the project. The team did not move forward with the tourism provider (Cullis, 1994).

office, supply depot, and temporary lodging for project personnel and researchers is in disrepair; hence, the budget requests funds for renovation. (CI, 1993, p. 3)

By 1994, the Redenção office was up and running, coordinated by a Redenção-based Brazilian staff person hired by Zimmerman. While the Redenção office staff were not official CI employees, their salaries were paid using project funds administered by CI Brazil. Because the only form of communication between A'Ukre and the "outside" was via radio or air travel, the Redenção office served an essential function as a communication and logistics hub. Radio communication was a daily occurrence between the Redenção office and A'Ukre. Redenção staff also managed communication and business operations with CI Brazil. Finally, the Redenção office managed transportation and logistics for all visitors to A'Ukre and Pinkaiti. A 1994 CI and DSF project synopsis detailed the roles and responsibilities of the Redenção office:

> The office base in Redenção is presently managed by a Brazilian who is responsible for purchasing supplies, keeping accounts, and organizing transport of supplies and personnel to and from the site. A Kayapó will begin training for office work this summer… the office, shortly to be equipped with radio communication to both the village and the station, serves as the base for coordinating the transport of supplies and personnel into the field. (CI & DSF, 1994, p. 9)

Moving into the Research Era With a Solid Foundation

Beginning in 1992, NGOs created a fundraising infrastructure through external grants, donor visits to the field station for university-based research, and a Redenção-based satellite office. At the same time, CI Brazil's office worked to facilitate

government relations with FUNAI. By 1995, the Pinkaiti Partnership had the physical, technical, administrative, financial, and human resources in place to begin ongoing research activities.

Early Research at the Pinkaiti Research Station (1995–2000)

In the early research era, CI was the primary NGO actor responsible for maintaining Pinkaiti.[88] During early research, the NGOs negotiated their own internal, international governance structure, created norms with the A'Ukre community, and oversaw the first period of graduate student research at Pinkaiti.

CI Governance

CI governance, roles, and responsibilities were fluid and an early progress report indicated that, "although this project belongs to CI-Canada and CI-Brazil programs, both offices can access CI staff expertise in Washington" (CI & DSF, 1994, p. 9). CI offices in the United States, Canada, and Brazil all maintained shared responsibility for fundraising, strategic partnerships, promotion, and communication. However, there were some specific domains of NGO governance. CI Washington provided thought leadership and strategy, considering ways to fundraise, expand, and scale partnership activities. CI Brazil held authority for compliance with appropriate Brazilian government policies and agencies related to the research, the environment, and Indigenous communities. The CI Canada office was solely for Zimmerman's activities as she shuffled between Canada, the USA, Brazil, and A'Ukre.

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[88] DSF exited the partnership in 1995 when "CI…offered to take care of the project, we were happy to hand it over" (Suzuki, 2006, p. 191). Suzuki's daughter would later do a research project at Pinkaiti, and Suzuki would visit A'Ukre again in 2001. This visit overlapped with the 2001 CI-sponsored meeting of Kayapó leadership in A'Ukre.

In 1995 Zimmerman attempted to formalize a working team with representative staff from CI Canada (herself), CI Washington (Kayapó Project coordinator), and CI Brazil (accounting and government relations specialist). Zimmerman (1995a) wrote to colleagues in January 1995:

> It occurs to me that in order for us to proceed developing the Kayapó project it is time to coordinate our efforts by clarifying the responsibilities of each person. Therefore, I propose that the following people take care of the following components.

Zimmerman took on the bulk of responsibilities, including "field organization including establishing the research centre and Redenção office, contracting of personnel, training field personnel, equipment maintenance (… the worst job of all)" (Zimmerman, 1995a). The CI Washington-based Kayapó Project coordinator handled administrative tasks in DC, including "donor visits, accounting and general fundraising," while CI Brazil maintained:

> relations with the Brazilian government particularly FUNAI and CNPQ. [CI Brazil staff member] must make sure we are doing the right thing, taking the right approach etc. Barbara will provide any materials necessary but will depend on [CI Brazil staff person] for direction. (Zimmerman, 1995a).

"Barbara's Project"

Multiple CI interview participants mentioned that CI staff in Brazil and the USA began referring to Pinkaiti and the Kayapó as "Barbara's Project." Zimmerman shuttled between offices and field sites in Toronto, Washington DC, Brasília, Belo Horizonte,

Redenção, A'Ukre, and Pinkaiti. According to Ray, Washington's role was minimal beyond ensuring Zimmerman had the resources to be successful:

> I think it is probably best to ask Barbara because nobody at CI was engaged. Most of the people who were on the project were Barb…. So, that was really her thing.
>
> But I was more of a facilitator in this. A kind of guardian angel for the program.

Clark, another Washington DC based CI executive and interview participant, added that the Washington headquarters supported the Kayapó Project via the CI Brazil office, noting:

> I remember I had a role in the long stint of supporting the [Kayapó] project in my capacity at CI. I served in many different roles at CI, but for the most part it involved supporting and managing a lot of the field programs including the Brazil program which included, obviously the Kayapó project…. CI was obviously not going to directly manage the project, but to support it. Provide it with as many of the resources that it needed to be successful. You know, do some fundraising and you know, give technical and scientific guidance as appropriate to Barb and the Brazil program. (2019 participant interview)

CI Brazil Government Relations and Administration

CI Brazil provided legitimacy for the Kayapó Project. As a Brazilian institution, CI Brazil negotiated the necessary paperwork and authorizations for project activities, particularly for foreign researchers. CI Brazil also managed project staffing and budgets: transferring, receiving, and dispersing project funds. A CI Brazil accountant kept track of Redenção staffing, including project expenses and budgeting, keeping program costs and budgets in compliance with government regulations. For example, the accountant wrote:

> See below the preview of the Kayapó Project for the fiscal year 1999/2000. I considered the current structure of employees, adding just one administrator to stay in Redenção, and then register in the *carteira* [registration identification] of all the employees, in recognition and conformity of the Brazilian legislation, and includes the values you sent me regarding project expenses. (Bouchardet, 1999)

The CI-Supported Kayapó Center for Ecological Studies

In 1997, the Redenção office was officially recognized by the Brazilian government as a non-profit community-based organization (CBO), the Kayapó Center for Ecological Studies (KCES; Centro Kayapó, 1999). Financially supported by CI, KCES was the final result of the ongoing work to create the A'Ukre Association. Within KCES, Pinkaiti was the principal project, with staffing and program components in Redenção and Pinkaiti. In addition, KCES included five other Kayapó communities and their associated economic or conservation activities, such as Brazil nut collection and territorial surveillance.

KCES Redenção Office Staff. The KCES Redenção office employed three staff members (Bouchardet, 1999). There were two project coordinators- one Brazilian and one Redenção-based A'Ukre community member. The third staff person was a field cook and generalist who split time between the Redenção office and Pinkaiti, joining researchers at Pinkaiti through the duration of field work. During early research, the Redenção office had four primary Pinkaiti-related activities:

1) Maintain communication with both the A'Ukre community (via radio) and CI Brazil office (via phone, fax, email, and so forth). Be on the line if there were any research issues at Pinkaiti.

2) Send and receive important correspondence, including financial and government documents such as research authorizations with the CI Brazil office.
3) Coordinate researcher logistics for travel into A'Ukre including flights, lodging, food, and field material purchases.
4) Communicate with Zimmerman (or CI Brazil) with project updates, issues, or concerns.

Redenção staff were essential to successful and smooth NGO implementation of research activities at Pinkaiti. Interview participant Vicente, who began administration of the Redenção office in 1999, described his roles and responsibilities, which included shopping, relationship building, and managing frustrated researchers when authorizations were delayed:

> So one [researcher] came to study the [Pinkaiti] ecosystem, then another and another…. and I would go to the city to go shopping for them…. to buy material and leave me to organize the flights on the day that they arrived, the plane was ready. Sometimes the authorization had not arrived… One time Andres stayed 20 days… without authorization. Andres cried. He cried with anger, and then calmed down. So my job was to go shopping, take them to the airport, organize the plane and stay speaking on the radio with them [in A'Ukre and Pinkaiti]. Every day, I had to know how it was there [in Pinkaiti]. (author translation)

KCES Kayapó Staff at Pinkaiti. At Pinkaiti, CI budgeted three full-time salaries for A'Ukre community members to manage the Pinkaiti Research Station (see Chapter 4). The Kayapó team at Pinkaiti was responsible for the following activities:

1) Communicating via radio with the Redenção office.

2) Maintaining the trails and facilities of the Pinkaiti station.
3) Receiving researchers in A'Ukre and providing transportation and other logistics from A'Ukre to the Pinkaiti Research Station.
4) Coordinating with the field cook and team to provide researcher support and hire additional research associates from A'Ukre as necessary.

The KCES Pinkaiti staff represented a key CI objective to build Kayapó capacity with the ultimate goal for A'Ukre to manage the research station on their own:

> An important aim of this project is to help Kayapó obtain the training and experience needed to run a small business and deal with the outside world. This is a challenge since most Kayapó are illiterate, do not speak the national language, Portuguese, and have limited experience with outside culture. Three acculturated Kayapó staff are learning how to operate the field station. They must coordinate the entry of visitors and supplies; maintain the station, its equipment and trails; and perform guide and research duties. These men now operate the Pinkaiti research station in the absence of Cl's field director (Zimmerman). (CI Brazil, 1998, p.19)

CI-Supported University Research, NGO Objectives, and A'Ukre Community Benefits

In addition to the community benefits, CI also sought to generate important knowledge of tropical forest ecosystems with the goal of including Brazilian scientists and institutions. CI Brazil Annual reports repeatedly stated, "This project [Kayapó Project] is committed to promoting research by Brazil Scientists at Brazilian institutions. The University of São Paulo (USP) has assumed the lead role in ecology research" (CI

Brazil, 1997, p. 9; CI Brazil, 1999, p. 12). Between 1995 and 1999, the majority of long-term research activity was coordinated by faculty from the USP in accordance with CI's goals to include Brazilian researchers. While CI financed the infrastructure, researchers were responsible for procuring their own research funds, often from government agencies. CI Brazil explained how research was funded and the benefits of this research to the A'Ukre community:

> Researchers acquire funding for their projects from outside sources, principally government scientific research agencies. Each researcher budgets for transportation, assistant's salary, room and board, and a contribution of medicine to the community. (CI Brazil, 1998, p. 11)

A 1999 CI annual report calculated the benefits of research activity through financial and medicine contributions (requested by the A'Ukre community itself):

> Researchers [were] paying reais $100/month [about $70 USD in March 2021] into a community health care fund… Researchers using the Pinkaiti field station contributed reais $2,000 [about $1,360 USD in March 2021] worth of medicines to the community (which the government no longer provides). This initiative extends direct benefits generated by research activity to every member of the community. (CI Brazil, 1999, p.8; p.12)

Research activity also provided access to essential air taxi services for the A'Ukre community members' routine or emergency travel:

> Researchers and visitors pay the regular charter air rate for flights to and from the village on the community plane. This rate is the same as that of any other air charter in the region and includes gasoline, pilots salary and airplane maintenance

> costs. However, the people of A'Ukre may use the plane paying only the cost of gasoline. Therefore, the regular air charter rate paid by outsiders using the field station subsidizes use of the plane by community members. In essence, the research station provides the basis for A'Ukre to run an air taxi business that in turn provides the community with an airplane to conduct its affairs. (There is no road access to A'Ukre and only treacherous and lengthy river access.) (CI Brazil, 1999, p. 11)

Pinkaiti also met important social and conservation goals for CI by establishing relationships with the Kayapó themselves. Ongoing activity at Pinkaiti represented a model for conservation success, built on mutual experiences between the Kayapó and "white" culture through research activity:

> It is important to note that, until now, the small-scale nature of the research station project was necessary to allow the maturation of trust and mutual understanding between the community, CI and researchers. The cultural gap is great and the Kayapó, who are used to purely exploitive relationships with "whites", do not accept or trust outsiders easily. Therefore, there was a crucial period when Cl and researchers had to prove themselves and learn how to work with the Kayapó and vice versa. In 1997 we can say that each group has perfected a working relationship based on mutual respect, trust and understanding. (CI Brazil, 1998, p. 19)

CI's Expanding Objectives and Activities with the A'Ukre Community

Between 1997 and 1999, CI Brazil produced a series of reports with the same title, "The Kayapó Centre for Ecological Studies: A Program of Conservation and

Development with the Kayapó Indians of the Southeastern Amazon, Brazil Background, Goals, Outputs and Indicators, Results and Progress" (CI Brazil, 1997, 1998, 1999). These (mostly repetitive) reports communicated ongoing project goals, annual updates on research activities, and evidence of success, while also setting a road map for expanded activities with the Kayapó beyond A'Ukre. The 1999 report, for example, added a new public health initiative to combat malaria outbreaks. The reports indicated CI's primary Pinkaiti objectives as forest conservation, Kayapó cultural preservation, and Kayapó economic sovereignty. To achieve these objectives, CI delineated a series of education, research, and tourism activities in order to create

> a flow of benefits from the forest to the people of A'Ukre such that, in the face of outside economic pressure and new development needs, incentive remains strong on the part of community members to protect their forest and savannas. By contributing to empowerment of Kayapó communities, beginning with A'Ukre, this project strives to increase the chances that an intact forest ecosystem will persist in the southeastern Amazon…. Empowerment includes reinforcement of traditional cultural values and capacity building through education. (CI Brazil, 1999, p. 6)

CI reported strong indicators of program success as the research program continued and expanded. For example, the A'Ukre community independently decided to double the size of the Pinkaiti reserve, illustrating A'Ukre's commitment to the program. In addition, CI documented anecdotal evidence of community spending:

> There are clear indications that the CI project is achieving what it was designed to do: conserve forest through empowerment of the Kayapó. First, if the project were

> not developing and benefiting the community, it would be thrown out as the Kayapó suffer no outsider fools on their land. Secondly, in order to facilitate project goals including protection of a mahogany population, in 1997 community leaders doubled the size of the biological and mahogany reserve to 10,000 hectares. Thirdly, the people of A'Ukre recognize the road to empowerment through education and spend most of their personal incomes on education. (CI Brazil, 1999, p. 16)

Pinkaiti also played an important role in protecting one of the last remaining mahogany stands in southern Pará. In 1998, one of A'Ukre's leaders expressed interest in opening the Pinkaiti reserve to mahogany logging. Zimmerman informed the community that if the area were logged, the NGO and researchers would leave and the project would end. As a result:

> community members decided unanimously not to allow a leader to sell the valuable mahogany on the research reserve because they value the research station project more. A'Ukre's research reserve, Pinkaiti, may preserve the last undisturbed population of mature mahogany in all of southern Para. (CI Brazil, 1999, p. 16).

CI Leverages Pinkaiti to Scale Beyond A'Ukre

CI sought to leverage the success of Pinkaiti and partner relationships in order to scale its operations with the Kayapó. A former CI Brazil executive, Giovanni, described CI's strategy as follows:

> Something like that was first brought to our attention, you know, that this particular village [A'Ukre] and what was happening there and the opportunities

> that we might be sitting on given the fact that this particular tribe was protecting close to 11,000,000 hectares of forest which was progressively under siege through interest of development- illegal logging, mining and all of that. And with probably some marginal type of support… we might have a chance to continue to protect that patrimony and their lands well into the future. So Barbara came with this notion that, if we just provide that presence in the Kayapó territory, that would be external recognition to what they were trying to do to defend their lands and in turn bring their plight to be known outside of the nation- the Kayapó nation. That would also help attract attention in terms of policy, decisions, enforcement and other developments…. I think we had a more ambitious view for the project that it would go much beyond A'Ukre and then Raoni's village to encompass others and bring more unity to the entire territory. (2019 participant interview)

International Research and Scale (2000–2004)

In 2000, building on its relationship with A'Ukre, CI began to expand its activity portfolio to other Kayapó villages. Documents demonstrated how CI Washington and CI Brazil shifted their framing and goals with respect to A'Ukre, Pinkaiti, and the Kayapó Territories. During initiation and early research, CI and DSF documents referred almost exclusively to Pinkaiti. In 2000, CI began discussing Pinkaiti and A'Ukre as reference points for a CI shift in strategy to "Phase 2" of the Kayapó Project:

> Eight years of commitment led to the conclusion of Phase 1 of the Kayapó project in 2000. In Phase 1, CI established a research station that, in addition to ecological research on forest management, generates benefits for the community

> of A'Ukre and supports protection of a mature population of endangered mahogany trees in about 8,000 ha of undisturbed forest. In 2001, we began work on Phase 2, or the "scaling-up" phase of the Kayapó project. Phase 1 of the project with A'Ukre established credibility and clarified design principles for successful conservation and development outcomes with the Kayapó (Zimmerman et al. 2001). This is the foundation that leads us to expand our work to include all Kayapó communities in 2001 and beyond. (CI Brazil, 2001, p. 2)

This expansion was supported by significant external funding streams. Between 2001-2004, the Global Conservation Fund (GCF) provided more than $700,000 USD in funding for the Kayapó Project (CI, 2002a,b). Interview participant Joel (former CI Amazon Programs director, 2019 participant interview) explained that GCF funding supported a restructuring of CI Brazil to create a division specifically focused on Amazon programs. Specific to the Kayapó Project, GCF funding financed large meetings of Kayapó leadership and the construction of research centers under the umbrella of the Center for Applied Biodiversity Science (CABS; Moore & Wilson, 2002).

Conservation International-Sponsored Meetings with Kayapó Leadership

Between 2000 and 2006, CI sponsored four large meetings of Kayapó and CI leadership to discuss expansion and implementation of CI-supported projects. A'Ukre hosted the 2000 and 2001 meetings[89]. All meetings were attended by senior CI staff from Brazil and the United States (see Chapter 4) and centered on overlapping CI and Kayapó priorities of territorial surveillance and forest conservation (Chernela & Zanotti, 2014).

[89] I focus only on the A'Ukre based meetings. For details on the other meetings see Schroth et al. 2006.

The 2000 A'Ukre meeting inaugurated "Phase 2" of the Kayapó Project with a few key objectives:

> We began Phase 2 in June 2000 by holding a meeting at A'Ukre of Kayapó leaderships representing all eleven of the lower Xingu (Para) communities… The objectives of the meeting were to determine;
>
> i) whether other Kayapó communities were interested in forming conservation alliances with NGO's, and;
>
> ii) development priorities of the Kayapó nation.
>
> We explained that we hoped to support capacity building and development alternatives to logging with all Kayapó communities because the Kayapó nation had been so successful at protecting a very large area against intense deforestation pressure by agriculturalists. We explained that our interest was to see Kayapó remain Kayapó on Kayapó lands as long as they continued to protect their forests. (CI Brazil, 2001, p. 2)

According to CI reports to GCF, the response by Kayapó leadership was uniformly positive:

> The united response of Kayapó leaderships was twofold. First, they expressed a desire to pursue development alternatives with conservation NGO's, particularly in light of lack of development gains after years of mahogany logging. A'Ukre with its "projects" was the only Kayapó community demonstrating gains in employment, training and healthcare. Secondly, the Kayapó leaders expressed priority concern over their continued ability to defend hundreds of kilometers of border against increasing pressure and invasion attempts by ranchers and

> colonists. The results of this meeting from CI's point of view were; i) we obtained a green light from Kayapó leaderships to expand our work, and; ii) support for territorial protection was identified as an entry point, or the first concrete step that CI could take towards establishing broader relations with the Kayapó. (CI Brazil, 2001, p. 2)

In 2001, CI and A'Ukre held a follow-up meeting with three objectives. First, CI sought to replicate the "reserve within a reserve" Pinkaiti model of A'Ukre within other communities. Second, they pressed upon the need for coordination to protect the borders from encroachment by loggers and miners. Third, they wanted to create a Kayapó-led association or NGO. Once again, the meeting was attended by the CI leadership from Washington, DC and Brazil. Also in attendance were many international student researchers (see Chapter 6), David Suzuki (Suzuki, 2006), and Dr. Janet Chernela,[90] an anthropologist consulting on potential ecotourism projects in Kayapó territories for a different environmental NGO (Chernela & Zanotti, 2014).

At the end of the meeting, each village leader signed a request for equipment such motors, boats, gasoline, and so forth to assist with territorial monitoring and surveillance (CI, 2001a). The 2001 meeting crystallized the territorial monitoring and surveillance program while creating AFP, a Kayapó association to develop and administer community projects. A 2002 CI proposal to GCF stated:

> CI held a second, follow-up meeting with Kayapó leaderships in A'Ukre in June 2001. The purpose of this meeting was to begin our Kayapó territorial protection

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[90] Chernela's involvement with these meetings was a key event in the creation of the Kayapó field course.

> support program. The Kayapó chose a board of directors from among themselves to administer an association they have named "Protected Forest." (CI, 2002b)

Creating the Protected Forest Association

The 2001 meeting created an institutional framework for the Protected Forest Association (AFP). AFP was initiated as an independent, Kayapó-led NGO in alliance with CI. The first AFP office was established in Belém, alongside the newly created CI Amazon Program office. The new governance arrangement created additional administrative support for Zimmerman, who until then had shouldered most NGO-related Kayapó Project responsibilities:

> The Protected Forest Association (*Associação Ba 'Nei Ka 'E*) is being formed in order to deliver infrastructural support to the Kayapó according to what was agreed on between CI and the Kayapó in a leaders meeting held in A'Ukre, June 2001. Support will be directed to a series of guard-post settlements (*postos da vigilância*) maintained by the Kayapó along their border with the "whites." The Kayapó have elected a board of directors to administer Association funds. CI will sit on the board and provide administrative and technical support from our Belém office…. Until present, administration of the Kayapó project has been the sole responsibility of CI-Brazil's Kayapó project director, Barbara Zimmerman. The scope of our plan requires additional on-ground project staff. We will need a Kayapó project administration/field staff person based in CI-Brasil's Belém office to: 1) administer and coordinate The Protected Forest Association, and 2) provide field assistance to the Kayapó project director in all activities. (CI Brazil, 2001, p. 9)

Creating AFP was an important and unanimous decision between the community, NGOs, and Brazilian government partners. The goal was to create more local control and autonomy of resources and program implementation. Joel, a previous director of CI's Amazon Program, recalled:

> That was, I think, was a very easy transition [to AFP] because I remember there was too much emphasis on CI. And I said, no, CI is not going to do that. You have to create a local NGO and everyone agreed with that. There was no fight for that….
>
> And I think even FUNAI was very happy with that because they wanted to see a local, national [Brazilian] organization managing the project and so… it took some time, because you know to create something in Brazil takes some time, but I think it was quite successful because you needed to show to everyone that it was not CI who was managing all these things, but we needed to show to everybody that CI was helping to create the institutional capacity, organizational capacity to deal with [the Kayapó Project].

Pinkaiti as One Activity Within the Greater CI-Kayapó Project Portfolio

As CI expanded the Kayapó Project portfolio, Pinkaiti ceased to be the focus of CI program activities. Instead, Pinkaiti became one project area within a list of six broad categories. A 2001 CI GCF grant application noted Pinkaiti's place as follows:

> CI-Brasil envisions a plan over the next four years that includes six broad categories of Activity:
>
> 1) infrastructural support for territorial protection…
> 2) development of health and education programs…

3) forging of partnerships and alliances with other NGO's and governmental agencies…
4) assessment of the future economic pressure…
5) ***continued development of research on forest and wildlife management based at our Aukre Pinkaiti field station and at other Kayapó sites*** **[emphasis added];**
6) development of conservation incentives program for ranchers with land adjacent to the Kayapó reservation. (CI Brazil, 2001, p. 7)

CI-AFP-FUNAI Kayapó Project Agreement

In order to scale, CI proactively engaged FUNAI as a partner to coordinate activities in the Kayapó territories. Beginning in 2000, CI took initial steps toward a formal FUNAI partnership agreement, explaining to donors:

> to ensure the critical political foundation for continuing our work with the Kayapó, CI-Brazil began negotiating a partnership agreement with the federal government Indian Agency, FUNAI, in the fall of 2000. As partnership with an NGO is a new concept for FUNAI, this negotiation has been a long and delicate process. After one year, two delegations of A'Ukre Kayapó traveling to Brasília, and two FUNAI visits to the A'Ukre project, CI has complied with all FUNAI requirements and we anticipate signing of the agreement this fall. This agreement will provide the legal basis for CI to continue to forge conservation alliances with the Kayapó. (CI Brazil, 2001, p. 2)

CI hoped FUNAI representative visits to Pinkaiti, combined with A'Ukre Kayapó visits to Brasília, would result in a signed agreement, but in early 2002 the agreement still had

not taken shape. As a result, Pinkaiti paused research activity between August 2000 and June 2001. In January 2002, a frustrated CI shared the status of the agreement with GCF:

> We brought four Kayapó from A'Ukre, including the chief and head of FUNAI post, to Brasília to aid in negotiations with FUNAI. Ostensibly, negotiations went well and CI and the Kayapó left with promises of forthcoming authorizations for project researchers and personnel, and development of a partnership agreement between Cl and FUNAI that would legalize Cl's work with the Kayapó. Unfortunately, as of the end of January 2002, these promises have not been honoured. We must now put all our effort into whatever it takes to conclude this groundbreaking agreement with FUNAI so that we may proceed with the activities outlined in our proposal. This may require further expenditure in bringing Kayapó to Brasília —however, next time we would bring leadership and high ranking warriors from several communities that wish involvement with us and are part of the Protected Forest Association. In other words; the party is over FUNAI —next time we bring in the big guns. (CI Brazil, 2002, p. 3)

After two years of ongoing negotiations, the CI-FUNAI-AFP agreement was officially signed on April 17, 2002 (FUNAI, 2002). The agreement recognized a formal partnership with FUNAI "to support projects of environmental protection in the Kayapó Indigenous lands" (FUNAI, 2002). The first of its kind, CI hoped the agreement could facilitate foreign research permits and remove institutional barriers for research and other projects:

> This agreement marked the first time that FUNAI has entered into a partnership with a conservation NGO and it should pave the way for other NGOs to pursue

> joint projects with indigenous peoples in Brazil. Receiving this authorization at the government level became a necessity as the project expanded and CI became more visible nationally as a conservation organization engaged in a large—scale project with the Kayapó. Without this agreement in place, CI would be vulnerable to criticism in certain sectors that may not be amenable to this cooperative project that supports the rights of local people to self-determination and biodiversity conservation. The agreement with FUNAI will also facilitate the acquisition of research permits required by the government, a process that until now, has been a major impediment to increased research activity at the Pinkaiti Centre. (CI, 2002b)

The agreement, ratified for one year, also codified the division of labor among the partnering institutions. The Kayapó via AFP were responsible for project implementation, with financial, technical, and legal support from FUNAI and CI as necessary:

> The Kayapó provide protection services along 1,200 miles of border that encompasses 11,500,000 ha of forest and cerrado (savannah) in the southeastern Amazon; Cl provides technical, administrative, and infrastructural support via The Protected Forest Association in order to reinforce and improve Kayapó border patrol and surveillance, and FUNAI provides the legal foundation and authorization at the federal level for this work to proceed (i.e. covers our asses). (Zimmerman & Zeidemann, 2002)

CI-AFP-FUNAI Agreement Non-Renewal and Biopiracy Concerns

Unfortunately, the agreement was short lived. In 2003, with the agreement up for renewal, FUNAI’s concerns of biopiracy at Pinkaiti stalled negotiations, despite

assurances from CI staff that Pinkaiti was a separate project and just small part of the overall CI portfolio (FUNAI, 2004). Once again, CI sent a Kayapó delegation to evaluate, negotiate, and renew the agreement. Joel recalled FUNAI's biopiracy concerns and A'Ukre Kayapó leadership responses during CNPq and FUNAI meetings in Brasília:

> I don't remember exactly, but… there was a, that was a big concern about biopiracy in Brazil during some time. All the work in Indigenous land was a nightmare and it was very complicated. I remember [CI Brazil staff person] went to a meeting in the Ministry of Science and Technology [CNPq] in order to get [authorizations] and people were very concerned about biopiracy so he took the *guerreiros* [Kayapó warriors] to the meetings and the guys of the minister asked, "guerreiro, how you know that the people are not taking plants or any animals from your village?" And he [Kayapó warrior] says, "We *olho* [watch the people] and points to his eye." That was his explanation to the guy [government official].

The stalled renewal of the contract frustrated CI staff and impacted funding. Writing to donors, Zimmerman shared,

> in July 2003, it was necessary to bring Kayapó leaders to Brasília in order to pressure FUNAI to renew the first partnership agreement.... The delay with FUNAI is due partly to the change in federal government and partly to an unfounded and ridiculous charge of "biopiracy" leveled at CI but, in the end, it has all to do with institutionalized dysfunction. Before the original partnership agreement with Protected Forest Association can be renewed … CI must show that they have no association with "biopirates"… We expect the agreements to be

> signed in September. They should have been signed in March and April 2003 if FUNAI were a competent organization. (Zimmerman, 2003b)

By January 2004, although progress had been made, CI continued to await reauthorization. CI Brazil updated GCF and other donors:

> From April 2003 until January 2004, FUNAI delayed renewal of our first partnership agreement with the original five villages in the Protected Forest Association … The delay was caused by a new administration unfamiliar with our work that was installed after the federal elections in 2002. We had to prove to the new FUNAI administration that CI-Brazil was not associated with biopiracy .... In November 2003, a new president who strongly supports the CI partnership assumed responsibility of the federal FUNAI. Both CI and the Kayapó were patient and persistent during this delay and the agreements will be signed shortly. Without official agreements with FUNAI during most of 2003, we were unable to achieve our goal… This goal is now set for 2004… however, we delivered a vehicle to the regional FUNAI of Marabá that will be used for delivering support to the northwestern guard posts. (CI Brazil, 2004)

Pinkaiti Research as Separate from Other CI Operations

In August 2004, with CI projects and Pinkaiti research activity stalled, representatives from CI, FUNAI, and AFP met in Marabá to discuss their misunderstandings and disagreements. The meeting focused on three FUNAI and Kayapó concerns, including:

1. Complaints from Kayapó leadership that the AFP office (located in Belém) was too far from Kayapó communities and realities. The office needed to move from Belém to a location closer to the Kayapó territories.
2. FUNAI questioned the relationship between CI and AFP with respect to allocation and distribution of funding from CI to the Kayapó, wondering why money could not be transferred directly to the Kayapó.
3. Research at Pinkaiti and concerns of biopiracy (paraphrased from FUNAI, 2004).

Regarding Pinkaiti, Zimmerman and CI Brazil staff assured FUNAI representatives that research activities were separate from the other CI activities and should not be considered in the partnership agreement. At the meeting, a CI Brazil representative pointed out, "the research project is not financed by CI. CI maintains the infrastructure" and that "the issue of research has to be treated separately" (FUNAI, 2004, p. 2). To accommodate FUNAI's concern of foreign influence, CI promised to partner with a Brazilian research institution to support Pinkaiti, stating that, "the actual idea for the research center is to advance negotiations with the Goeldi museum (MPEG) to create a satellite campus [at Pinkaiti]" (FUNAI, 2004, p. 5).

CI and CI Brazil implored FUNAI to move forward with the agreement because funders would not wait much longer to allocate the resources required for the surveillance project. At the end of that meeting, three Pinkaiti-related points were decided:

1) CI would begin looking into moving the AFP office from Belém to one of the towns closer to Kayapó communities- Redenção, Ourilândia do Norte, or Tucumã.

2) The agreement between AFP-CI- FUNAI would be reconsidered and possibly extended for another year.

3) Research activity at the Pinkaiti Research Station was considered a separate issue that would be re-evaluated by FUNAI, noting "that the research project of Aukre - Pinkaiti, is not part of the surveillance project. The project will be re-evaluated to include a national research institution" (FUNAI, 2004, p. 23).

International Research Expansion Between 2000-2004

At the same time that CI was scaling conservation programs, Zimmerman and colleagues at the University of Toronto expanded North American graduate student research opportunities. Zimmerman and a colleague received Donner Foundation grants to "support … research by Canadian graduate students in tropical forest conservation working on Conservation International's Kayapó project in the Brazilian Amazon" (Zimmerman, 2000; Zimmerman & Malcolm, 2001). Between 2000 and 2004, CI Brazil helped procure research authorizations for about a dozen North American researchers. However, with the concerns noted above, CI Brazil found it increasingly challenging to obtain research authorization for foreign researchers.

CI Brazil Support of Foreign Research Authorizations

CI Brazil took the lead role in obtaining appropriate authorizations for foreign student researchers. Specifically, Joel, the newly appointed Amazon programs director used his strong relationships with MPEG faculty to create and submit research proposals on behalf of foreign graduate student researchers (Joel, personal communication; for example, see CI Brazil, 2001). As a CI Brazil executive, Giovanni recalled his staff visiting the various government agencies (CNPq, FUNAI, IBAMA) for research permits:

> It took a lot of administrative effort on the part of CI to negotiate these research permits because there were a lot of researchers from outside of Brazil coming or students coming together with students from Brazil, but those from outside needed both research permits as well as the regular permit that we needed to secure from FUNAI to have access to the [Indigenous] area for anyone involved. I remember my administrative director in CI's office in Brazil being overwhelmed with these things and every time there was one of these expeditions, he would go a bit crazy… with the work.

The foreign researcher authorizations were particularly challenging and the government's concern about biopiracy at Pinkaiti threated the CI-FUNAI-AFP partnership and threatened CI's expanding Kayapó conservation portfolio. Joel reflected on the processes of obtaining FUNAI permits:

> I think … they [researchers] had a lot trouble [with FUNAI] because of the policies, the national policies associated with research. So I remember the research took a long time fight with the government in order to facilitate the research agenda… I believe there was some kind of people became more concerned about the forest because they thought that- there was a lot of rumors about biopiracy… I think it was because there was new legislation and several people they thought that the because of the lack of legislation… the rules were not very clear. There was a lot of things going on. I think in the newspapers was always, almost every month there was a new case of biopiracy. It was a disaster. And I think that was exactly the time that, you know, this kind of collaboration was in some way, a very high risk.

The delays and challenges in research authorizations created some tension within CI between some (often non-Brazilians) who pushed for research authorizations and others more concerned with adherence to government policies. According to Joel, CI Brazil staff encouraged patience and the need to respect the Brazilian government's legal codes:

> In order to get all the authorizations, etc. etc., the legislation was getting tough[er] and tough[er]. And there was all the concern about biopiracy…
>
> I said,… "We should be careful with that. Because if you're bringing people to Pinkaiti. We need to follow the legislation. And that's an important thing." So you have a good guy in Brasília, Pedro who was basically help[ing] to get all the licenses, etc., etc., etc. And I think we did do some good job….
>
> I said, "We have a country. We have a legislation. We have to follow the legislation because if you don't follow the legislation, you are going to be out. Everybody is going to be out….That's going to be a big crisis for Conservation International." So I have to deal with this kind of stress, almost every day. It's like, "look, we have to follow the legislation. It is going to take some time. Yeah, that's going to take some time, but that's the law of the country…"
>
> Basically, the people that they created the proposals, they send the authorizations. Yeah. It was basically Pedro. Pedro was based in Brasília getting all the paperwork and going sector by sector [government office to office] in order to get everything approved. So it was like a nightmare. He spent a lot of time doing this kind of thing.

> And [other CI staff] … thought always, “Ah. It is only a question to bring people….”
>
> And I would say, “No. It is not like that. It is a lot of hard work to get these things done according to the law.”

A New Pinkaiti House and Attempted Research Expansion

CI used GCF funding to replace the original Pinkaiti house construction and create a CI Center for Applied Biodiversity Science at Pinkaiti (CABS; Moore & Wilson, 2000; Figure 21). CI hoped the new Pinkaiti research facility would facilitate Brazilian and international research activity. The new Pinkaiti house was constructed in 2001 with materials were brought to Pinkaiti on the empty logging trucks in the final year the Brazilian government permitted a mahogany logging road connecting Redenção and A’Ukre. Zimmerman recalled:

> It wasn’t until 2001 that we built the real [newer] house and that was when the logging road was going right through [the area]. We let the logging road go. We let the loggers pass through our area. Obviously they weren’t allowed to touch any of the mahogany on the condition that they bring our stuff up from the logging roads. They cleared our site. We re-cleared it. We made it a bit bigger and they [the loggers] brought all the materials to build that house. (Zimmerman, 2017 participant interview)

Figure 21

Photos of Original and New Pinkaiti House

(a) Old Pinkaiti house

(b) New Pinkaiti house

(c) Old Pinkaiti house (aerial view)

(d) New Pinkaiti house (aerial view)

Note. Sources: (a) R. Salm collection; (b) M. Aruch, 2017; (c) B. Zimmerman collection; (d) P. Peloso, 2018

Pinkaiti construction in the forest was not easy. It took several days for trucks to arrive to Pinkaiti from Redenção along the logging road. Vicente, the Redenção office coordinator, recalled discussions with Zimmerman while managing the project and communications between Toronto, Washington, Belo Horizonte, Redenção, and Pinkaiti:

> [Zimmerman said,] “Vicente, I want you to make me a house there, inside Pinkaiti for our work there.”
>
> So, I asked for a design, “Give me a design, right. Give me a model that you want.”
>
> It was the last year that the trucks entered to take out the [mahogany] wood. So Barbara got the money together, sent it to Belo Horizonte. Belo Horizonte sent it to me. I sent in the mason. I chartered the planes, to send the

> plane to bring the mason. In the village, I organized the food budget. Vanessa [The AFP executive director] and I organized with the logging truck drivers. I still remember. It was 500R each trip from Redenção. 500R for each haul. And so, the trucks took 20 days to arrive [to Pinkaiti], from Redenção, it took 20 days. And Barbara was calling me, "Vicente, how is it there?"
>
> And I said, "No. They are doing it. They are with a team of men there. I sent them to do it. They are doing it there. The trucks are bringing the materials…I sent them." (author translation)

CI Brazil hoped that the construction would usher in a new era of research and provide an improved setting for donor visits. Following construction, CI Brazil boasted about the new facility to donors:

> [Between] September-November [2001]: under extremely difficult transportation conditions, a new field station was constructed by The Center for Advance Biodiversity Studies (CABS) that will provide a secure, physical base for expanded researcher activity and is suitable for hosting CI donors. (CI Brazil, 2002b)

The new CABS construction at Pinkaiti was intended to accommodate a Tropical Ecology Assessment and Monitoring Project (TEAM) research program (Fonseca et al., n.d.). The TEAM concept, a CABS research program, was to "creat[e] a global camera photo trapping network of technicians and researchers" (p. 6) focused on capturing species' richness and biodiversity. CI Brazil recruited researchers from UMEG and University of Pará (UFPA) in Belém to assess Pinkaiti as a satellite research facility for TEAM (Julio, personal communication). The satellite UMEG and UFPA campus at

Pinkaiti would integrate Brazilian and non-Brazilian research scientists into a sustainable research program with two goals:

1) To construct a research infrastructure at Pinkaiti adequate for hosting researchers and CI donors at Pinkaiti.
2) To establish an institutional linkage with MPEG to support Brazilian research and facilitate foreign research authorizations.

Unfortunately, two barriers prevented the realization of the TEAM-UFPA-UMEG vision. First, the costs of transportation to Pinkaiti made the TEAM research methodology prohibitively expensive. At the same time, research authorization challenges within Indigenous territories precluded sustainable researcher recruitment and external financing. Interview participant Dawn, a CI consultant hired to explore TEAM project feasibility, explained frankly, “No, that TEAM initiative at… Pinkaiti ended up just becoming too much of a logistical… It was too expensive and logistically it was not going to work for them to be able to do the long term ecological monitoring” (2017 interview). By 2004, TEAM negotiations with UMEG and UFPA stalled, research at Pinkaiti slowed, and CI Brazil shifted focus and resources away from research authorizations.

The Kayapó Fund: A CI Shift Toward Supporting and Financing Local Institutions

By 2003, CI Brazil began to shift day-to-day operations of the Kayapó Project to AFP, the Kayapó Association. Rather than be responsible for program implementation, CI Brazil and the CI Amazon program team moved toward creating sustainable financial instruments to support local capacity and program implementation. The transition away from program operations was a challenge for some CI staff accustomed to the former CI

model of program implementation. Joel pointed out the tensions underlying the shift in activities and vision:

> That's that was a big shift. And it was very painful because, for both sides. Because for me, conservation is a local process. If you are not there, forget about it. You don't do Conservation from Washington DC or do conservation from Belém or Brasília. You have to do conservation at the local scale. Now to do that, you have the minimum governance. We have to have at least some basic institutions that can talk with the government, with the private sector in order to get things done. And that was my vision because you know, I am from the region. I know how things work and I said, well CI has to move away from project implementation and needed to create the capacity, the local capacity that is required to manage these projects. And of course, you can help them. You can make the connections between our partners and the foreign institutions. We can do a lot of things that we can work at different scales and different levels, but I think a local project should be managed and designed by local institutions. And that was the goal. And I think in the Kayapó's, I think it was quite successful, but I had to fight a lot in order to implement this vision. (2019 participant interview)

In 2003,[91] CI began fundraising toward the goal of a ten million dollar Kayapó Fund, a sustainable finance instrument designed to support ongoing Kayapó Project

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[91] Despite the early intentions, the Kayapó Fund would not be capitalized until 2011 (Gordon and Betty Moore Foundation, 2011). As Funbio (2020) reported, "Set up in 2011, the Kayapó Fund has USD 13.1 million under contract from Conservation International's Global Conservation Fund (GCF) and from the Amazonia Fund, through the Brazilian National Development Bank (BNDES)."

initiatives. Reaching out to potential donors, Zimmerman drew heavily upon Pinkaiti's history and success:

> I conceived of the Kayapó project in 1990 and then recruited Conservation International to be the institutional ally. I envisioned working with the Kayapó to help them continue to protect from deforestation 13 million hectares in the highly threatened south-eastern Amazon region. This objective seemed overly idealistic at the time but now, after project successes and enjoying excellent working relations with the Kayapó, it seems possible to bring about long-term protection of biodiversity on the Kayapó's vast territories by implementing the conservation and development plan that we developed in collaboration with the Kayapó over 11 years of working together. I will continue to work with CI to set up the Kayapó Trust Fund so that the Kayapó have the opportunity to develop sustainably and the capability to continue to protect natural ecosystems across the more than 13,000,000 hectares of forest and cerrados they control. (Zimmerman, 2003a)

Alternative Activities: Shifting Toward the Kayapó Field Course

By 2004, the lack of funding,[92] coupled with scaled back CI support for research authorizations, left Pinkaiti absent of research activity. Zimmerman, A'Ukre, and colleagues considered different ways to activate the research station. Drawing on earlier ecotourism consultations, Zimmerman, A'Ukre, and Chernela[93] developed the Kayapó field course modeled on Pinkaiti research (Zanotti & Chernela, 2008). A December 2003

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[92] Both Donner Foundation and GCF grant funding ended in 2004.
[93] Recall Chernela attended the 2001 CI meeting in A'Ukre as an ecotourism consultant with a different NGO (see Chernela & Zanotti, 2014).

CI grant renewal application first mentioned the field course as one of five activities for sustainable economic development with the Kayapó, specifically stating that CI and A'Ukre would:

> deliver a field course in tropical ecology and conservation to 12 students from the University of Maryland based at the A'Ukre research station and reserve in July. Two-week university-level field courses will contribute to the economic and other benefits generated for the community by the A'Ukre field site [Pinkaiti]. (CI, 2003a).

Field Course Era (2004- present)

The field course era marked a dramatic shift in the NGO partner relationships with A'Ukre and Pinkaiti. CI shifted its institutional focus away from single programs, leaving Zimmerman (once again) as the primary CI actor focused on maintaining Pinkaiti activities. During the field course era, CI transferred responsibility of Pinkaiti to AFP. In 2007, AFP took a more substantial field course role when it changed leadership and the office moved from Belém to Tucumã (Zanotti, 2011). CI formally exited Pinkaiti-related activities in 2009, when Zimmerman left CI for the International Conservation Fund of Canada (ICFC).

The Field Course Pilot

The 2004 field course was a collaboration between Zimmerman (CI), Chernela (UMD), and A'Ukre. The field course took advantage of existing staff and infrastructure at the Redenção office to organize logistics and transportation for university *students* in the place of university *researchers*. Despite being in operation for 3 years, AFP was not yet involved in the field course. In a 2019 participant interview, Vanessa, the first AFP

executive coordinator, shared that researchers and the field course were not part of AFP's initial portfolio. AFP didn't have the legitimacy or technical expertise of CI. Vanessa recalled:

> I didn't participate in the Pinkaiti issue actually. Because this [research and field course] did not enter the AFP. Also because AFP is not a research institute or something like that. You're not justified to do research in Indigenous land in Brazil. I don't know [about] now. Probably it's the same, but it's a big issue for the Brazilian government. So it was CI that was dealing with it and they actually are an NGO that does research, right, biodiversity research.

The first Kayapó field course was modeled on Pinkaiti research. Field course students and instructors spent the bulk of their time at Pinkaiti, walking the same trails and learning alongside former Kayapó research associates (see Chapter 4). Even after years of experience at Pinkaiti, the first course felt somewhat thrown together. Zimmerman remembered:

> then we had our first [field course] group down and it was a seat of the pants. I don't even think we had authorization and total seat of the pants…. but I don't even remember what we did frankly. I'm sure we did A'Ukre and Pinkaiti [activities], but I don't know that we. I can't remember how many students. (2017 participant interview)

AFP Changes Leadership and Office Locations to Take a More Important Role in Local Activities

In 2007,[94] AFP took on NGO administration of the field course when it moved offices from Belém to Tucumã and hired a new Executive Coordinator.[95] The move from Belém to Tucumã was in response to Kayapó complaints and FUNAI recommendations from the 2004 Marabá meeting (FUNAI, 2004). Interview participant Caleb, who served many roles with KCES and AFP, offered a recap of the different Kayapó associations:

> The first name of the association was the Kayapó Center for Ecological Studies in Redenção. Then, the team switched. The administration was substituted. So it was decided to create an office in Belém, the capital of Pará. Then, they changed the name from the Kayapó Center for Ecological Studies to the Protected Forest Association. So the office headquarters was in Belém. There, I heard lots of complaints from the Indians because the office was very far. There was no access to information. That was when there was the idea to move here, to Tucumã. (author translation).

As AFP's new executive coordinator, in 2007, Andres directed AFP to take a more proactive role in the field course as an alternative to research to support AFP initiatives. In a 2020 participant interview Andres noted:

> well, there was like a period when… There was very few researchers there…. So I think the course was basically an alternative to keep movement in A'Ukre

[94] In 2005 and 2006, there were no field courses or NGO-supported research activity at Pinkaiti.
[95] The new coordinator was hired from the CI Amazon Team and had prior Pinkaiti research experience (see Zanotti, 2011).

> especially in this period when getting legal authorizations for research, especially for foreigners, was getting hard in FUNAI.

Andres's prior experience with research authorization and the need for positive government relations guided AFP's field course leadership. Before the 2007 course offering, Andres wrote to university and NGO partners that AFP would solicit formal CNPq and FUNAI authorizations and clearly articulated the overlapping AFP, FUNAI, and community objectives:

> I think the AFP should make the request for authorization to FUNAI for the realization of this course. I must make it clear that one of the objectives of the AFP is to support the communities it represents in the development of income-generating alternatives that are socially and environmentally sustainable and compatible with the reality of Kayapó communities... In addition to generating income, this course represents an opportunity to sensitize participants to the Indigenous cause and the need for support to Kayapó communities. By taking these students to this experience we can get future allies in seeking support to solve many of the problems identified in Kayapó communities or other indigenous communities. I think we need to include an introduction in this document, where it is clear what the objectives of the course are from an academic point of view. In this introduction we can include a session on the reservation of Pinkaiti, its importance, etc. In addition, if one of the objectives of the course is to generate income for the community of A'Ukre and strengthen the Pinkaiti reserve as a differential for this type of activity, we must make clear what

will be the value that the community of A'Ukre will receive from the group. (Jerozolimski, 2007a, author translation)

ICFC Enters as International NGO Partner

In 2009, the International Conservation Fund of Canada (ICFC) took over CI operations of the Kayapó Project. At the same time, Zimmerman left CI for ICFC, maintaining her Kayapó Project responsibilities. As a relatively new Canadian NGO focused on international conservation issues, the Kayapó Project was one of the first in ICFC's portfolio. Alice, an ICFC leader detailed how ICFC came to work with Zimmerman and the Kayapó:

> The Kayapó was one of our first projects and we were helping out at a modest level and then it was just at the time a couple of years later in 2009 or so that CI was sort of changing its mission to sort of a more people orientation. And they [CI] said, 'OK I think we've done Kayapó. I think we're pretty good there. We've done that'… they had changed our mission such that they were focused more on helping nature by helping people. And they felt they'd done their part for Kayapó. They set up a Kayapó trust fund and so on, but it [the Kayapó Project] still needed a core funding and attention and assistance from outside NGOs. So it was just a good timing that we were willing to take this greater role in supporting and working with the AFP and Instituto Kabu. (2019 participant interview)

According to Alice, ICFC is focused on the greater Kayapó Project (ICFC, 2020a) and only nominally engaged with Pinkaiti and the field course, providing strategic financial and human resources including Zimmerman's role in planning and instruction.

In addition, ICFC supports the salaries of selected, strategic AFP employees,[96] some whose roles and responsibilities sometimes overlap with field course activities. More directly, ICFC finances the travel and lodging for one North American-based field course instructor (personal field course observations, 2018, 2019). In addition, ICFC covers ongoing Pinkaiti building maintenance and infrastructure costs, typically $5,000 USD per year (Zimmerman, 2021 personal communication). Overall, according to ICFC's Kayapó Project description, "international field courses" are just one of several "income generating enterprises" within the ICFC Kayapó Project portfolio (ICFC, 2020a).

Coordinating Field Course Authorizations with FUNAI

An important AFP responsibility is the coordination of field course authorizations. The authorization relies upon a set of institutional relationships requiring document collection and coordination with A'Ukre, university partners, and Brazilian government agencies. This process must be repeated annually and can sometimes take months to complete. Caleb, a long-time AFP employee, explained that authorizations must be considered well in advance, noting:

> the process is pretty slow. You have to be… you have to start early. If the course is going to be in the middle of July, you have to start at the beginning of the year. In January, you have to have already turned in [the paperwork] in order to have it in for the middle of May, June, July. You need to have authorization in hand in order for them [students] to be able to enter [the Indigenous area]. All of the

[96] In addition, ICFC provides financial, technical, and legal support to AFP and the other Kayapó NGOs. Employee turnover is an important concern. ICFC's salary support ensures AFP and other Kayapó NGO leadership is secure.

> students have authorization from FUNAI Brasília to be able to enter the Indigenous area… It is done in Brasília and then Brasília sends it here [to Tucumã]. (author translation)

Organizing University Documentation

FUNAI requires all field course participants to submit documentation including passports, vaccine cards, and doctors' notes. AFP receives these course documents from North American and Brazilian university instructors. AFP organizes these documents and creates a FUNAI field course application, which includes a course overview and a letter of support from A'Ukre leadership (Andres, 2020 personal communication; see also Kayapó et al., 2015). The entire package is delivered to FUNAI's Brasília headquarters for review.

NGO-Brazilian University Collaborations

AFP leadership works in close coordination with Brazilian universities acting as the Brazilian contrapartida (counterpart) for field course activities. The first Brazilian university partner was the University of Brasília (UnB). Andres noted that UnB faculty were key to getting the course off the ground, helping with curriculum design and course framing, and advocating for the course at FUNAI offices in Brasília:

> It made it [authorization] easier in the beginning because we, there was no research goals in the course. And we received a really good support from Patrick [faculty] at the university in Brasília. And he went with me to FUNAI and he had a good CV in the university, etc. He was a good contact to be with me in FUNAI meetings. And later, when he left UnB, Mariela replaced him. She was also good, but she was [very] busy. She never had, actually went to the field course, but she

> went with me several times to FUNAI. She was very helpful and supportive to the course… We had various meetings with FUNAI in the past when the relationship with FUNAI had a different context…. So she never had much direct involvement in the initiative, but she helped us to make adjustments to the course proposal several years ago. (2020 participant interview)

NGO Relationship with FUNAI in Brasília and Tucumã

AFP also maintains important formal FUNAI relationships to ensure compliance with policies for working with Indigenous communities. At the FUNAI headquarters in Brasília, AFP occasionally organizes meetings to discuss the course or brings in A'Ukre's leadership from "Tucumã to Brasília to negotiate with FUNAI about the authorization to conduct the field course in our community [A'Ukre] and Pinkaiti reserve" (A'Ukre, 2008).

Regionally, in Tucumã and Redenção, AFP maintains important relationships with FUNAI staff. Both geographically and practically, these offices and staff have much closer working arrangements to AFP than FUNAI Brasília. Regional FUNAI staff understand the regional complexities and realities of the Kayapó.[97] In 2011,[98] AFP supported a FUNAI Tucumã employee's participation in the field course to observe and evaluate the program, as Andres explained:

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[97] During 2019 interviews, regional FUNAI officials from Tucumã and Redenção shared that the field course is one example of positive project, but the officials requested increased FUNAI participation and oversight.

[98] Another FUNAI employee was anticipated to participate in 2020, but the course was cancelled due to COVID-19 (FUNAI employee, personal communication).

> A FUNAI employee joined the course… to investigate the course, but she was so new in there [FUNAI] and then she realized that she didn't have any background and she enjoyed so much the course because it was like her opportunity to see [the Kayapó]… She was not speaking, and then I got close to her and got to talk and then she realized the course was a great initiative for them, for new FUNAI employees, to understand better the Kayapó culture. (2020 participant interview)

Annual Field Course Report

At the end of each field course season, AFP and university instructors generate and submit an annual report to FUNAI. The report describes student participant backgrounds, course activities, and curriculum, along with a summary of social and economic benefits delivered to the A'Ukre community. The report maintains dialogue and routinely invites FUNAI to continue their collaboration, participation, and engagement (AFP et al., 2012; AFP et al., 2018). In 2018, the AFP report stated:

> There is no doubt that FUNAI's greater involvement in this initiative will contribute to its strengthening, since the proposed course is fully in line with the mission of FUNAI to implement Brazilian Indigenous policy… aiming at the protection and promotion of the rights of indigenous peoples… FUNAI's greater participation in this initiative is not only very welcome, but desired. (AFP et al., 2018, author translation).

The field course authorization continues to be a time-consuming, and often stressful, process for AFP and its partners. Today, NGO leaders stress the importance of the field course as part of A'Ukre's community identity. A'Ukre expects the field course,

and therefore FUNAI has an obligation to support A'Ukre's demands. Zimmerman explained:

> I mean … the stress involved with the authorizations for years it was, every year around this time [May], I would be like stressed, stressed, stressed. Now, basically we submit all the documents. We've done everything…. if you [FUNAI] don't actually admit it… you can deal with the [A'Ukre] community. (2017 participant interview)

AFP–University Field Course Coordination

While NGO leaders handle the bulk of government relations, AFP staff work in front of and behind the scenes to coordinate the field course with university partners. Each year, between October and January, AFP and ICFC work closely with North American university faculty to develop and negotiate an appropriate budget to represent the costs of travel, staff, food, and course payments to the A'Ukre community. Once the budget is finalized, AFP[99] issues an invoice to the appropriate North American university detailing program costs, an itemized budget, and bank information for wire transfers. Between March and April, AFP receives a list and the documents of participating students and instructors. Once the field course is confirmed, AFP staff begins administering a number of important field course responsibilities including transportation, lodging, and staffing.

Transportation and Lodging for University Students

[99] Invoices in 2004, 2007, and 2008 were sent first to CI and later transferred to AFP. When Zimmerman left CI, AFP issued invoices to university partners.

AFP logistics and operations staff facilitate the travel of visiting North American students within Brazil. Participants typically arrive in Marabá.[100] From Marabá, AFP staff plans for bus transportation to Tucumã, hotel accommodations in Tucumã, food, and transportation into and out of A'Ukre. Caleb, who organized course logistics for AFP from 2004 to 2018, described NGO logistics implementation and coordination:

> The first thing… Barbara [Zimmerman] sends the list of students and professors to us, the number of students and professors. The list is sent to us [AFP] and the guy [cook, contracted by AFP] that is responsible for the cooking part of the course. He makes a list. He makes a shopping list. If a student has a food allergy or something, we send that to him too. There, with the list [of participants], we get a quote for the bus. We get a bus quote because we are responsible for the transportation from Marabá to Tucumã and Tucumã to Marabá, right. So with the list of students and professors and numbers, we charter the bus. The bus brings the students to this same hotel [in Tucumã]. We receive the students here, organize the flights. As there are many students, there are many flights. It is all done. All the logistics are organized. Even before the students, the team of cooks has already entered [A'Ukre]. They organize everything for when the students arrive [to A'Ukre]. Everything is already done. (author translation)

Instruction and Support Staff During the Field Course

AFP also provides important instructional and staffing support in Tucumã to frame ethics, curriculum, and activities before, during, and after the field course.

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[100] In some years or programs, university students arrive in Belém and travel by bus to Tucumã.

Field Course Overview and Ethics. When university students and instructors arrive in Tucumã (Appendix F), they are typically met by an NGO representative from ICFC or AFP.[101] The NGO representative provides an overview of the NGO's mission and objectives, discussing how the history of Pinkaiti research and the field course fits within the organization. The NGO representatives provide important context, safety, and ethics guidelines for field course participation. This information includes NGO, FUNAI, and field course instructor considerations for Indigenous knowledge, use of media, and academic publications. To directly address FUNAI concerns of biopiracy, AFP requires all field course participants to sign a "terms of responsibility statement" that reads:

> I'm aware of Brazilian legislation and attest that during the Field Course "Conservation, Social Life and Development among the Kayapó Indigenous People of southeastern Amazon" to be held between the [dates], in the territory of the A´Ukre community (Kayapó Indigenous Land). I will not access knowledge associated with biodiversity and I will not collect scientific data or materials. I will not send scientific data or materials abroad. (AFP, 2014)

Field Course Staffing and Instruction. AFP staffs the field course with support staff and instructors. The support staff includes two cooks[102] contracted to support the course at Pinkaiti or A'Ukre respectively. The cooks coordinate closely with the AFP

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[101] At times, but less common, a FUNAI representative in Tucumã will meet with students and instructors (personal observation, 2018). In 2012, field course participants visited the FUNAI office (AFP et al., 2018).

[102] Until 2010, there was only one cook at Pinkaiti. Starting in 2011, the course budgeted for two cooks, one for each field course location. Although the cooks are related to AFP staff members through familial ties, they are not contracted by AFP. While not discussed at length here, conversations with the cooks revealed the deep commitment and sense of responsibility toward "student services," ensuring student safety and well-being throughout the field course experience. The cooks, like instructors, develop personal relationships with the A'Ukre community, the field course instructors, and in many cases, student participants (field course cooks, personal communication).

logistics team to allocate supplies before and during the course. In addition, the cooks work closely with Kayapó coordinators and university instructors in A'Ukre or Pinkaiti to keep track of meat, fish, and produce sales (see Chapter 4; Appendix G).

AFP also sends one staff person to participate as a field instructor.[103] AFP instructors hold important cultural and contextual information to bridge knowledge and experiences for the A'Ukre community and field course participants. Interview participant Francisco, a two-time field course instructor, explained the challenges instructors face in creating a positive experience for university students and A'Ukre community members:

> You have to have that patience, right. You have to understand… it has to be more or less difficult for anyone to come from far away and work in their [A'Ukre] village and stay 15 days. It is something that is going to be emotionally a lot for people. So we, have to remain in that position here as professor and at the same time, as local people recognize the realities, know some of the problems, know some of the risks, and live with the community. So that is one of the responsibilities there as a mediator and to promote what I think will make those that come from outside feel comfortable and have a good experience. And at the same time, the community as well, that the community also feels comfortable and well with the gringos[104], if there is anything that is bothering anyone. But we see that for people, sometimes it is difficult. It is difficult to get used to that reality in

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[103] Since 2004, Zimmerman has represented CI or ICFC as a course instructor at Pinkaiti. Zimmerman scaled back her participation in 2017, when ICFC began sending another North American representative on her behalf.
[104] Gringo is a colloquial term in Brazil that references any foreign person.

the middle of the forest, far from everything, without internet, without phone. You all come from outside in a society that is connected, with access to everything. I think it is very emotional for people. So, you have to prepare a little bit for them. (author translation)

More practically, AFP instructors support real-time course logistics such as language translation between Portuguese and English. Interview participant Catalina, another AFP instructor (and former field course student), outlined these functional roles and responsibilities. The AFP instructor is:

someone to write receipts, to help with logistics, to help organize the orders. Also, to help with the interlocution with the community, in the dialogue… so it was to organize the orders and to speak with people, to organize the receipts, to calculate the money, so that community receives the money or the pedidos (purchases). (author translation)

AFP instructors also monitor the course. They are the eyes and ears ultimately responsible for reporting and representing the field course accurately to FUNAI. Chronically understaffed, FUNAI relies on AFP for program oversight. As Takakpe, an A'Ukre community member and AFP employee, noted in a 2019 participant interview:

Catalina is joining the field course. If FUNAI doesn't send someone, AFP will because there are few people working in FUNAI…She is going to write a report and share it with FUNAI. FUNAI will see the report and then ask us questions about the course. That is why Catalina is participating in the course in the place of FUNAI. (author translation)

AFP instructors genuinely enjoy their field course participation. The field course is a unique chance for an extended stay in a Kayapó community. Outside of the field course, AFP staff's relationships with Kayapó community representatives are frequently burdened with demands of daily NGO operations. During the course, AFP staff can revisit and reinforce relationships with Kayapó family and friends. As Francisco noted:

> So for us [AFP staff], it is a great also. To be closer. It is one of the few opportunities that we have as Indigenists in AFP to stay several days in the village. In general, we don't have that opportunity. So it is a moment, a moment that we see as an opportunity in itself… It gives a lot of satisfaction to stay in the village, with [Kayapó] relatives. With less time in the communities, the relationship with the association is often transactional and we work only on small things, solving a lot of problems. (author translation, 2019 participant interview)

AFP Office Visit. AFP invites the students to tour their offices and purchase artisan crafts from AFP's store (AFP, 2021). The AFP office visit typically occurs at the end of the field course after departure from A'Ukre (Figure 22). During the visit, university students and instructors meet additional AFP staff, tour the offices, and receive an overview of AFP's other projects such as Brazil nuts, handicrafts, cacao, and so forth (personal field course observations; see AFP 2020c). During our conversations, AFP office staff noted that for many, the office visit was their only interaction with the field course students and instructors (Aruch, 2019 field notes).

Figure 22

Field Course Visit to AFP Office in Tucumã

Note. Source: Aruch, 2016

NGO Field Course Coordination with the A'Ukre Community

AFP staff coordinates closely with A'Ukre regarding communication and delivery of field course materials. Most communication takes place via radio because telephone service is unreliable (or nonexistent).[105] AFP maintains a radio at its Tucumã office to communicate with all of its 31 constituent Kayapó communities. During the field course, AFP lends a radio to A'Ukre for use at Pinkaiti.[106] Throughout the year, A'Ukre has two radios: one maintained by the village for community use and another provided by the Brazilian government in the health center. Radios sometimes do not work or are not readily available. Invariably, there are technical issues with one or more of these radios (personal observations, 2017, 2018, 2019). While the radio communication facilitates

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[105] In 2020, A'Ukre received satellite internet. Future coordination will likely take place using internet-based messaging services such as WhatsApp.

[106] In 2019, the Pinkaiti radio went missing. AFP said they gave it someone in A'Ukre, who said they gave it to someone else, who gave it to someone else, and so forth. There is a complicated process for obtaining a radio operating license in Brazil. The missing radio created some tension between AFP and the A'Ukre community. The result was that in 2019, AFP requested that all course materials be stored in Tucumã instead of remaining in A'Ukre as in previous years (personal observation).

course processes, it can also create tension when the radio is down, messages are missed, or misconstrued. Still, the radio permits AFP to regularly communicate with A'Ukre or field course instructors in order to share and coordinate field course dates, flight information, and course material arrivals (personal observation, 2019).[107] The most complicated and common field course radio communication involves the communication, purchase, and transport of course payments (see Chapter 4).

Cash Course Payments

Historically, AFP issued official receipts to A'Ukre community members who participated in the field course. The receipt needed to be "cashed in" at the AFP office (see Chapter 4). As field course participation expanded, the number of community members visiting the office overwhelmed AFP staff capacity. Often, there was either not enough money on hand or confusion about the amount owed. The confusion was layered on top of existing cultural and linguistic misunderstandings between A'Ukre and AFP. In addition, A'Ukre Kayapó had to travel a long way, first via the river, then by taxi, to arrive at the AFP office (see Chapter 4 for details on A'Ukre field course payment). Despite the challenges, AFP staff made the system work. Delia, an AFP staff member explained:

> So, there is someone [from AFP] responsible for noting what is sold [in A'Ukre during the field course] and it [the receipt] arrives here. We make a cash withdrawal and the people [A'Ukre Kayapó] come and we trade the receipt for money- obviously it has to be signed. There is always a little bit of confusion

[107] Depending on the circumstances, AFP staff has capacity to communicate across the different languages of the field course: Mẽbêngôkre-Kayapó, Portuguese, or English.

> about that receipt is not for that amount…. some things are misunderstood, but in the end it all works out, generally speaking. (2019 participant interview, author translation)

In 2017, the process for providing cash payments shifted from the receipt-based model to one where cash payments are provided in A'Ukre at the end of the course. This change was in response to suggestions from A'Ukre and university instructors. AFP began sending cash with the planes at the end of the field course. The cash is distributed in a community-wide meeting facilitated by AFP field course staff and university instructors (personal field course observations, 2018, 2019). During the meeting, individuals receive an envelope with their payment and an official AFP receipt. The receipts are signed and later returned to the AFP office for accounting. The new process requires additional bookkeeping by the field course team and ongoing dialogue throughout the course to ensure correct compensation.

Despite communication challenges, the AFP staff prefers the new payment process because it reduces the geographic and linguistic barriers for distributing payments for AFP and A'Ukre. For example, community-based payments eliminate the slow trickle of A'Ukre residents with field course receipts throughout the year and the need to keep cash on hand in the AFP office. AFP's accountant, Renata, shared her perspective:

> I think send the money all at once is better because... for us it is a thing that you can take care of right away. You can do it all there and when the work is over there, you receive the money, right away. It is all settled. When they [the Kayapó] come here it is more complicated because I am not going to take out such a large

> amount of money and leave it here in the office, waiting for the Indians to come. The older Chief, who had a receipt during the presentation, is awaiting payment. He arrived here yesterday and I paid him. So they are coming like this, right, one at time over a long period. Not everyone comes all together to receive the money. So, it is a lot. I think it is bad when they come to receive payment in the city… I think it is better to combine it all and send it there, make the receipts the same as we sent, in the little envelopes…So, I think it is better to resolve everything in the community. (2019 participant interview, author translation)

Getting Pedidos to A'Ukre

Even more complicated for AFP staff is the communication, purchase, and transportation of pedidos (purchase requests). Pedidos present both communication and logistical challenges through a multi-step process:

1) An AFP field course team member in A'Ukre communicates to AFP staff in Tucumã via radio the necessary information: name of Kayapó individual, the amount earned during the field course, and the shopping list.
2) A Tucumã-based AFP staff member takes the list and goes shopping for these items. Purchased items are compared against the total amount earned.
3) For each Kayapó individual's purchase, the AFP staff person collects a receipt and packs the purchases into a cardboard box, along with any remaining balance.
4) Boxes are sealed, labeled by recipient name with a marker, brought to the airport on a truck, and flown to A'Ukre on the planes that retrieve field course students and instructors at the end of the field course.

For AFP staff, this is an increasingly complex process. In just one 2019 field course, 20 Kayapó field course participants requested pedidos (Appendix G). Renata detailed how the AFP team ensures that everyone gets what they are owed:

> For us, it is very complex because I go to the bank and I take out the money and then I come with all the money here [AFP office]. I come here and I meet with the finance team… The receipts come and a I put them in the envelopes and then we confer that all that everything is going more or less into each envelope. The shopping is like this. Jefferson receives the list. He goes there [to the store]. He gets the values of the materials to see if there is enough money. If there is enough to buy that with the money of the Kayapó, great. He returns [to the store], buys at the cashier everything and places the name of each person along with a receipt. Then, I take out the money that was the money for him, maybe 300 reais, but he bought less than 300. Then, I take the money that remains of his, place it in the envelope and Jefferson returns to the store and pays the amount. There he pays the receipt; I get the change inside the envelope together with the purchase note and with a receipt for the remaining money… for us it requires a large moment of organization. (2019 participant interview, author translation)

AFP Expansion: The Field Course as a Legacy Program

In 2007, AFP had three employees and the field course was a signature program within the organization's portfolio. Today, AFP has more than 30 part- or full-time staff working with 31 villages on more than two dozen projects including environmental compensation projects, the Amazon Fund, and nontimber forest products (AFP, 2020c). Alice (2019 interview), the ICFC executive shared that since 2009 AFP has "just really

flourished…. it is lots of hard work, but they actually get… more funding from within Brazil now than they do from international [donors].” AFP’s larger projects often cover multiple communities and do not directly support Pinkaiti or the field course. As AFP has grown, Pinkaiti and the field course hold an increasingly unique position within the landscape of AFP activities.

Notably, however, Pinkaiti research and field course alumni make up a significant portion of the AFP employee profile. Current AFP staff includes individuals from the original Redenção office staff, A’Ukre research associates, Brazilian graduate student researchers, Brazilian university field course participants, and A’Ukre field course instructors (AFP, 2020d). According to Andres (2020 participant interview), the AFP executive director, Pinkaiti and field course activities represent an important feedback loop and AFP pipeline for “people who had this chance of getting comfortable with the Kayapó and opened their minds and their interests… [it] is a great way of engaging more people with the Kayapó and making new partners.”

AFP staff noted that the field course is different from larger AFP projects where program results may not be directly visible. The field course has tangible, direct outcomes for the A’Ukre community. Long time AFP staff person Caleb, who started at the Redenção office in the late 1990s, remarked:

> This [Kayapó field course] is a such a good project that we can see the results. There are many projects that are executed where we don’t see the final results, they are hidden and don’t appear directly, but in the A’Ukre village it is project that you can see the final results. The results are shown. They appear at the end [of the course]. (2019 participant interview, author translation)

Similarly, Renata highlighted the field course as an opportunity for the AFP office to connect with A'Ukre community members and see clear progress toward the AFP's mission of protection and conservation of Indigenous lands:

> No. I think it [the field course] is great. I think it is really good because we end up being closer to the community. For example, here in the accounting office, we don't have that opportunity to go to the field because the work flow here is intense. So we aren't able to join the activities in the village and in this specific work.... So I think it is very in sense of helping the community, primarily regarding finances, that every is involved and everyone there gets works in the course that helps the community not be interested in those illegal questions of getting involved in mining and those things. So when we do the work, assisting with the administration every day, we are helping the community… The project of theirs [A'Ukre] generates their own resources and they don't have interest in those illegal things. So I think it is very important with respect to what the association [AFP] offers. (2019 participant interview, author translation)

AFP staff also recognized the value of the program for the community and the small improvements to the field course over time. Interview participant Noel, a beloved AFP staff person who worked with KCES and researchers, the field course, and now with the AFP office, reflected on how course iterations and repeated student participation provide important resources otherwise unavailable to A'Ukre:

> Every year the community [A'Ukre] has the project [field course]. Barbara [Zimmerman] is always bringing a group. And from there, it continues to involve more and more Mẽbêngôkre…. And it also began to include more women

> because in the past, it was only men…. They [A'Ukre] always like the gringos, the Americans from outside because…. They always had gringos involved… they got used it to them and you know, Mẽbêngôkre always like new things and they always need some and they [the foreigners] always bring things. Different things like a tent, a backpack, those things, water bottles. They even started a fair…and they [the students] brought lots of things that, in truth, weren't really important to them [the students] to trade. (author translation)

More importantly, Noel noted the close personal relationships generated between A'Ukre and the students and researchers who return year after year. In many cases, A'Ukre adopted as family the researchers who have continued on as field course instructors. Noel shared:

> I think that helps a lot. That they [A'Ukre] also perceive that people [researchers and students] come back because they like what they are doing there… and also that those that come from far, the students, the researchers continue like [Dawn, Leah], they themselves like the Mẽbêngôkre. And the Mẽbêngôkre also know when people like them and so they love when they [Dawn and Leah] come, when they return again to the village. And when they [the Kayapó] like you, they adopt you… and everyone starts to call you a relative. (2019 participant interview, author translation)

Finally, the course is a unique innovation for Indigenous associations or CBOs like AFP. Catalina pointed out the unique mix of social, environmental, and knowledge outcomes the course generates for all participants:

> The fact that an Indigenous association [AFP] is making an international course and giving opportunities to students in Brazil to have this experience is fantastic. What would it be like if all Indigenous associations could have a field course with International researchers, giving opportunities to students from Federal Universities. I think there is a partnership here that is great because of how it mixes these things- income generation, education, fieldwork, ecology, in that you go to the forest itself to walk, to see the population. That you go to learn all the things that the Mẽbêngôkre make of their landscape and territory. It is one of the most fantastic things. (author translation).

NGO Summary and Partnership Discussion

Starting with DSF and CI's early involvement, NGOs have played an important role as an actor group within the partnership. This section provides an overview of the NGO experience related to the structure, process, and outcomes through four eras of Pinkaiti Partnership activity.

Internal Partnership Structure

Over the four partnership eras, internal NGO structure has included the various mechanisms by which NGO institutions arrange themselves in relation to one another.

The **category** and **function** for NGO partners changed over time with expanded NGO programming and the entrance and exit of various institutional actors (see Table 16). During partnership initiation, CI and DSF were focused on the environmental protection of a small area of mahogany, while providing the A'Ukre community with an economic alternative to logging through short-term research and tourism. DSF and CI focused exclusively on creating these opportunities via Pinkaiti in A'Ukre. Soon after

research became institutionalized, DSF exited the partnership, leaving CI as the primary NGO actor at the national level (CI Brazil) and international levels (CI Washington). In 1997, the local KCES was formally recognized as a Kayapó NGO with an office in Redenção. Throughout early research, Pinkaiti was the cornerstone project for KCES activities.

The success of the research station and demands from the Kayapó presented an opportunity to scale CI. For CI, the prospect of protecting 11,000,000 hectares of tropical forest shifted the **organizational identity** away from small projects. In the international research and scale phase, Pinkaiti became one program within CI's greater Kayapó Project portfolio. To accommodate the new portfolio, CI Brazil created an office specifically focused on Amazon Programs and supported the evolution of KCES into a new NGO partner, the Protected Forest Association (AFP), responsible for local program implementation. As CI's role expanded, resources available to support Pinkaiti research diminished.

In 2004, CI's **partnership fit** no longer closely aligned with on-the-ground research and education activity at Pinkaiti. By 2007, Pinkaiti operations had shifted almost entirely to AFP. In 2009, Zimmerman left CI for ICFC, an organization more closely aligned with her vision for Pinkaiti, the field course, and the Kayapó Project more broadly.

Table 16

Key NGO Responsibilities and Activities Over the Duration of the Pinkaiti Partnership

	Partnership initiation (1991-1995)	Early research (1995–2000)	International research (2000–2004)	Field course(2004–present)
DSF	• Financing and fundraising • Donor visits	NA	NA	NA
CI	• Financing and fundraising • Technical support • Donor visits • Recruit institutional partners • Research station infrastructure • Government relations (CI Brazil)	• Financing and fundraising • Building and supporting Redenção satellite office • Government relations compliance (CI Brazil) • Supporting Pinkaiti staff	• New research station construction (2001) • Recruit institutional partners • Government relations (CI Brazil) • A'Ukre meetings with Kayapó leaders • FUNAI meetings for agreement • Support KCES • TEAM negotiations with MPEG and UFPA • Counterpart for Donner Foundation Grant	• Receive payment from university* • Transfer payment to AFP and local vendors* • Instructional support* • Community payment • Coordination with AFP *Until 2009
NDI	• Counterpart for CIDA funding • Government relations	NA	NA	NA
KCES	NA	• Researcher logistics (entry and exit) • Government compliance	• Researcher logistics • Government compliance	• Student logistics** (entry and exit) **Only in 2004
AFP	NA	NA	NA	• Starting in 2007 • Budgeting and finance • Brazilian government compliance • Maintain Brazilian university relations • Instructional support • Communication with A'Ukre • Staff contracting • Community payment (cash and materials) • Logistics
ICFC	NA	NA	NA	• Starting in 2009 • Finance key AFP staff • Instructional support • Pinkaiti maintenance • Manage internship program and Pinkaiti-specific donations

Zimmerman continues to be a driving force and champion within the Pinkaiti Partnership, known within NGOs as “Barbara’s Project.” Her **leadership** spans multiple levels and scales across eras. During partnership initiation, Zimmerman took a leadership role within both CI and DSF, advocating for the project across cultural, geographic, knowledge, and institutional boundaries in community, government, and university spaces. Throughout the early research era, NGO leadership and decision making continued to center Zimmerman’s coordinated efforts between Canada, USA, and Brazil to create the necessary Pinkaiti and Redenção infrastructure. To accommodate expanding funds and programs during NGO scale, CI began to distribute Kayapó Project leadership across institutions, first to the Amazon Programs team, and then to AFP. When Zimmerman transitioned to ICFC in 2009, she continued her leadership roles and responsibilities.

Since 2007, the AFP has taken an important leadership role relative to Pinkaiti and the field course by initiating government relations, communication, logistics, and curriculum support across university, community, and government partners. Many AFP leadership posts are financed or supported in part by ICFC to ensure partnership fit and sustainability.

Depending on circumstances, NGOs have acted as donors, fundraisers, or technical advisors to generate the **financial environments** necessary to operate Pinkaiti research and the field course. In partnership initiation, DSF and CI provided the seed funding for Zimmerman to start up the project, while providing the social network and administrative support for Pinkaiti to obtain external grants from CIDA or other funding

agencies. During early research, CI continued to apply for and receive grants to maintain Pinkaiti and Redenção office staffing and construction.

As Pinkaiti and the Kayapó Project became better known through popular and academic press, CI obtained larger, more significant awards, most notably from GCF. During the international research and scale era, these awards helped expand research at Pinkaiti and provided funding for improved CABS research station infrastructure. In CI's shift from individual program administration, the organization created the Kayapó Fund, a sustainable external funding stream for the Kayapó Project, but not directly in support of the Pinkaiti Partnership. Without explicit NGO funding for Pinkaiti, participating North American field course students currently finance Pinkaiti operations. University funds are channeled through AFP to the A'Ukre community.

External Partnership Structure

The external partnership structure highlights the role that NGOs played within the greater partnership of community, university, and governmental actors. Throughout Pinkaiti Partnership activities, the national and international **political environment and context** helped define NGO activities. The partnership emerged within a window between the end of the Brazilian military government and the 1992 Rio Earth Summit for Sustainable Development in Rio de Janeiro. During this time, Suzuki met Paiakan and invited him to Canada, introduced him to Zimmerman, and supported Paiakan's 1989 Altamira Gathering. This is a key aspect of the sociopolitical context in which DSF and Zimmerman first became involved with A'Ukre and Pinkaiti.

Following the 1992 Rio Summit, small partnerships like Pinkaiti were promoted as an attractive mechanism for sustainable development. Through partnership initiation

NGO partners kept the government informed, if not directly involved. As such, Pinkaiti emerged within a friendly political climate. Similarly, during early research, CI representatives met periodically with Pinkaiti-friendly FUNAI leadership.[108]

During the international research and scale era, FUNAI and Brazilian political leaders became increasingly wary of foreign activity and the potential for biopiracy in the Amazon region. These political challenges surrounding research were one important driver that pushed Pinkaiti toward the field course and education. During the field course era, the shift from research to education created a more amenable political environment.

Still, the FUNAI presidency and associated policies toward research and education with Indigenous communities frequently change, largely dependent upon the government or individuals in power. These shifting policies may create tension and confusion within and between NGO, government, community, and university partners.

Early on, NGO partnering interest was based on A'Ukre's ***community and social environment.*** CI, DSF, and A'Ukre created Pinkaiti to provide an economic alternative in response to mahogany logging pressure within the community. The NGOs (DSF and CI) were committed to protecting and promoting Kayapó livelihoods and the Amazon Forest after viewing the destructive nature of logging and mining in other Kayapó communities. While the intensity of external pressures ebbed and flowed over the duration of the partnership, these social and environmental pressures continue to drive NGO activities including the field course (Anderson, 2019; Aruch et al., 2019). Today, AFP and ICFC continue to support the Kayapó within a social and environmental context where

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[108] For a period in 1995-1996, FUNAI's president was Marcio Santilli, former head of NDI, who helped Pinkaiti get up and running.

imminent threats of mining, logging, and agricultural interests encroach upon the borders and within Kayapó lands (Quijano et al., 2020; Zimmerman et al., 2020).

NGO Partnership Activities and Processes

NGO partnership activities have expanded and contracted as actors entered, exited, and reframed priorities during the partnership (see Table 16). In addition to activities, NGOs created processes to manage decisions, conflict, and communication.

During partnership initiation and early research, NGO **decision making** centered on Zimmerman's leadership in consultation with CI leadership in Brazil and Washington. When CI scaled Kayapó Project activities, the decision-making calculus changed to include additional NGO leaders within CI's Amazon Programs team. During the field course era, decision making about the Pinkaiti Research Station and field course is distributed between AFP, A'Ukre, and university partners. ICFC plays an external consulting and support role.

NGOs **manage conflicts** both internally and externally. Many conflicts cut across the partnership eras. For example, management of the necessary government authorization protocols is one area of tension and conflict. Particularly during the international research and scale era, tensions between the CI Brazil staff and external CI partners unfamiliar with Brazilian laws and policies came to a head. While some wanted to continue research efforts, others wanted to focus on supporting sustainable funding and local capacity building. The conflict was resolved when CI and Zimmerman decided to part ways in 2009. CI continued its involvement with the Kayapó Fund (CI, 2020b), while Zimmerman brought Pinkaiti and other Kayapó Program activities to ICFC.

Externally, conflict between NGOs and the A'Ukre community exists around questions of resource allocation (payments), project focus, and NGO engagement with other Kayapó communities. Other external conflicts include the ongoing dialogue between the NGO partners and the Brazilian government organizations responsible for research or field course authorizations. During the field course, there is continuous communication between NGO and university partners regarding course budgets, resource allocation, curriculum focus, and community engagement. For the most part, these conflicts are resolved through continuous engagement coupled with and the familiarity and trust that has emerged from repeated collaboration.

Similarly, NGO **communication** has both internal and external components. Internal information sharing and communication means regular updates and progress reports from the Pinkaiti and Kayapó Project teams. Internal communication has been a challenge for NGO partners due to linguistic, cultural, and geographic barriers. In partnership initiation, communication technologies meant that any radio, telephone, and fax correspondence had to make its way from Pinkaiti, to A'Ukre village, to Redenção, to Belo Horizonte, to Washington, to Toronto. Messages often needed to be translated between Mẽbêngôkre-Kayapó, Portuguese, and English to keep all interested parties informed.

These communication challenges continued through the early research and international research eras. However, NGOs recruited and developed Pinkaiti researchers to staff both CI and AFP which greatly improved capacity for transcultural communication between North Americans, Brazilians, and the Kayapó. Today, many NGO employees speak at least two of the three Pinkaiti Partnership languages. In

addition, advances in ICTs drastically increased the speed and accuracy of messaging between NGO partners.

External Communication includes updates to granting and donor institutions as well as public media campaigns to generate interest. In particular, external communication with respect to Pinkaiti centers on NGO communication with FUNAI and other government partners regarding research authorizations and strategic partnerships. NGOs also communicate with external university partners both domestically and internationally, impacting the feasibility for recruitment researchers or student participants.

External communication challenges are compounded by different stakeholder perspectives and external deadlines and amplified by navigating the complex cultural and linguistic terrain between NGOs and the A'Ukre community. During research and the field course, NGO leaders from CI, ICFC, and AFP have worked closely with A'Ukre leadership to establish mutual understandings regarding expectations, activities, and payments with foreign visitors (see Chapter 4). On the other hand, FUNAI communication continues to challenge NGO activities and processes. Other than the FUNAI Tucumã representative, there has been little institutional continuity with FUNAI. Even after 30 years, according to FUNAI staff, there is little understanding about Pinkaiti and the field course within FUNAI (Aruch, 2019 interview notes).

NGO Partnership Outcomes

Pinkaiti Partnership outcomes vary in scope, as the partnership has moved from inception to its current field course iteration, with consideration to outcome components of sustainability, feedback loops, accountability, effectiveness, and efficiency.

The Pinkaiti Partnership can be considered a **sustainable and durable** NGO initiative. Over thirty years, despite shifting actors, activities, and challenges, Pinkaiti remains an active space for education and research. Despite early human (Paiakan), financial (CIDA), and political (FUNAI) setbacks, the partnership persisted, and CI leveraged Pinkaiti as a springboard to expand NGO activities with the Kayapó. In fact, one can draw a line that follows personnel and activities from Pinkaiti Partnership initiation to current Kayapó-based activities with ICFC and CI (CI, 2020b; ICFC, 2020).

Pinkaiti Partnership sustainability can be attributed to important **feedback loops**. Many who visit Pinkaiti and A'Ukre spend the rest of their careers working on behalf of the Kayapó within NGOs. Zimmerman is an obvious example, but many Redenção office KCES employees continue to work at AFP. During the international research and scale era, CI hired several Pinkaiti researchers to work on its Amazon Projects team including the current AFP executive coordinator. The current AFP staff includes Pinkaiti researchers and field course participants as well as several A'Ukre Kayapó residents who were Pinkaiti research associates or field course instructors. Continued NGO engagement maintains institutional memory, expands linkages, and drives innovations in partnership activities and relationships.

The NGOs continue to be **accountable** to a number of internal and external partners. Most importantly, the NGOs are accountable to A'Ukre, ensuring that programs and activities meet intended and agreed-upon community outcomes. At the same time, the NGOs are internally and externally *fiscally accountable* by keeping accurate records of incoming funds, funds issued, and funds spent. Records are kept and shared externally with appropriate partners to ensure transparency. Fiscal responsibility continues to be an

important partnership process feature as Pinkaiti finances have shifted from NGO (initiation), to external donors (international research and scale), to university financing (field course). Over time, through both popular and academic forums, Pinkaiti developed *public reputational accountability***.** External actors took note of Pinkaiti's success and credited the project as a model for successful Indigenous community relations, tropical forest protection, and sustainable development (Anderson, 2019; Brown, 2014; Dowie, 2009; Holloway, 1993; Schipani, 2019).

NGO partners have been both **effective** and **efficient** at achieving Zimmerman's1991 objectives to create an ecological reserve for knowledge creation and dissemination, tropical forest protection, Kayapó cultural sovereignty, and a visitor program for foreign tourists (Zimmerman, 1991a). With respect to *knowledge creation*, Pinkaiti, through research and later the field course, became an innovative model for NGO-Indigenous collaborations and knowledge production (Chernela, 2005; Schwartzman & Zimmerman, 2005; Zimmerman, 2010; Zimmerman et al., 2001).[109]

The *tropical forest protection and conservation* outcomes initiated by Pinkaiti exceeded the expectations of Zimmerman and NGO partners (Zimmerman, 2017, personal communication). While Pinkaiti started with an idea of protecting 5,000 hectares, A'Ukre later expanded the Pinkaiti reserve to 8,000 hectares. During the international research and scale era, Pinkaiti was "proof of concept" for CI's intent to scale the Kayapó Project to include all 11,000,000 hectares of Kayapó lands through territorial surveillance, vigilance posts, and sustainable development projects (AFP, 2020;

[109] See https://tinyurl.com/de5r56b5 for an ongoing database and collection of A'Ukre-Pinkaiti knowledge products.

CI, 2020; ICFC, 2020; Instituto Kabu, 2020). Today, the Pinkaiti reserve is still managed and protected by A'Ukre and AFP as a reserve with the federally demarcated TIK.

NGOs have contributed to Kayapó *cultural and territorial sovereignty* through extended economic and social benefits. Economically, benefits from research and the field course gave A'Ukre increased autonomy from the extractive logging and mining economies of the region. From partnership initiation to international research and scale, the research program became more mature, expanding economic opportunities for the A'Ukre community. The shift to the field course provided even more direct economic and material benefits to the community (see Chapter 4). In total, the NGO-led field course includes more than 50 individuals from the community and generates close to $25,000 per year (Aruch field notes, 2019; Zimmerman et al., 2020; see Appendix G).

According to Zimmerman (2021 personal communication), the most important NGO impact has been the *social interaction* between A'Ukre and their kuben (non-Kayapó) counterparts. Outside of NGO or government engagement, A'Ukre and other Kayapó communities typically only interact with loggers and miners seeking to extract valuable resources from Kayapó lands. NGO-sponsored research and education at Pinkaiti and A'Ukre promote and valorize Kayapó cultural knowledge. The NGOs and projects like Pinkaiti and the field course present vehicles for interaction with Brazilians and foreigners interested in protecting Kayapó forests and culture. As Zimmerman wrote to the field course team in 2015:

> I am increasingly struck by how much this course means to the community: not just as far as material benefit but in knowledge and positive constructive interaction with the outside world. The younger Kayapo (say, < 50 yrs. [old]) who

participate in the course are as keen and enthusiastic as the international students… this course provides a totally different outside view that places high intrinsic value on Kayapo culture and natural ecosystems. It is a foundation of experience which the A'Ukre Kayapo at least use to build a sustainable future.

Conclusion

NGO representation within the Pinkaiti Partnership includes various institutions at various scales. Zimmerman's relationships with DSF and CI catalyzed early NGO involvement. Early NGO engagement facilitated A'Ukre community support, fundraising, and Brazilian government and university relations. CI's early support was instrumental in the construction of Pinkaiti, the Redenção satellite office, and organizing the first donor and Pinkaiti research visits. As the Kayapó Project matured and the Pinkaiti model proved successful, DSF exited the partnership and CI scaled its involvement throughout the Kayapó Indigenous Territories and helped start up AFP, a Kayapó-led NGO. At the same time, CI, AFP, and FUNAI signed a first of its kind partnership agreement.

CI's expansion resulted in diminishing engagement and research support for Pinkaiti and A'Ukre. In 2004, Zimmerman and CI shifted Pinkaiti away from research to a field course model. Starting in 2007, AFP began leading NGO field course activities with the support of ICFC. Today, the field course is just one of several dozen AFP activities in operation throughout the Kayapó territories.

While this chapter discusses NGOs as institutions, it is clear that the story of Pinkaiti is driven by the individuals within NGOs. These individuals have spent their careers committed to overcoming cultural, geographic, knowledge, and institutional

obstacles to ensure Pinkaiti's success. Former CI president Ray summarized the important role of individuals like Zimmerman within NGOs who champion long-term conservation projects:

> You've probably figured this out already, but the entire conservation business runs on the dynamic energy of a very small handful of extremely dedicated, sometimes half-crazy fanatic individuals who devote their lives to projects like this [Pinkaiti]. She's [Zimmerman] devoted her life to this … and without these super dedicated people who can be especially complicated … without them the conservation business wouldn't be anywhere… it is not easy, but these people are the heart and soul of the conservation movement and [Zimmerman] is absolutely one of them.

Chapter 6: Universities

> I can tell this place [Pinkaiti] to the whole world, but there is something I can say about it [Pinkaiti] like life. Everything is a little relationship. As you build up and persist, they grow and multiply and I think I am seeing this here. Like the very first time I come here [to Pinkaiti in 1996]… it was really hard work here. Something that I never have pictured was myself working here to nowadays [2018] …Today, I kind of pretty much have my set of clothes in Toronto, take my backpack and pretty much come here … It is just part of going to work in the morning and I think this is the way to do it, right. Make things a little more. It is getting better. Like any relationship, it gets better as you take care of it. If you like, work in a positive way towards the future and a common goal.
>
> —Jeffrey, 2018 participant interview

> This program has a long history of taking students to Brazil and the Amazon. Faculty have built strong partnerships with the local universities and the local NGOs. The learning outcomes are solid and the reading list is very comprehensive. This course has operated for over 10 years and it continues to get more rigorous as the course organizers expand their networks in the Amazonian community… This course, I believe, is truly an asset to our department as well as to the university. Traveling to the Amazon is quite unique and there is a strong set of scholars who continue to make this course a success.
>
> —University department chair (UMD, 2015)

In the Pinkaiti Partnership, university participants are represented by individuals and institutions from Brazil, Canada, the USA, and the UK. In this chapter, I discuss university involvement with Pinkaiti across the 4 partnership eras. First, I provide an overview of the university data sources and methods. Next, the chapter unpacks the relationships and interactions among university actors and their A'Ukre community, NGO, and government counterparts. Finally, I present a summary and discussion of the university partner structure, activities, processes, and outcomes.

Methods and Data Collection

Data sources included interviews, documents, and personal participation and observations integrated into embedded comparative case study methodology described in Chapter 3.

Interviews

University interview data included 54 interviews with 56 participants representing various university partners across the timeline of the partnership (see Table 17). Most interviews were conducted in person face to face or via a web-based communication platform such as Skype or WhatsApp. In two instances, a pair of participants preferred to be interviewed together. In three cases, participants responded to the interview protocol through email correspondence. With consent from the participants, all university interviews were audio recorded.

University participants had a broad range of roles, responsibilities, and experiences within research or educational activities within the Pinkaiti Partnership. Participants were representative of faculty sponsors, university researchers, field course students, and instructors. Most university participants had an anthropology (n=22) or biological (n=23) sciences background, but 11 participants named an alternative disciplinary focus. University participants had various levels of engagement within the partnership. Thirty-nine of the 56 participants visited A'Ukre or Pinkaiti more than once during the research or field course eras between 1991 and 2019. Twelve of the 56 had long-term engagement with the A'Ukre community, visiting more than five times. Interviews were conducted in English (n = 44) or Portuguese (n = 10). Portuguese language interviews were transcribed and coded in Portuguese, and then translated to English in this report. Following each interview, I wrote a reflective memo.

Table 17

University Interview Participant Demographics

Demographic	
Total number of participants	56

University		
	USP/UEA [a] (Brazil/UK)	7
	Toronto (Canada)	10
	UMD (USA)	15
	Purdue (USA)	6
	UnB (Brazil)	3
	UFU (Brazil)	5
	UFPA (Brazil)	2
	Other university	10
Number of visits to A'Ukre or Pinkaiti		
	1	17
	2	11
	3-5	16
	More than 5	12
Academic discipline		
	Biology	23
	Anthropology	22
	Other	11
Role [b]		
	Student researcher	28
	Faculty research/advisor	6
	Field course student or intern	31
	Field course instructor	17
Partnership era participation [c]		
	Initiation	3
	Early research	10
	International research	13
	Field course	41

Note: [a] All UEA students were formerly USP students who joined their USP faculty advisor at UEA. [b] Some participants held multiple roles across the duration of the partnership. [c] Some participants were involved across multiple partnership eras.

Document Data

For this chapter I reviewed 179 university-related documents including correspondence, grant proposals, project reports, budgets, receipts, or materials relevant to university partners. Document data came from participant collections, the AFP archive, UMD Education Abroad archive, internet searches, and my personal documents. Cited

documents are included in the reference section. All documents were scanned and uploaded into NVivo for review and coding (see Chapter 3).

Participant Observation and Experiences

Since 2014, I have been a UMD-based field course instructor and program director at Pinkaiti. This experience permitted a detailed look at internal university processes and external collaborative processes for field course administration. I include my experiences and reflections as data, particularly in the discussion of university field course interactions with NGO and community partners, administration, instruction, and student engagement.

University Partnership Initiation (1991-1995)

The Pinkaiti Partnership's first university relationships were built from Zimmerman's graduate school experiences, which were focused on tropical ecology research with Brazilian institutions. In 1991, Zimmerman's first thoughts were to contact mentos and advisors at the Manaus based National Institute for Amazon Research (INPA), where she completed her graduate work on the renowned Biological Diversity of Forest Fragments (BDFF) Project (Amazon Diversity Center, 2020). In fact, the concept for Pinkaiti research Station was modeled on Zimmerman's BDFF research experiences. Zimmerman explained:

> I went to visit the village [A'Ukre] and then I had the idea, and it was to replicate this project [BDFF]… that I worked on in Manaus which was the one associated with INPA… I did two research projects for two degrees- masters and PhD … so my thinking was when I saw the Kayapó, when I flew in, and I will never forget seeing that border, that you can still see and thinking, "Wow!"... once I met the

> Kayapó, these guys are like, these guys are doing an amazing thing for conservation, you know, we get to work with them, … we should start a research station here because the researchers would love to work here because it is virgin forest forever, it is protected, they are not going to cut it down tomorrow, like everywhere else and Kayapó obviously know the forest better than everyone else. They would be great guides. And we can help the community and they can stop logging because it is an economic alternative. That was the thinking and so and then I just... when I left, I asked my field director in Manaus [INPA]. … I've got this idea- who should I go to talk to? (Zimmerman, 2017 participant interview)

Recruiting Brazilian University Counterparts

In June 1991, following her A'Ukre visit, Zimmerman sent a letter to her BDFF mentor to solicit feedback and support for the Pinkaiti research station concept. Zimmerman wrote:

> the plan that emerged during my relations with these people is that A'Ukre become a focus of "ecotourism" and applied conservation ecology research… I approach you as a sage and godfather in the conservation world; especially with respect to the Amazon. I want to know whether you think this plan has a future and if so, whom I should talk to or involve. I would like to involve a conservation organization and at least at some point, a research organization (Smithsonian? maybe a zoo? university?). (Zimmerman, 1991a)

Zimmerman's BDFF colleagues referred her to CI (see Chapter 5) and Zimmerman set about recruiting from her professional network within Brazil's tropical ecology research to generate interest and support for Pinkaiti. In a letter to the Canadian

International Development Agency (CIDA), Zimmerman noted there were several interested Brazilian research institutions from the Amazon region:[110]

> The community of ecology research in Brazil has demonstrated a strong interest in utilizing the Kayapó Biological Reserve as a place of study. Scientific institutions that hope to send researchers include the Emilio Goeldi Museum of Pará (MPEG) in Belém, the Amazon Ethnobiology Institute (INEA, Belém), the University of São Paulo, the Zoology Museum of São Paulo and the National Institution of Amazon Research (INPA) – the binational Smithsonian institution, Biological Dynamics of Forest Fragments (BDFF), both which are located in Manaus. For 12 years, INPA- Smithsonian Institution has coordinated a significant ecological research program (the BDFF project) with North American and Brazilian students… With their vast experience in ecology / ethnobiology in Amazonas, access to foreign funds, access to the knowledge of policies and scientific communities of Brazil, INEA and INPA are ideal organizations to become permanent partners in Kayapó research. (Zimmerman, 1992g)

Zimmerman (and CI by extension) hoped to leverage INPA's experience with international researchers to integrate Pinkaiti into an existing network of Latin American tropical ecology research stations in Costa Rica, Panama, Brazil, and Peru. In November 1992, Zimmerman visited Pinkaiti with INPA and USP research colleagues. Zimmerman,

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[110] While this section focuses on INPA, Zimmerman also corresponded with counterparts at MPEG and INEA, most importantly Darrel Posey, a known Kayapó ethnobiologist and a colleague of Paiakan. Zimmerman and Posey communicated about project involvement, but of Posey's involvement Zimmerman (2017 interview) shared: "Darrel Posey came once [to Pinkaiti], but he didn't stay or do anything. He did come up- that would have been in the early years…. Darrel Posey, I didn't know as well, nearly as well."

the university researchers, and their Kayapó counterparts conducted preliminary biodiversity surveys along Pinkaiti's newly created trails (see Chapter 4). In December 1992, Zimmerman traveled to Manaus for a meeting with the directors of Latin America's network of tropical research stations. Zimmerman explained her objectives and support for Pinkaiti to her CI colleagues:

> In Manaus, I met with the director of INPA (the National Institute for Amazonian Research), to confirm our research association with this Institute. Dr. Leo Silva[111] researcher] represents our project at INPA. Dr. Silva spent five days with Dr. Marcio Ramos and myself at the project site observing the area and meeting with the Kayapó directors and management committee of A'Ukre. Also, while in Manaus I participated in a workshop concerning long term research projects in Neotropical forest.… These scientists welcome the addition of our research site in the lower Amazon because this is a sector of Amazon forest which is poorly known ecologically. Furthermore, … the overall mechanism of the project which involves the Kayapó and visitors was applauded. I was told, "This can work." (Zimmerman, 1992v)

Communication Breakdown Between CI, INPA, and FUNAI

In early 1993, CI began submitting formal research proposals to the Brazilian government agencies CNPq (for research authorization) and FUNAI (for access to Indigenous territories). For international research activities, the Brazilian government required a formal Brazilian university *contrapartida* (counterpart) to sponsor research

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[111] Unless given permission or referencing publicly available information, pseudonyms are used for all university research participants.

projects. CI proposals cited INPA as the university counterpart responsible for overseeing Pinkaiti research activities. A February 1993 Zimmerman letter to FUNAI's president indicated that an INPA-supported research proposal was forthcoming:

> For your information, this is a project of the Associação Indígena A'Ukre which, at the Association's request, is being implemented with help from CI-Brazil, CI-Canada, and the David Suzuki Foundation. Research will be performed under the auspices of The Instituto Nacional da Pesquisas da Amazônia (INPA). We will be submitting a scientific proposal to FUNAI shortly. I hope that we are proceeding correctly and that you will inform us of any additional requirements or concerns. (Zimmerman, 1993c)

At INPA, there was some amount of confusion about its formal role and responsibilities as CI's contrapartida. INPA's director requested clarification from Zimmerman and CI. Zimmerman attempted to clarify and took responsibility for the confusion:

> I learned yesterday there is confusion over a proposal to conduct scientific research in the Area Indígena Kayapó that I submitted to FUNAI. This misunderstanding is my fault and represents a lapse of understanding and communication on my part. I should have gone over this proposal carefully with INPA before it was submitted to FUNAI…. I did not properly clarify two points in the proposal… As I now understand, we must have a "contrapartida" association with a Brazilian research association in order to attain proper research authorization from CNPQ and, hence, FUNAI… INPA represents a great deal of experience and expertise working in the Amazon and we, i.e. Conservation

> International and the community of A'Ukre, believe this is the best institutional choice for research partnership…. Thank you very much for your patience and understanding. I feel very badly that a misunderstanding occurred and hope it will not jeopardize our chances of working with INPA. (Zimmerman, 1993h)

In July 1993, INPA's director followed up with Zimmerman, asking for additional information about the still-unresolved FUNAI issue. INPA was interested in supporting Pinkaiti, but it required additional details about (a) other Brazilian institutional partners, (b) the newest version of the research station proposal, and (c) who would be representing INPA (Fonseca-Guimares, 1993). Zimmerman responded:

> I am happy to hear that INPA is considering participating in the Kayapó Project as a contrapartida…. A) we have not approached another scientific institution in Brazil… we will do so only if INPA declines… B) the proposal remains the same… c) the "scientific committee" represents a preliminary suggestion. If INPA becomes the scientific partner, then INPA should direct the final selection…d) Besides myself, other non-Kayapó persons… are Dr. Marcio Ramos [of USP] and Dr. Gustavo Fonseca, director of CI-Brazil… Also Dr. Leo Silva of INPA has visited the site and indicated his interest…I look forward to hearing from you and hope INPA finds the proposal interesting. (Zimmerman, 1993h)

After a year and a half of negotiation and correspondence, INPA never became an institutional contrapartida for Pinkaiti. Todd, Zimmerman's BDFF mentor and "sage and godfather of the conservation world" (Zimmerman, 1991a), posited in two possibilities for why the INPA relationship fell apart in a 2020 participant interview. First, INPA may not have wanted to deal with the complicated processes of research within Indigenous

territories. Second, geography played an important role. A'Ukre and the Kayapó territories are far from Manaus, representing different regions of the Amazon. Todd theorized: "probably it was a lot harder to do [the partnership] just because it's so distant and it's [Pinkaiti] in Pará, not Amazonas."

A Successful Research Partnership with the University of São Paulo

During the negotiations with INPA, Zimmerman and CI were, at the same time, cultivating a successful research partnership with colleagues at USP. INPA and USP researchers were the first to visit Pinkaiti in November 1992. Interview participant Marcio,[112] who visited Pinkaiti several times, fondly recalled Barbara's first invitation to visit the newly created research station:

> Barbara called me and said, "Look, I am going to the Kayapó. You want to go?"
>
> I said, "Let's go."
>
> I went with her to the Kayapó… obviously, the Kayapó have a totally different culture than ours [Brazilian]. It was something else and so I was fascinated. I found it absolutely spectacular the area involved, that area practically untouched with a just a little bit of forest cut down. It was in an extremely interesting area. I had seen other areas of the Amazon… that in the central Amazon, but an area close the *cerrado*, I had never been. So I thought, from a nature point of view, I thought it was fantastic, and also fantastic were the Indians [Kayapó], who I got along with them together with Barbara. I was given a Kayapó

[112] Marcio, also a herpetologist like Zimmerman, had known Zimmerman since the 1970s.

> name. My name was *Mojokrein*… each time I went, I stayed a month. [I went] every time, more or less every time Barbara came to Brazil. (author translation)

At Pinkaiti, Marcio was the first university researcher to work alongside Kayapó research associates. Marcio recalled the tremendous biodiversity of the area, particularly with respect to mammals. Marcio vividly recalled his Kayapó research associates, the fauna, and the fruit trees planted at the research station:[113]

> I worked a lot with Takmej and with Kanhok... The two of them stayed with us the most there... The number of mammals that were there was impressive. The reptile and amphibian flora was poor, it wasn't too rich in the forest. Obviously, the cerrado [savannah] had other things, but forest fauna was something very interesting. …[At Pinkaiti] there are some big trees. I planted so many trees there. I planted a lot of mango, a lot of avocado, and a lot of lemon trees. (author translation)

Marcio's enthusiastic evaluation of research prospects at Pinkaiti was relayed to CI executives and project donors:

> Dr. Marcio Ramos from the University of São Paulo and myself began species surveys of reptiles and amphibians. With help from our Kayapó co-workers, we found 25 species of frog including at least one new species, nine snake species, four turtle species, and six lizard species... The people of A'Ukre are keenly interested in research activity and therefore proclaimed the station research area of 5 square km: off-limits to hunting. This is an important principle underlying

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[113]The early Kayapó research associates made similar references to planting these fruit trees in Chapter 4.

> ecological research and also facilitates viewing of wildlife. Both Dr Ramos and myself are impressed with the abundance of large mammals in our area. Among other things, we encountered jaguar, ocelot, tapir, armadillo, paca, *cutia* [agouti], deer, collared peccary, anteater and three species of monkey practically at the door of the station. The abundance of animals and pristine uninvestigated nature of this part of the Amazon is attractive to researchers and visitors. (Zimmerman, 1992v)

USP Researcher–Kayapó Interactions at Pinkaiti

Marcio recalled his initial intercultural interactions with Kayapó research associates as they shared time together in the forest. In a 2019 participant interview, when I asked Marcio about Krwytikre's "snake medicine" story (see Chapter 4), he recalled with a smile how Kayapó research associates thought he had "medicine" to help him catch frogs and snakes in the forest:

> Takmej was always joking with me, "Oh Marcio, you can grab that frog because you take a medicine that allows you to grab the frog."
>
> I told him, "No Takmej. I don't take any medicine to be able to grab the frog. You can grab it."
>
> And he didn't believe me. And one beautiful day he saw me taking a Vitamin C pill and he said, "I see you! You are taking that medicine for the frogs."
>
> And I said, "No. It is not a frog medicine!"… It could be in reality that they are afraid of those creatures. They [Kayapó] are afraid of frogs. They are afraid of snakes. They are afraid of lots of things. (author translation)

Marcio also noted that over multiple visits to Pinkaiti, Kayapó research associates and leaders came to understand "Western" concepts of forest and animal conservation, particularly with respect to highly prized animals such as jaguars.[114] Marcio recalled speaking with Paiakan about a jaguar encounter:

> Paiakan said [to Marcio], "See Marcio. I [Paiakan] didn't kill that jaguar- because there was a black jaguar at the riverbank staring at me. I aimed at her and I thought, 'Marcio isn't going to like this.'" And so he [Paiakan] didn't kill it. He said that the jaguar lived because of me. (author translation)

The USP Research Program Begins at Pinkaiti

Marcio's positive experiences at Pinkaiti catalyzed the USP research program at Pinkaiti.[115] In September 1994, at Marcio's recommendation, Dr. Carlos Peres from USP wrote to Zimmerman about Pinkaiti research opportunities,

> This is but a hasty attempt to touch base with you and enquire about ongoing or planned Vertebrate studies at the Kayapó area of the upper Xingu. I have for over a year now contemplated the possibility of conducting a mammal and bird census there, largely swayed by the sheer enthusiasm of my colleague at USP Marcio Ramos, who is very keen on the Xingu sites he has seen so far… Please let me know ASAP about your plans to implement further studies in this area, and when your next visit has been scheduled. (Peres, 1994a)

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[114] Jaguars are considered both dangerous and powerful. In many cases, Kayapó will kill a jaguar if seen on forest or river treks.

[115] Ramos was the Brazilian counterpart for the first international student researcher project from the University of Guelph. Ramos and CI sponsored this research in 1993 (Check, 1999).

Zimmerman responded the same day (September 12, 1994) and invited Peres to join an October expedition, writing "we would be thrilled if you came [to Pinkaiti]… it would be great if you came in October because both I and Marcio will be there" (Zimmerman, 1994c).

Peres's October 1994 Pinkaiti visit and subsequent research program were foundational for ongoing Pinkaiti research. After his initial visit, Peres began a project to investigate game species density and considered launching a Brazil nut ecology study. A December 1994 correspondence between Zimmerman and Peres sketched out several ideas for USP student research projects within Pinkaiti and A'Ukre. Zimmerman hoped to involve Peres in a larger grant about logging impacts, but "figured the *castanha-cutia* [Brazil nut – agouti] study would be as much as you [Peres] want to do" (Zimmerman, 1994d). Zimmerman also shared that A'Ukre community members continued to collect mammal skulls for Peres's project on hunting and game density, noting, "I just received a fax from Kanhok in the village. Sounds like they are doing the study" (Zimmerman, 1994d; see Kayapó, 1992).

Peres responded positively to both research concepts, noting the potential for academic papers and the prospect for USP student research activity to begin in 1995:

> It is good to hear that Kanhok and Takmej are recording and weighing live game and carcasses coming into the village…we could put some nice papers together if in the end of the day we have a reliable sample of 20+ houses * 12+ months…. I would, however, very much like to do the *Bertholetia* [Brazil nut] dispersal biology and seedling recruitment study so you can count on me for that and I'll see what I can do in terms of USP students after January. (Peres, 1994b)

In 1995, Peres's students began working on these research projects, which set in motion the early research phase of the university activities.

Moving into the Early Research Phase at Pinkaiti

With university support in place and Pinkaiti up and running, Zimmerman began to receive inquiries from USP students interested in Pinkaiti research opportunities. The USP students were referred back to Ramos and Peres. For example, Zimmerman wrote:

> If you are serious about zoological research, I urge you to investigate graduate school. The project does hope to be able to subsidize the field expenses of Brazilian graduate students. I am sure Dr. Ramos would be happy to meet with you and tell you about our exciting research site as well as give you some orientation with respect to graduate student opportunities. There are excellent mammologists at USP —Dr. Carlos Peres for example. I hope you will maintain your interest in working at the Kayapó field station and submit a research proposal.[116] (Zimmerman, 1994e)

Early Research Era (1995-2000)

Early research was driven primarily by USP students in addition to a few international student researchers from the USA and Canada. University student researchers often stayed at Pinkaiti for more than one month, with most research activity occurring at the Pinkaiti.[117] Researchers often visited Pinkaiti multiple times a year over the course of several years.

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[116] This letter was Zimmerman's response to an inquiry from the first USP graduate student researcher to visit A'Ukre and Pinkaiti.
[117] A notable exception is the mammal density study, which occurred in A'Ukre (see Peres & Nascimento, 2006).

Early Researcher Interactions With CI

Early researchers had limited interactions with CI beyond the Redenção field office, which coordinated flights, supplies, and other logistics for entrance to and exit from Pinkaiti (see Chapter 5). The first Brazilian coordinator of the Redenção office generated a lot of tension with early USP researchers. According to early researchers, the coordinator was not always available via radio and was described by several as difficult to work with or "moody." In 1997, Vicente took over Redenção office administration and the officially recognized Kayapó Center for Ecological Studies (KCES).[118] Unlike the earlier coordinator, Vicente and his team were supportive and professional. In a 2019 participant interview, Roberto noted the difference between the two Redenção office teams:

> Everything was difficult [Pinkaiti research] so these things had to work, to function smoothly, so that it would be possible and [first coordinator] was kind of a problem. Yeah. And Barbara eventually got rid of her and the thing got better. And she replaced [first coordinator] by Vicente and that was much, much better. Vicente is very professional. Always ready to help.

Other than the Redenção office, most early researchers' time was spent at Pinkaiti with limited direct CI interactions beyond occasional overlapping field visits by Zimmerman or another CI official. One early researcher, Melissa, described the typical relationship between early researchers and CI:

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[118] Vicente worked with Zimmerman, KCES, and AFP until he retired in 2018.

> Zero. Again, I mean a little bit because I had, I knew that the CI was the one that created the station. I went there through the connection that Carlos [Peres] had with Barbara [Zimmerman]. So, again. It was really like a place that I was collecting data. For my master's that I was doing at University of São Paulo so I really had no connection whatsoever with CI except for Barbara. That was it…. But I don't know. Again I was too young and I was just trying to get my data and I wasn't paying attention to any of that too much. (Melissa, 2019 participant interview).

Early Researcher Interactions with the A'Ukre Community

The early researchers were among the first kuben to develop and maintain repeated, ongoing relationships with the A'Ukre community. Most early researchers spent most of their time at Pinkaiti and community interactions were typically brief, primarily related to community meetings and celebrations. Upon arriving in A'Ukre, researchers often spent one or two days in the community, meeting in the *ngà* to consult about, explain, discuss, and request permission for research activities. Upon departure, researchers held another ngà meeting to share research progress and thank the community for their support.

Village celebrations were also an important part of the researcher experience. Researchers sometimes interrupted their Pinkaiti research and traveled the 12km down the Riozinho River from Pinkaiti to A'Ukre in order to participate in celebrations, meetings, or important events (see Figures 1 and 2). Still, the first researchers noted that community contact was limited. Participant Melissa detailed a typical early researcher's relationship to the community:

> I would mainly pass through A'Ukre and stay in the ecological station at Pinkaiti because that is where our work was. From time to time they [A'Ukre] would have, I don't know, some kind of festival or celebration and we would go downriver to A'Ukre or and would usually spend a day or a night in A'Ukre when we're coming in or getting out just to go to have a good relationship with them. Sometimes, mostly the men… would go up the river and pay us a visit [at Pinkaiti] and stay there for a little bit. But … I didn't have a lot of contact with the community. (2019 interview)

Researcher-Kayapó Interactions at the Pinkaiti Research Station

The majority of early researcher interactions with the Kayapó occurred at Pinkaiti. Early researchers dealt with growing pains, as the first research interactions were fraught with misunderstandings and tensions around resource constraints, scientific inquiry, and interpersonal relationships. Some examples of these misunderstandings are described below.

The Shift in Activities from Donors to Student Researchers

Before the student researchers, many Pinkaiti visitors were short-term, international donor groups explicitly designed to provide the A'Ukre community with financial and material resources (see Chapter 5). These initial visitors were happy to leave behind their camping gear and clothing, and they paid significant community fees to A'Ukre. On the other hand, early student researchers budgeted their Pinkaiti visits on research grants with limited resources. Most student researchers were unable to offer the same types of material and financial compensation previously offered by the donor groups. The tour groups hiked along the trails and went on fishing expeditions, but the

researchers were focused on the work of data collection. The shift from wealthy donor groups to student researchers created some initial tension between researchers and the A'Ukre community. Consequently, some of the first early researchers had a hard time recruiting Kayapó associates to support their research. Participant Caterina, an early researcher, recalled:

> I think because … it was the beginning [of research], so the Kayapó's also sometimes, they didn't know how to interact [with the researchers]. Because one of the problems that I had was I was not bringing enough good and interesting gifts to them [Kayapó]. And I was telling them you need to remember that I am Brazilian so I can't afford bringing the same type of things that people from abroad can bring… So it took them a little bit of time to understand this and in the beginning they didn't want to work with me… My first assistant was the husband of the nurse. And also for Melissa, no one wanted to work with her. So we needed to get someone else from the city [Redenção]. (2019 interview)

Co-Constructed Scientific Research in the Forest

Researchers and Kayapó associates spent months at a time together at the research station. As their projects continued, researchers generated mutual understandings about field work and expectations. University researchers noted that for their Kayapó associates, the "Western" science ideal of systematic data collection did not map onto Kayapó cultural norms. The Kayapó knew the forest and where the animals or plants of interest were located, but they were curious about the researchers' "scientific" methods. Interview participant Jeffrey, who was a student research assistant in 1996, returned in

2001, and currently works as a field course instructor, noted his observations of the shift in Kayapó understanding of “research:”

> [I]t was a process right and by the first time I was here [1996], Caterina was having lots of trouble too with Bepkro to make sure that he understands that things have to be done in a systematic way. It is not like just because he thinks that “here there are animals just capture, eat more Brazil nuts here, you have to put the experiments here.” She has to explain to him, no you have to do it at a certain distance all the time, the transect and the grid has to be done in a certain way, but like by the time they came back here in 2001, things were all already different. Like I think Bepkro was the first one that like pretty much talk a lot of Caterina’s work in the village and people get used and then it was Andres, Roberto, Melissa did the same thing so they are more used to that and they start to understand our [researcher] way. (2018 participant interview).

University researchers also sought to understand how their field work fit into the lives of their Kayapó research colleagues. This required researchers to make accommodations for A’Ukre community activities. Pinkaiti research activities often paused so everyone could return to the village for festivals, sporting events, or other important community events. Early researchers detailed the balance between research and community activities, noting that research projects were never executed as designed. As researchers returned to Pinkaiti for multiple field visits, researchers recognized that community-initiated breaks needed to be built into their research design and processes. According to interview participant Paulina (2019):

> And I remember, it was the first year I was doing [research at Pinkaiti]. So I was doing trap lines and I actually what I started with was getting, was figuring out how many traps I needed and how long it would take me to kind of reach an asymptote of species that I was looking at and so I'd come up with I think it was like seven days. I needed to keep my lines. I needed to have ten traps and keep them open for seven days or something. So in the middle of one of these like seven day periods. I can't remember what festival it was. Some festival happened at the village that was important and we were all invited and none of our field assistants were going to be working with us because they were all going back home for whatever festival it was. So that was like the first, the first like crisis of academics where I was like, "But I have to keep it open for seven days. What am I supposed to do?" I ended up closing it down and re-trapping later. But you know those kinds of things where you realize that the scientific ideal is not necessarily possible to do.

Cultural Misinterpretations

Interview participants reported other instances of mismatches between researcher intentions and A'Ukre community understanding. Sometimes these misinterpretations required the intervention of community leadership. One early A'Ukre-based researcher, Carissa, noted a significant cultural schism between her understanding and the community's that occurred when she wanted to record height and weight measurements of A'Ukre residents. Carissa (2019 participant interview) shared:

> I had one conflict, but it's a cultural conflict that made me sad, but I understood completely. I was measuring and weighing people- children particularly because

> of, not exactly nutrition, but I wanted to have something on how was their well-being in a sense, but like on health. So I was measuring people and weighing. And they were afraid of that … and I couldn't understand why they were afraid of the scale. ….But they were afraid, scared and I didn't know why… but the kids were crying and things like that, that I couldn't understand. And then someone thought, you know, it's because when someone dies, they come here and measure the person. To send the coffin. Something that was not usual for them and usually they didn't put the person in the coffin. They put the person and the coffin on the side by them... So for them and they thought that because you measured the person, the person is going to die.

In this case, Cacique support and open dialogue about the purpose of the research resolved the issue. However, navigating intercultural misunderstandings defined much of the early research experience.

Theft and Conflict Resolution

Early researchers noted that the Kayapó and the researchers had very different conceptions of ownership and resource use. Gasoline, boats, and other research materials sometimes disappeared, often coinciding with community visits from those who used Pinkaiti as a fishing spot or an overnight camp for river travel. Early researchers shared that important materials were usually returned, but sometimes with tense, performative resolutions. As research activity progressed, the university students and Kayapó became accustomed to performative ways displeasure was expressed and addressed across cultures. Interview participant Melissa (2019) described one typical instance:

> A group of men went up [to Pinkaiti] and they were going to either fish or hunt and they just stopped by at our ecological station for a night and we were always fine with that… and then a bunch of our batteries disappeared … and I went there and told them, "Look. I know that those batteries were here and someone just took it and you guys have to give that back to us because we're just starting our field period here season, and we need those batteries."
>
> And they got really angry. And it was a lot of men. It was just me and Caterina there, and of course Pereira and Noel [from Redenção], and they [the Kayapó men] got really, really angry and they started making all these speeches in Kayapó and … I barely understood Kayapó so I really didn't speak the language. I understood a few words, … Anyway, they were super angry and then they said a bunch of things and then everybody was kind of like, I don't know, kind of uneasy… but at the end, they kind of came together and they found the batteries. They gave the batteries back to us and they apologize in a way and said, "Look, we are not going to do that anymore. And you're right."
>
> But in this kind of ritualistic way that they do, like the speeches and they, I don't know, talk a lot. And so it was kind of pretty tense, but at the end it seems to me that they kind of like to make this whole ritualistic scene and then everything resolves in a way.

Pinkaiti as an Incubator for Intercultural Understanding

Despite logistical, cultural, and practical challenges, early researchers highlighted the unique and rewarding opportunities at Pinkaiti for cultural understanding, collaboration, and knowledge exchange. The researchers, the Kayapó, and Redenção

associates shared and discussed their unique world perspectives with one another throughout extended Pinkaiti field work. Roberto recalled:

> we were always talking about the world. About we were explaining to them how our world worked and they are telling us about the logic of their culture. It was very fun, very fun. It was like three people from three different worlds. Like me, a PhD student, coming from England. Coming from São Paulo University. Pereira. Pereira was a former logger, gold miner. A person from our [Brazilian] society, but very marginal to our society… And Bepkrati was the Indian. So like three very different people with one vaguely defined task in the forest for a few years. It was quite an experience. (2019 participant interview).

Early Researcher Interactions with FUNAI

Early Brazilian student researchers noted limited FUNAI interactions. Caterina (2019 participant interview) recalled that the general understanding was that A'Ukre was responsible for research authorization at Pinkaiti, stating:

> and with FUNAI, no one had contact because, I don't know if it changed. At that time, if the Kayapó's were accepting you to come, so that's it. They [Kayapó] had the authority to decide who comes in and out of their lands.

The few early foreign researchers did work with Brazilian counterparts to ensure compliance with Brazilian government policies, but they did not recall the process as complicated or restrictive, even if paperwork was not necessarily turned in on time. Paulina shared:

> No. We didn't go [to FUNAI]. I don't think I did anything through FUNAI. I don't think. I don't recall doing. If I did it, it was like super easy and it was a lot of

> forms and nothing else… I had a Brazilian faculty member at Viçoza [University] who was my sponsor. (2019 participant interview)

Toward the late 1990s, early researchers did recall increasingly restrictive government policies, including concerns about foreign actors and Indigenous research. Participant Melissa (2019) remembered:

> So there was a problem at a point. And so again, the rules for international NGOs changed and the permits to go to Indigenous areas became more. So, a lot of things changed right when we were about to finish our work so we didn't deal with any of that, but I know it became way more complicated. But I guess it was better too, right, because things became a little bit more transparent and not so cloudy.

Two Early Pinkaiti Research Critiques

The practice and perception of A'Ukre as a "pass through" for researchers who spent most of their time at Pinkaiti was an early critique of the CI research model. Interview participant Heitor (2019), an early researcher, critically described Pinkaiti as a "band of biologists" and an "Apache fort" created so the researchers could feel comfortable inside the Indigenous territories, noting, "they [researchers and NGO officials] would bring the Indians and the Indians would go [to Pinkaiti], in the territory that was an Indigenous territory, where they would have a space [Pinkaiti] where they [biologists] had control." (2019 participant interview)

Another early researcher concern dealt with equitable distribution of benefits to the community. Some early researchers observed a disparity in the social and economic benefits of the project, noting that benefits of Pinkaiti seemed to be concentrated within

community members who participated in Pinkaiti activities and were not evenly spread throughout the community.[119]

Learning and Building Toward the Next Phase of Research

Early researchers were a small group of mostly Brazilian graduate students who acknowledge the "chaos" of the early research years. Through their experiences, early researchers identified and began to smooth out many of the intercultural and logistical issues of Pinkaiti activities, particularly in regard to community relations. According to Melissa:

> [I]t was all a bit crazy and all of it not very organized in several aspects, but because I think because we were like a small group and it was just the beginning, it worked out pretty well and hopefully, it did pave the way. [Hopefully], it paved the way for other people to do a better job there [at Pinkaiti] than we did. (2019 participant interview)

International Research Era (2000–2004)

The international research era was marked by a different demographic of university researchers at Pinkaiti who learned from the experiences and lessons of the early Pinkaiti researchers.[120] While early research was driven by USP students and faculty, international research was led by students of Zimmerman and her colleagues from the University of Toronto (UT). During the international research era, Zimmerman held dual appointments with UT as an associate professor in the Faculty of Forestry and

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[119] These early university participant observations and criticisms persisted throughout the four phases of the partnership and are concerns that Pinkaiti partners still grapple with during the field course era.

[120] Some USP/UEA students continued their research projects at Pinkaiti into the international research era. There was some overlap in the field at Pinkaiti.

with CI as the Kayapó project director. International researchers were funded in part by two grants awarded to Zimmerman and a UT colleague from the Donner Canadian Foundation (Zimmerman, 2000; Zimmerman & Malcolm, 2001). The Donner grant proposal showcased the overlapping interests of CI and UT in funding graduate student research projects:

> The mission of Conservation International is to conserve the earth's biodiversity though empowerment of local peoples. The mission of the Faculty of Forestry, U of Toronto, is to train professionals in sustainable forest management and conservation. Donner funds will be used to support ecological research on tropical forest conservation by graduate students in the Faculty of Forestry working on Conservation International's "Kayapó' Project" in the Brazilian Amazon. (Zimmerman & Malcolm, 2001)

International Researcher Interactions with CI and FUNAI

International researchers had more dynamic relationships with CI than early researchers centered on three main activities:

- Redenção office (KCES) logistics and support
- CI Brazil supported government relations and research authorizations
- Participation in the large 2000 and 2001 CI-sponsored Kayapó leadership meetings in A'Ukre (see Chapters 4 and 5).

CI–Redenção Logistics and Support

International researcher interactions with the KCES Redenção team was similar to that of the earlier researchers, focused on transportation and logistics (see Chapter 5). Still, international researchers recognized KCES staff as an essential aspect of the

Pinkaiti research program. International researchers noted KCES staff support, compassion, and friendship in spite of language and cultural barriers as researchers arrived in Redenção (mostly from Canada) and were ushered to A'Ukre and Pinkaiti.

University–CI–Government Relations. International researcher relationships and researcher authorizations with CNPq, FUNAI, and IBAMA were mediated through CI Brazil's Amazon programs team (see Chapter 5). During international research, government authorization was always in question, reflecting the ups and downs of CI's ongoing partnership agreement negotiations with FUNAI. For some researchers, research progress was stalled when all Pinkaiti activity was halted during CI negotiations with FUNAI in 2001 and 2003 (CI, 2001b, 2003). Subsequently, international researcher experiences reflected a spectrum of CI-government engagement.

No FUNAI Interactions. Some international researchers, particularly those who spent only one field season at Pinkaiti, did not recall submitting paperwork or interacting with CI or FUNAI. Their Pinkaiti experiences were fully negotiated by Zimmerman via CI.

Simple Relationship Between CI and FUNAI. Another set of international researchers[121] shared that they submitted a research proposal and then CI took care of the rest. Interview participant Brady (2019) shared: "I primarily drafted our research proposals and then I collaborated with Barbara [Zimmerman] to get the CNPq

authorizations and the Pinkaiti permits. I wasn't directly involved with that side except for providing Barbara with the paperwork to get their approvals."

Complex Paperwork Submission. Researchers who collected biological samples generated a paper trail of documents including CNPq research proposals, IBAMA collection authorizations, and ultimately FUNAI research authorization (CI Brazil, 2002b; Instituto CI Brazil et al., 2001; CNPq, 2002; IBAMA, 2002a, 2002b). International researchers submitted their documents to Zimmerman. Then, research projects were sponsored and submitted by a MPEG research faculty and CI Amazon programs director (Cardoso da Silva, 2002). However, compliance was never clear. The number of documents and the time-consuming process meant there was often confusion and concern over whether projects had been approved, as Sarah, an international researcher explained:

> So [CI staff] was "finger quotes" in charge of getting everyone permits… Like I know it is hard to get permits in Brazil…So. There was kind of like this, yeah paranoia about it. I never had any interactions with them [FUNAI] though. You know, nothing ever happened, but I felt like, you know, keeping a low profile when I was there [in Brazil]. (2019 participant interview)

In-Person Interaction with the Brazilian Government. At times, researchers visited government offices in Brasília on their own to obtain long-delayed permits. In one case shared by several international research participants, Jeffrey spent several days in Brasília visiting multiple government offices. Jeffrey commented:

> I remember one time that I went to Brasília specific to get a permit because I have my collecting [biological samples] permit, but not transport permit and I really

> need that and I spend like 3 days just in the secretary, going to look in the secretary office of the decision maker people and take the paper from one department to another to get the stamps and everything else. So that was my major interaction with government in this area. Besides that, most of the time, CI … was able to get all the permits that I need for most of the time. (2018 participant interview)

Dropped Research. The lack of clarity surrounding delayed or extended time frames required to secure research authorization forced some potential Pinkaiti researcher to abandon their research. Interview participant Jon, a UT faculty advisor, recalled:

> That was so frustrating. At one point, we had like a year delay or something and that's when I had one student who was going to come down and work there. She was a good student but she just lost it and said "No I can't. This is ridiculous."

Participation in the CI Meetings

Many Pinkaiti researchers were present during the large 2000 and 2001 CI-sponsored Kayapó leadership meetings in A'Ukre. While researchers did not participate directly in the deliberations beyond sharing their current research projects, they came away both impressed and critical of CI initiatives.

Meeting Impressions. Student researchers were struck by the extravagance of the meetings and the number of important guests in attendance, including Kayapó Caciques from several villages and the heads of CI Washington and Brazil. International research Jordan recalled the meeting:

> [W]hen CI was there, there were all these meetings and stuff. So we went back [from Pinkaiti to A'Ukre] and Russ Mittermeier [CI President] was there and I

> forgot the economists name. He was there and there was talks and there was a lot of very sort of serious negotiations and so forth and. The other communities were all involved and everyone [Kayapó] was dressed up. (2019 participant interview)

The meetings also created distinct memories regarding some extravagant expenses. For the meeting, food was flown in from Redenção. Interview participant Brianna (2019) noted, "I remember one very funny thing. That the Kayapó, they brought a cow inside a plane. The plane was bleeding like they put the pieces of the cow inside the plane." For graduate students, these were indelible impressions of the Kayapó interactions with their NGO counterparts.

Researcher Critiques of NGO Activities. Other international researchers in attendance at the meetings shared their discomfort with the discussion of and escalation of NGO activities in the Kayapó communities. Some researchers felt that the NGO focus on purchasing materials for surveillance would simply create an "arms race" with loggers and miners at the territorial borders (Salm, 2001). At the time, they felt the NGO was missing an opportunity to empower the Kayapó. The researchers hoped the NGO would instead focus resources on education and health projects, rather than just motors, gasoline, and other material goods. Roberto, an early Brazilian researcher who overlapped with the international research era recalled:

> [My] first NGO experience was 2001 when there was this meeting with [CI leadership]. Yeah. It wasn't good for me… because I felt at the time that I was a big part of it [Pinkaiti] and they [NGOs] arrived there from nowhere. I mean not from nowhere. They had a huge part on it, but wasn't in contact with them…And the thing is that I didn't like this stuff… The focus [of the meeting] was on

> surveillance. They wanted to create this surveillance project and I had this opinion that there should be much more than surveillance. There should be more health, education, and sustainable development than just seeing stuff for surveillance because I knew that the Indians. They want both. They want cars. They want gasoline and we've been working to give them more than that. And then these people come just with both gasoline and radios and I really didn't like it.

Despite their critiques and disagreement with NGO methods, even critical researchers acknowledged the NGO's success in conservation and environmental protection, noting that today Kayapó territories are still protected despite ongoing threats. Reflecting on these meetings Linda shared:

> I think this was a time and see I was trying to expand and fortify their presence in the Kayapó Indigenous area. I know they [CI] were getting a lot of money from the Moore Foundation and that they had to justify it. So they were doing that. And they are successful. I don't always agree with their politics and the way they handle things, but they are successful in terms of protecting the area, the environment. (2019 participant interview)

International Researcher Engagement with A'Ukre

The most significant part of the international researcher experience was the time working alongside Kayapó research associates. In this regard there were many similarities with early research. Research activities were conducted mostly at Pinkaiti. Researchers still held entry and exit meetings in the ngà to share research ideas with the community. However, the experiences of early research and the influx of international

funding meant increased opportunities for professional, personal, and informational exchanges between student researchers and Kayapó research associates.

First, an increase in the number of researchers in the field in a given year meant more research projects. Second, there was a shift in the model to include more Kayapó research associates at the request of the A'Ukre community (see Chapter 4). Zimmerman noted the learning curve for researcher engagement with the community:

> At first, I thought… we need 2, we need a couple of guys … who can sort of be the permanent staff and … they were great, but it turned out that ended up causing a lot of friction in the community … but in those days [early research], the funding for one thing was much less. That was part of my learning curve was realizing we can't just have Kanhok and Takmej. However, that situation improved once more researchers came [international research] and we were able to hire more assistants. (2017 participant interview)

The new model meant each international researcher was accompanied by at least two Kayapó research associates. International researcher Dawn remembered:

> Every researcher usually had about 2 [Kayapó] guides if I can remember correctly. Yeah. About 2 guides. Timothy and Peter might have brought up 1 or 2 more because they were like setting up traps and stuff so they probably needed a little more help sometimes. Yeah, but I think each researcher had about 2 guides at a time. (2017 participant interview)

Working with Kayapó Associates

Like early researchers, international researchers created shared research protocols and routines with their Kayapó counterparts in Pinkaiti's forest. Jordan, who spent four

consecutive field seasons at Pinkaiti, described data collection and relationships with Kayapó associates. Jordan (2019 interview) felt his research was not particularly challenging or interesting, but that Kayapó associates particularly enjoyed field work that engaged Kayapó forest knowledge and physical activities:

> It wasn't [data] so difficult at first because they [Kayapó], like so they speak Portuguese so they can count. And they can and they can write. So you know at the beginning, it's like simple things, like just taking some notes or some measurements down… They were able to take that really well and they enjoy that. Sit down. Smoke a cigarette. Write down some numbers. Smoke another cigarette….and then the experiments were a bit more fun where we'd have to like, find out. I have to ask them, "Like, okay, look, where's this tree?" And I need to look for a canopy gap to and we need to design it [the experiment] this way. And they got very into that. So, all the more physical activities clearly appealed to them. Especially searching where they could show their prowess and their-, where I would be the kuben who doesn't know anything. You know which is fine. I don't mind. I didn't mind at all being having to rely on them to navigate the forest and to find things and that's fine by me. I'm on their turf you know. It wasn't too hard to be honest. You know certain techniques were easy to demonstrate. … I think you know, the assistants I had were really smart guys. They picked things up pretty quickly. I just wish that I would in hindsight I wish the work I did could be a bit more exciting somehow…. Then after a week or two of this, they got a bit tired of it and I could tell it they're just slogging through a little bit… Because my

> work wasn't very exciting compared to like to work with animals. We were just measuring plants. They found that pretty boring to be honest. They told me so.

International researchers also recalled certain challenges navigating personality differences, particularly with younger community members without prior experience as research associates. The new model noted above created additional opportunities for younger Kayapó research associates at Pinkaiti. International researchers noted or perceived different levels of interest and quality of younger and less experienced Kayapó research associates supporting their projects. Sarah explained:

> I went down there for a pilot season first right and during that period, it was like a month or so, Bepkum was my assistant and he was great. He was fantastic during that month. He was super helpful, hardworking… when I went back, I had Bepkum, Bepkapiti and Betikre… Occasionally I had other people helping out for a couple of days to cut trail or whatever, but Bepkum and Bepkapiti at that time were both quite young. Bepkapiti especially, I think he was only 17 or 18 and Bepkum was probably like very early 20s and then I had Betikre and Betikre I am probably guessing was like in his 50s at the time. 40s for sure and Betikre was amazing. Bepkapiti and Bepkum were nightmares. They just turned into absolute nightmares… so Betikre would do the bulk of work and Bepkapiti and Bepkum would just kind of goof off. They were just always sort of goofing off. (2019 participant interview)

In these circumstances, the Pinkaiti coordinator and community leadership could swap out research associates (see Chapter 4).

Learning with the Kayapó During Research

Researchers consistently cited how much they learned from Kayapó associates through casual conversations, particularly as they navigated, observed, and learned how to "walk in the forest." As Jordan (2019 interview) shared:

> So yeah they told me how to walk actually in 3 dimensions… I'm so used to walking on two dimensions on pavement. That it took me a good few weeks to learn how to walk through the forest because we spent very little time on the trails. We spent most of the time off trail. And they also taught me too about how to, … how to remember certain trees... To look for landmarks when you are in the forest and how to identify your way back, you know, through cuts in the forest or when you break branch with your hands for example… They told me a lot about the animals and you know the seasons, for example like when things come through and where to find turtles and… how the peccary move in herds and the calls of certain birds and what the birds eat. I mean I picked up a lot of just ecological information because we had to talk to each other during the day.

Researchers pointed out how useless they were in the forest without their Kayapó counterparts, even with research technologies like GPS units. Dawn (2017 participant interview) shared a notable exchange with the Kayapó team discussing the purpose of GPS and "getting lost" in the forest:

> So, even from the beginning, we couldn't have, I couldn't have done it without them [Kayapó]. We [international researchers] were completely useless in the forest… As researchers [we] have always relied on them… I remember the whole GPS thing, right… You know we have these ridiculous weird things [GPS units] we are holding and they [Kayapó] are like, "what is that?"

"Well just so we [researchers] don't get lost," and they [Kayapó] just start laughing, you know.

"We [Kayapó] don't get lost."

"Well you guys [Kayapó] don't get lost, but we get lost."

For them it was just interesting. The cultural exchange stuff is the best. It's the best part of being up there [at Pinkaiti] to be honest. It's all the small things that are so different from the way we live [in Canada].

Creating Meaningful Interpersonal Relationships

Student researchers created lighthearted, yet profound relationships with their Kayapó counterparts during their ongoing research experiences. Researchers and Kayapó created connections over shared interests in fishing, music, food, and simple jokes—areas where cultural and linguistic barriers were easily overcome. Participant Kelsey noted how jokes were used to create a common language and shared experience:

> The universality of human experience. So you know despite the ridiculous limitations on my ability to verbally communicate with members of the Kayapó community, there were many moments of connection…You know, we had a joke around a camp. We had a number of running jokes that never ever, ever got old, never were sort of complicated by further development… So for instance one of the jokes was who in the camp was weak and who in the camp was strong. (2019 participant interview)

Researchers who returned for multiple field seasons created deep interpersonal relationships with one another and with the A'Ukre community. Dawn (2017 participant interview) spoke about her experience as being similar to creating family:

> And then from there [repetitive visits], I just got way more sucked into the people. Yeah… I think the experience was so unique that anyone who spent time there we bonded in a way that you don't normally get to bond in other kinds of experiences... So it has this certain amount of feeling of family to it.

For many, the A'Ukre community became more important than their Pinkaiti research agendas. Like Dawn, Roberto reiterated the sentiment of family and emotionally commented:

> Now I am much more connected with the cultural aspects with the Indians than anything else. If I went to A'Ukre now, I wouldn't go straight to the project [Pinkaiti]. I would stay in A'Ukre at least for a good part of the time because they are like relatives. They are more than friends. They are family to me. (2019 participant interview)

Following the completion of their research, Dawn, Roberto, and many other researchers continued their relationships with A'Ukre as NGO employees or field course instructors.

Research Wind Down and Transition to Field Course

International research wound down in 2004[122] when Donner funding ended, CI shifted its priorities (see Chapter 5), and there was no clear pathway for international research authorizations. Jon, the UT faculty advisor, explained that without external support, he was ready to move on to a different topic area:

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[122] Some researchers did go on to finish out their data collection or develop new projects including a coconut palm project in collaboration with FUNAI; AFP; A'Ukre; and another Kayapó village, Môjkàràkô (see Salm et al., 2009, 2010). Ribeiro conducted research on mapping Brazil nut groves at Pinkaiti, A'Ukre, and other Kayapó villages in 2007 for an INPA dissertation (see Ribeiro et al., 2014). Zanotti, an anthropologist, did doctoral research in A'Ukre in 2005 and 2006 after participating in the 2004 field course (see Zanotti, 2016).

> So I’m, I'm fundamentally kind of more interested, rather than doing the pure rainforest ecology, I was kind of more interested in doing impacts of anthropogenic development activities. So we had done mahogany [research] and I was kind of like, “OK done with that, move on.”

For researchers who wanted to continue work at Pinkaiti, CI no longer supported research proposals, and AFP did not have the mandate or capacity to support research requests and comply with the necessary protocols for FUNAI authorization (Vanessa, 2019 participant interview). As a result, research access became more difficult, with one researcher, Roberto (2019 participant interview), noting: “when AFP started, research finished. Because of that, because [of] the authorizations. Because you can't have unauthorized research going on if you have an NGO. So the NGO [AFP] began and the research finished.”

The general feeling is that without the challenges of research authorization, Pinkaiti research activity probably could and would continue today. Ultimately, however, the challenges of research authorization and funding led to the field course transition. Zimmerman explained:

> If there did not exist this authorization problem, that place [Pinkaiti] would be booming, buzzing with people [researchers] all the time, right. But because of the authorization problem, we went off on this path of the international field course. (2017 participant interview)

Field Course Era (2004- present)

The field course era of the Pinkaiti Partnership dramatically shifted the role of university partners. The field course era began when University of Maryland

Anthropology Professor Dr. Janet Chernela brought the first group of students to A'Ukre and Pinkaiti in 2004 for a field course entitled *Conservation and Indigenous Peoples* (UMD, 2020; Zanotti & Chernela, 2008). Since 2004, the course has moved through three phases: pilot, identity, and expansion (See Table 18). In the pilot phase (2004–2009), courses were modeled on earlier Pinkaiti research activities and expertise. During the identity phase (2010–2013), significant modifications were made to course infrastructure and curriculum. Finally, the field course expansion phase (2013-present) resulted in an additional field course, more university partners, new research opportunities, and spin-off partnership activities.

Table 18

Field Course Phase, University Partners, and Key Activities

Field course phase	North American universities	Brazilian universities	Key activities
Pilot (2004–2009)	UMD	UnB	• UnB as Brazilian counterpart • modeled on earlier Pinkaiti research • increased engagement with AFP
Identity (2010-2012)	UMD	UnB	• Shifts in financial arrangements to AFP, • Construction of physical infrastructure in A'Ukre • Curriculum changes to include more A'Ukre participation and academic disciplines • Increased community participation • UMD-Purdue Partnership agreement
Expansion (2013–present)	UMD; Purdue University; Middle Tennessee State University [a]	UnB UFU [b] UFPA [c]	• Parallel Purdue-UFU field course • Continued balancing of A'Ukre-Pinkaiti activities • University partner expansion • Spin-off research projects and partnership activities

Note. [a] First year of participation 2019. [b] 2013–2016 participation. [c] Participation starts in 2017.

Field Course Phase 1: The Field Course Concept and Pilot (2004-2009)

The field course concept emerged in the aftermath of the 2000–2001 CI-sponsored A'Ukre meetings. Chernela attended the meetings as an NGO consultant exploring ecotourism project opportunities in Kayapó territories (Chernela & Zanotti, 2014; J. Chernela, personal communication, 2020; Zanotti & Chernela, 2008). Long-time

colleagues, Chernela and Zimmerman already knew each other from overlapping time with INPA[123] and personal relationships with Paiakan. Chernela and Zimmerman were both critical of ecotourism and skeptical of "traditional" ecotourists in the Kayapó territories (J. Chernela, personal communication, 2018). Between 2001 – 2004, Chernela and Zimmerman discussed the potential for ecotourism with the Kayapó. The two came to a shared understanding that instead of service-oriented ecotourists, university students focused on learning outcomes would be a better match community and NGO goals. In a written 2018 interview, Chernela recalled the 2003 conversation that crystallized the university field course concept:

> When I next spoke with Barbara [Zimmerman] I said, "Students are the best ecotourists." She agreed and we understood one another immediately. Over the years, she and I have repeated that phrase often, "Students are the best ecotourists." We mean it in the ongoing present and we also recall the alternative options. I think we fully understand and share the values behind that decision. We have never regretted it. The next year, 2004, I joined the faculty of the University of Maryland, and we began the first class that summer. (2018 participant interview)

The first field course borrowed heavily from the earlier Pinkaiti research model. Transportation and logistics were organized through the Redenção field office. Most pilot course activities took place at Pinkaiti, where field course students and instructors walked

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[123] Chernela was a visiting professor at INPA in the same period that Zimmerman conducted PhD research at BDFF. Recall it was Chernela and Posey who invited to Paiakan and Kuben-i to FIU in 1987 (see Chapter 1).

the network of researcher trails while learning from Kayapó course instructors (previously research associates) who knew the trails and spaces at Pinkaiti well. In hindsight, Zimmerman (2017 participant interview) remembered that despite the Pinkaiti infrastructure, the first course was disorganized and totally by “the seat of the pants.”

For the 2007 field course, the university instructional team consulted with the A’Ukre community to initiate more community-centered course activities. However, the physical infrastructure of the course continued to exist almost exclusively at Pinkaiti. Whereas Pinkaiti had the recently constructed CABS research facility (see Chapter 5), A’Ukre did not have a project house where students could rest or congregate. Pilot phase course budgets financed support staff (cook and instructors) at Pinkaiti only. During A’Ukre based course activities, participating university staff and students cooked and maintained their own camp. In their interviews, 2007 course participants recalled confusion around course activities and expectations. Stanley, a 2007 course participant reflected:

> I wish that there would have been a little bit more clear cut expectations. There are still some elements where I'm a little bit foggy, but I vividly remember people's frustrations… We just kind of expected a little bit more direction. (2019 participant interview)

In 2008, there was administrative confusion related to FUNAI field course authorizations. University and NGO administrators did not submit FUNAI documentation to FUNAI Brasília in a timely manner and course participants were not authorized entry to A’Ukre. Students and instructors spent several days in Tucumã, waiting for course

approval that never arrived. In the end, the field course team salvaged an alternative Xingu River program that did not visit A'Ukre or Pinkaiti.[124]

Pilot Phase University–NGO Interactions

Pilot phase university–NGO interactions focused on logistics, coordination, and finances. In 2004 UMD (via Chernela), worked directly with CI (via Zimmerman) to manage the budget and logistics for the field course in much the same way as earlier researchers. In the pilot phase, UMD worked primarily with CI[125] as the nascent AFP developed a financial track record to comply with UMD's institutional requirements. UMD documentation highlighted the essential role of CI and the justification for partnering with CI on course authorizations and logistics:

> No other organization than Conservation International can obtain a permission from the Brazilian government to visit the Kayapó Reserve. Conservation International organizes the logistics of the class while in Kayapó Reserve, including the local guides, translators and cooks. They are also negotiating our entry fee to the Kayapó Reserve. (UMD Education Abroad, 2008)

In 2007 AFP began to manage a portion of field course finances. While the bulk of program overhead was managed by CI, UMD transferred direct payments to AFP to cover the A'Ukre community fee and Kayapó instructor salaries[126] (AFP, 2007). The

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[124] The Xingu River program is not discussed here, but it was recalled fondly by four interview participants I spoke with. In 2009, the global H1N1 pandemic led to course cancellation.
[125] The 2008 Xingu River field course was the last year that CI supported course administration. In 2009 Zimmerman left CI for ICFC, and when the field course resumed in 2010, all UMD course budgets, payments, and administration were processed directly through AFP (see Chapter 5).

[126] In 2007, 21 A'Ukre residents were paid by AFP as instructors.

receipts reconciled both the AFP and UMD finances, providing information about the recipient, service, and amount transferred. AFP (2007) documentation noted that

> The Protected Forest Association received from [UMD] the amount of R$ 6000.00 (six thousand *reais*) related to the payment of the entrance fee in the community of A'Ukre (Kayapó Indigenous Land) for the 16 [university] participants of the course "Study Abroad" of the University of Maryland. This resource will be used according to the decisions made by the two leaders of this community. (AFP, 2007, author translation)

Recruiting UnB as a Field Course Counterpart

In 2007, the field course team recruited the National University of Brasília[127] (UnB) Anthropology Department as a Brazilian counterpart for CNPq's application for government course approval. On April 12, 2007, Chernela wrote to UnB colleagues and established the existing model for Brazilian student participation:

> Through this letter I am inquiring about the possibility of your participation in a field course… We would like to have your participation in some form in this project. We suggest the participation of two of your students in the field course whose costs will be covered by us… we believe that the participation of a renowned Brazilian researcher, affiliated to a national institution of teaching and research, [and] with the prestige that the University of Brasília has, can be fundamental for us to conduct this course… due to the need to get an authorization from CNPq… If you are available and interested in this

[127] Translated from *Universidade Nacional de Brasília*

participation, I will send you the completed CNPq form for your review. (Chernela, 2007, author translation)

That July (2007), the first two UnB students participated in the field course. AFP sent a letter to FUNAI informing them of the additional UnB course participants:

> [A]t the request of the community of A'Ukre (Kayapó Indigenous Land), the authorization for the entry of [UnB student 1] and [UnB student 2] in their territory. Both are graduate students from the University of Brasília (UNB) and intend to accompany Doctors Janet Chernela and Barbara Zimmerman and a group of students from the University of Maryland on this visit to A'Ukre. The authorization for the other 19 people who will participate in this visit (16 foreigners and one Brazilian) has already been issued by CGEP (case No. 86/CGEP/07) and is attached. I am available for any clarification. I thank you in advance and look forward to your reply. (Jerozolimski, 2007b, author translation)

At the end of the pilot phase, the field course had three core components to build upon in subsequent years:

- A Brazilian counterpart for CNPq and FUNAI course authorizations
- Opportunities for Brazilian university students and faculty to participate in the program
- A course curriculum that integrated faculty expertise in ecology and biological sciences with anthropology and social sciences.

Field Course Phase 2: Developing an Identity (2010 – 2013)

The second field course phase was marked by the balance of financial, infrastructure, and curriculum inputs between the Pinkaiti Research Station and the

A'Ukre community. Led by university instructors, field course activities began to balance legacy Pinkaiti program activities with community-centered curriculum within A'Ukre village (Appendix F).

The curriculum changes were driven by university faculty who sought to integrate Indigenous, social, and biological sciences. University instructors worked closely with A'Ukre leadership to recruit and orient the Kayapó course coordinators responsible for shaping both the student and community experiences (see Chapter 4), with a focus on centering community knowledge and participation. At the same time, new infrastructure was created to support these activities. In 2010, AFP and FUNAI financed construction of a house at the edge of the village to support field course activities (AFP, 2018; Figure 23). In 2011, AFP staff converted a former Brazil nut storage facility into a kitchen, dining room, and living facility (Silvia, course cook, 2019, personal communication; Figure 23). UMD and NGO course personnel and budgets were revised to include an A'Ukre-based cook and financial resources for additional A'Ukre based Kayapó instructors.

Figure 23

A'Ukre Field Course Lodgings

(a) Exterior of converted Brazil nut storage facility

(b) Interior of converted Brazil nut storage facility and student lodging

(c) Exterior side view of AFP and FUNAI financed house

(d) Interior front view of AFP and FUNAI financed house

Note. Sources: (a) M. Aruch, 2017; (b-d) M. Aruch, 2019

Regarding the shift, one university instructor, Leah, said:

> And so one of the things that was really important to me was to integrate more A'Ukre focused activities with the course and not have the entire course be just at Pinkaiti which I thought was useful, but also missed an opportunity for a little bit deeper engagement with local livelihoods. (2019 participant interview)

The UMD-Purdue Field Course Agreement

University partners continued to expand in 2010 when UMD created a formal institutional arrangement with Purdue University.[128] The agreement created an official process for the participation of Purdue staff and students:

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[128] A important member of the instructional team was (and continues to be) Dr. Laura Zanotti, Associate Professor at Purdue University. The agreement institutionalized Zanotti's continued engagement with the course.

> The University of Maryland, College Park (UM) agrees to accept qualified Purdue University (Purdue) students into its study abroad program "Brazil Anthropology: Environmental Conservation & Indigenous Peoples" in Brazil... This agreement is entered into as a document of working cooperation between the academic offices involved at Purdue and UM. This Agreement will be reviewed for renewal after five (5) years unless earlier terminated. (UMD, 2010)

At least two Purdue students participated in each course between 2010 and 2012, creating proof of concept for Purdue to launch a parallel Purdue course in 2013. Participant Zanotti (2019 interview) shared:

> As I started my job at Purdue, I was excited to get Purdue students an opportunity to go on the course and see if it was even possible to potentially run kind of a standalone course out of Purdue which at that time, that wasn’t really clear… I wasn't sure about the viability of the course here [Purdue] and so running it for a couple years in Maryland actually was helpful in a wide variety of reasons to see if it was feasible to continue.

Field Course Phase 3: University Partner and Program Expansion (2013–Present)

The third phase of the field course era featured the creation of a second field course and the inclusion of additional North American (Purdue University and MTSU) and Brazilian universities (UFU and UFPA Belém). These additional partners led to new opportunities for research and education with the A’Ukre community (see for example Aruch et al., 2019; Kokojagoti, 2020; Ramon Parra et al., 2018).

The Purdue-UFU Course

In 2013, at the request of the A'Ukre community, Zanotti and Dr. Diego Soares da Silveira[129] from UFU began a second field course modeled on the existing UMD-UnB[130] course. The second field course was one of several different forms of exchange and partnership that emerged from Zanotti and Soares da Silveira's collaborations.

Research and Education Activities Beyond the Field Course. The Purdue–UFU[131] collaboration built on partnership foundations to develop activities that moved beyond the field course. A formal institutional agreement between Purdue and UFU facilitated student and A'Ukre community initiated projects. In 2013, Soares da Silveira invited two A'Ukre community members and Zanotti to UFU for a symposium. Starting in 2014, Soares da Silveira and Zanotti worked with existing programs at Purdue and UFU to integrate service-learning design projects. as part of the larger Self-determination in a Digital Age Project (Ramon Parra et al., 2018; see http://laurazanotti.org/research) Purdue staff and students launched a service-learning design[132] project to help design A'Ukre's Kôkôjagõti media center, with particular consideration to aspects of energy use, weather resilience, and education (Purdue, 2020b). In 2015-2016, as part of the Self-determination in a Digital Age Project, Zanotti and Soares da Silveira collaborated with A'Ukre and AFP to build and support the launch of A'Ukre's Kôkôjagõti media center (Kokojagoti, 2020; Ramon Parra et al., 2018).

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[129] Soares da Silveira was a UnB course participant in 2008 and a UMD-UnB course instructor in 2010 and 2012.
[130] While referred to as Purdue-UFU or UMD-UnB courses, the field courses are partnership between Purdue-UFU-AFP-A'Ukre. Here, I discuss only the university partners, but the courses are cross-sector institutional arrangements.
[131] The Purdue-UFU partnership formally ended in 2017, but a handful of projects continue.
[132] See https://epics.ecn.purdue.edu/gaps/brazil.html

The Self-determination in a Digital Age Project and collaboration supported several graduate student initiatives. In 2016, a Purdue graduate student conducted collaborative work with Kayapó women media makers (Ramon Parra et al., 2018; Zanotti & Soares da Silveira, 2018). In 2016, six UFU students and Kayapó filmmakers from the Kôkôjagõti media collective participated a *Videos nas Aldeias* workshop at the Kôkôjagõti media center (kokojagoti.org; UFU student interviews, 2019; see http://www.videonasaldeias.org.br/). In 2017, 2018, and 2019, Zanotti and Soares da Silveira alongside other key partners secured funding and sponsorship for Kayapó filmmakers, artists, and leaders to present at a number of different university conferences, lectures, and film festivals in Brazil and North America such as Vanderbilt University's InDigital Conference and the Smithsonian Mother Tongue Film Festival (for example see Kokojagoti, 2017; UMD, 2018; Pace & Córdova, 2019).

The Federal University of Pará Belém as a new Brazilian Partner

In 2013, a faculty member from The Federal University of Pará Belém (UFPA), Dr. Juarez Pezzuti, was invited by Zimmerman and AFP staff to participate in the field course as a Pinkaiti-based instructor. In 2016, Pezzuti formally requested UFPA be included as a Brazilian institutional counterpart for the field course (J. Pezzuti, personal communication, 2019). In 2017, UFPA's first students participated in the field course. UFPA staff and students participated again in 2018 and 2019. In 2019, UFPA students participated in both course offerings.

The field course team hopes that the UFPA relationship can reignite Pinkaiti research (Pezzuti, 2019 participant interview). Pezzuti is the Brazilian university sponsor and co-author (with other field course participants) of a research proposal approved by

CNPq and FUNAI for conducting research related to biodiversity and species distributions with A'Ukre at Pinkaiti (FUNAI, 2019). [133] Collaborating outside of the field course, Pezzuti visited MTSU, Purdue, and UMD in February 2020 (Aruch et al., 2020).

University Roles and Responsibilities

Currently, two North American (UMD, Purdue[134]) and three Brazilian (UnB, UFU, and UPA) university partners coordinate with NGO partners (AFP and ICFC) and the A'Ukre community to administer and implement field course activities. Over time, North American and Brazilian universities took on a distinct and overlapping set of roles and responsibilities in the lead up, during implementation, and following the field course (Table 19).

Table 19

Typical University Field Course Responsibilities

	North American	Shared	Brazilian
Before the course	• Negotiate and communicate the overall course budget • Transfer and issue payment to AFP • Collect and submit appropriate student and faculty documentation to AFP for annual FUNAI course authorization • documents include evidence of a yellow fever vaccine, copy of passport, and a	• Create and distribute student waivers, ethics protocols, media release forms, and other important documentation • Develop course curriculum and activities • Establish appropriate risk management and community protocols for field course participants • Coordinate with A'Ukre community leaders to decide upon course dates, activities, and other issues of community import	• Recruit Brazilian students to the course and provide relevant course information and materials • Work with the NGO to facilitate government relations through CNPq and FUNAI processes, including providing documentation, signatures, or meetings in support of the course • Facilitate Portuguese-English translation

[133] Pezzuti is the FUNAI/ CNPq counterpart for this research.
[134] MTSU is absent from most of the discussion because they first participated in 2019, but MTSU will certainly be an important university partner moving forward.

	doctor's note indicating good health[135] • Maintain open communication with NGO partners regarding student recruitment, student experiences, and student evaluation		
During the course	• Coordinate with the Kayapó and AFP coordinators in the field to calculate and ensure course payments in cash or materials to the A'Ukre community and Kayapó instructors	• Field course execution and activities with students and A'Ukre community	• Participation of Brazilian students and/or instructors • Facilitate Portuguese-English translation
After the course	• Institutional reporting requirements	• Collaborate on post course report to FUNAI • Maintain open communication to review and refine curriculum and activities • Communicate ongoing field course-related activities and events • Recruitment and consideration of new instructors, university partners, or team members for future courses	• Institutional reporting requirements

Field Course University–Government Relations

The field course requires government authorizations from CNPq and FUNAI. Government relationships are mediated through the Brazilian university and NGO partners, but course authorization was initially a challenge. Participant Joan (2018 participant interview), a North American university instructor reported the course always depends on government approval:

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[135] These are the same documents required during the earlier donor visits from partnership initiation (see Chapter 5).

> Obtaining authorizations has been a challenge. Through trial and error, we overcame those difficulties, but these hard-won successes can be overturned at any moment…. We have been fortunate in having excellent go-betweens on our behalf who submitted and walked our applications through all procedures. Our student applications could have been stopped at any one of numerous steps in the process.

North American university partners have limited interactions with FUNAI and CNPq. North American instructions sent course documents to AFP representatives in Brasília. AFP representatives also collect letters for support from the A'Ukre community (see Kayapó et al., 2015). In Brasília, AFP representatives coordinate with Brazilian university partners to collect and submit the necessary field course documentation to FUNAI and CNPq. Leah (2019 participant interview), described the relationship and responsibilities:

> In the same way that I serve as a coordinator of the course and administrator the course and where kind of the collaborations with FUNAI there are mediated by AFP and the Brazilian partners because of the fact that they're the Brazil institutional hosts and are the ones that are responsible for making sure all the paperwork that we provide is given to FUNAI on time.

At times, Brazilian university partners do interact directly with FUNAI on behalf of the course. On several occasions, UnB course faculty and AFP representatives met in Brasília with FUNAI staff to discuss the course (AFP, 2018; see Chapter 5). Participant Daniel (2020 participant interview), explained that early in the field course, there were often authorization delays:

> FUNAI never had a really good idea of what the course really was. That is one of our problems, an institutional problem in Brazil, because in Brazil, you have research or outreach. This idea of *Ensino aprendizado* [experiential learning], to bring a student to under questions of ideology, questions of ecology, questions of biology in the place… I always saw the course as an innovative experience in ensino aprendizado, but when the moment arrived for [FUNAI] authorizations, it generated a lot of conflict with those in FUNAI giving authorizations because they were not certain that we weren't doing research and when it [the course] wasn't research, it was placed in a framework of tourism, which is another thing that it is not… and every year we had to, as we say in Brazil, had to pray a mass every year to ask permission from FUNAI. That on top of the issue of the turnover in FUNAI. FUNAI changes a lot, changes lot of the president, and when the president changes so do the people responsible for authorizations. So that was always very complicated… and the course was always more difficult because they weren't sure what it was, if it was another thing… It was always a pain to speak with FUNAI. (author translation)

In summary, Brazilian university partners noted that for FUNAI representatives, the field course was difficult to understand because:

1. It did not fit neatly into categories of extension, tourism, or research that were easy to classify and more typically authorized.
2. There was a lot of turnover in FUNAI leadership and personnel, particularly in Brasília.
3. The entry of foreigners into Indigenous lands was always complicated.

FUNAI Tucumã as a Course Partner. North American and Brazilian universities have a more collaborative working relationship with the regional Tucumã FUNAI office than the FUNAI office in Brasília. In Tucumã, the FUNAI coordinator has remained the same since 2007 and has seen the course and staff develop over the four partnership eras (Aruch, 2019 FUNAI Tucumã interview notes; B. Zimmerman, personal communication, 2021).[136] Over the years, university staff built personal relationships with the FUNAI Tucumã office coordinator. The FUNAI Tucumã coordinator recognizes the value of the field course for students and that the program receives positive feedback from the A'Ukre community (Aruch, 2019 FUNAI Tucumã interview notes). Field course instructors recognize FUNAI Tucumã as an ally in their relationship with FUNAI's Brasília headquarters. Regarding course authorization, Daniel shared:

> The coordinator of FUNAI there [Tucumã] says, "Look, don't ask for authorization in Brasília. Ask for authorization here. We will send it to Brasília." They [FUNAI Tucumã] are much more sensitive to the economic and political importance of the course for A'Ukre and other villages, more of the political context in which they [Kayapó] are living. (2020 participant interview, author translation)

FUNAI Course Participation. When possible, the Tucumã FUNAI office participates in the course. Depending on course schedules and availability, FUNAI representatives meet students at their office or the student's hotel to share FUNAI's mission and activities with the Kayapó and broader Indigenous communities (field course

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[136] The Tucumã coordinator was replaced in 2020. It is yet to be seen the impact on the field course.

observations, 2017, 2019). In 2011 FUNAI Tucumã sent a representative to the course along with the university participants "to make sure that the things that we were saying and we were doing were the actual things that we were doing on the course" (Andres, 2020 participant interview). University partners agreed that increased FUNAI participation, when possible, is a good idea for program transparency, a sentiment echoed by FUNAI staff I spoke with in Brasília, Tucumã, and Redenção (Aruch, 2019 FUNAI interview notes).[137]

University Student Field Course Relationships with the A'Ukre Community

University student experiences including their interactions, and relationships with the Kayapó at Pinkaiti and A'Ukre are at the core of the field course experience. In participant interviews, students described their relationships with the A'Ukre Kayapó as instructional, interpersonal, or transactional.

Instructional Relationships

Over ten days of activity, field course participants get to know the community through co-instructed opportunities in Pinkaiti and A'Ukre (for a detailed course schedule see Appendix F). Participating students recognized the valuable time and knowledge shared during the field course experience. Participant Andrea (2019 interview) noted: "with the Kayapó field instructors… I always felt like they were very friendly and receptive to our questions and helpful. And yeah. I was pretty impressed by them."

[137] FUNAI Tucumã would like to improve university communication and participation with respect to the field course. FUNAI feedback for the universities indicated that the FUNAI staff, particularly those who know about the course, would like to be better informed about course dates and activities, meet with the students for a course evaluation, and participate annually in the field course. In particular, regional FUNAI representatives in Redenção and Tucumã saw the course as a good example of an innovative program to share with FUNAI Brasília and potentially replicate with other communities (FUNAI employee participant interviews, 2019).

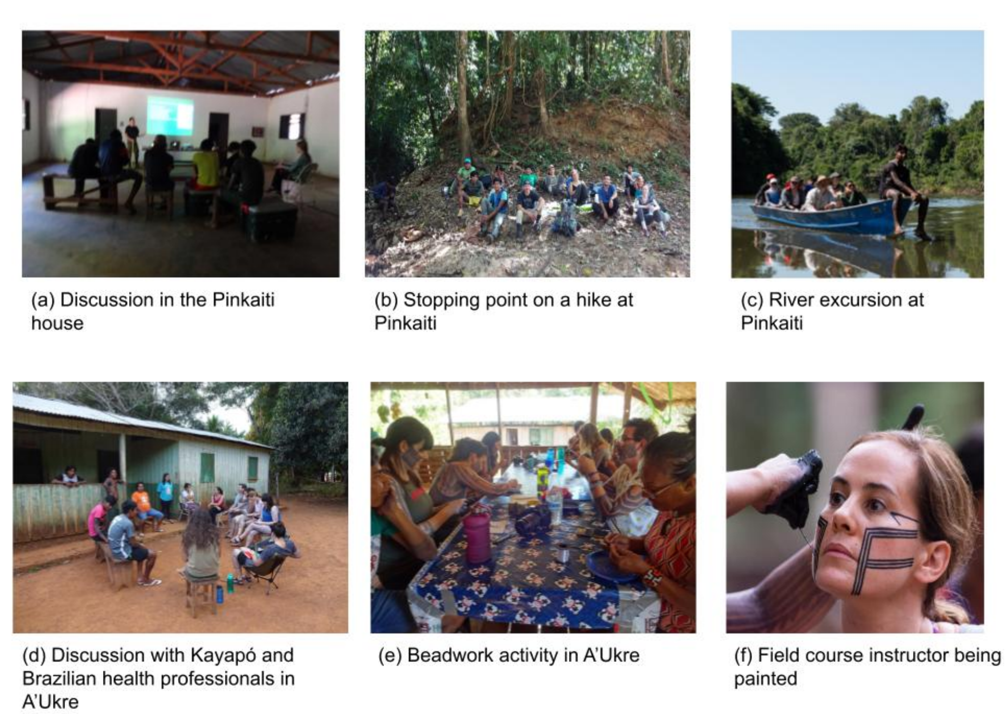
Instruction at Pinkaiti. At Pinkaiti, field course students and instructors are joined by a team of about five Kayapó instructors who spend almost a week with students at Pinkaiti. The Kayapó team helps the students set up camp and accompanies the students on forest walks that target specific content including discussions about Brazil nuts, mahogany, animal-plant interactions, and Kayapó forest knowledge. In the evenings, Kayapó instructors and field course participants watch films together, share stories and jokes, or play cards. Pinkaiti's geographic distance means that university students and staff live and learn in close quarters with Kayapó instructors and guides (see Figures 1 and 2). As such, there are ongoing, repetitive opportunities for students to break down barriers, speak to, and learn from the same group of Kayapó instructors. Kayapó instructors and university students interact daily through a full day of course activities (see Appendix F; Figure 20; 24). As the week goes on, student-Kayapó relationships begin to develop. Participant Alma shared her Pinkaiti experience:

> Going out to Pinkaiti, the boat ride out you know, not really talking to each other [students and Kayapó]. Being a little wary of each other not knowing how to approach one another, but you know, proximity brings people together and slowly kind of opening up and you know me making little jokes and then it would turn into well let's play cards and you know even developing little inside jokes, like I think it was Bepkum who started the *djwa* [bathing area]. "[Singing] *Gwaj wot, ba djwa*" [Let's go to the bathing area!] thing the first year around so I think it started out from like kind of being tentative and opening up to each other and being willing to ask questions. (2019 participant interview)

Instruction in A'Ukre. Also occurring over one week, A'Ukre-based activities are more varied. Students see and visit more people and sites in the community, with Kayapó instructors providing half- or full-day activity lessons for students. For example, activities might include açai collection, community celebrations, media making, painting with genipapo*,* visiting and learning about gardens, fishing excursions, sports, meetings with teachers, health professionals, and community leaders (See Figure 20; 24). The community-appointed field course coordinator works with course instructors to organize course activities and Kayapó instructors (see Chapter 4).

Figure 24

Typical Field Course Activities in Pinkaiti and A'Ukre



(a) Discussion in the Pinkaiti house

(b) Stopping point on a hike at Pinkaiti

(c) River excursion at Pinkaiti

(d) Discussion with Kayapó and Brazilian health professionals in A'Ukre

(e) Beadwork activity in A'Ukre

(f) Field course instructor being painted

Note. Sources: (a -b) M. Aruch, 2018; (c) P. Peloso, 2019; (d-e) M. Aruch, 2019; (f) P. Peloso, 2018

As the course has matured, the number of Kayapó course instructors and the variety of activities has expanded. Many Kayapó instructors have become comfortable

working with university students, answering and sometimes anticipating student questions (field observations, 2019; see Chapter 4). For example, participant Jason (2019 interview) detailed how despite language barriers, a Kayapó instructor taught him a new fishing knot during an A'Ukre-based course activity:

> He showed me how to tie the like, sort of like the ideal like fishing knot to hold a hook. That was cool. And he was using his Kayapó or maybe speaking Portuguese, I'm not sure. But he was trying to be as clear as he could to me. And then showed me how to do that and it was the easiest little trick… he taught me that.

Jason also discussed how Kayapó women taught him how to locate and gather manioc and sweet potatoes in their gardens:

> The yam, like the yam farm. There are little patches where they grow [sweet potatoes]... The women showing us how to find the best yams and pick them up and then like. Some of them, they were like really hard to actually pull out and there was a little trick like that twisting them, I kind of vaguely remember and they showed us how to do that. They just kind of looked at us like we [students] were just useless. And it was just really great. (2019 participant interview)

Field course instruction and activities also intersect with student participant histories and experiences. A First Nations student participant, Kyla (2019 interview) shared her emotional response while singing and dancing with A'Ukre's female Cacique during a community celebration:

> Well, they [the Kayapó] were singing an old traditional Kayapó song. And I, I was dancing and I was holding the woman chief's hand and I was holding onto

> them and we were dancing and I cried because listening to them saying that old song touched me and reminded me of like, my family and my *kokum* [grandmother]. It reminded me of how we sing back home and I felt it and I cried…I cried my eyes out. We were dancing and it just touched me… And so. When she was holding my hand and were dancing I just couldn't stop crying because I was so touched and so moved … I was so emotional.

Kayapó Instructors and Student Wellbeing. Students also noted the genuine concern the A'Ukre community and Kayapó instructors had for their safety, wellbeing, and happiness. Recounting a long hike to the savannah, participant Jamie (2017 interview) recounted a close snake encounter:

> When we went up to the cerrado and … when we almost stepped on the snake and we were walking down and just the way that they [Kayapó] all reacted about it, it was such a crazy thing and then, when we were walking down, I kind of was like freaking out a little bit, in my own head just thinking about what had happened and then [Kayapó instructor] came up to me and he was like looking me in the eyes and he just felt so bad for me because I was so scared. I was kind of shaking. I was kind of crying a little bit and he was like- didn't really leave my side for the rest of that trip. Like, it seemed like he was checking up on me constantly, do you know what I mean and like, it was just a really cool interaction that I didn't really understand what was going on, but it just seemed like he wanted to make sure I was OK … It was a cool connection.

Interpersonal Relationships

Student interpersonal relationships unpacked the comfortable and uncomfortable interactions they had with A'Ukre Kayapó over food, music, card games, language exchanges, and dance.

Informal Exchanges. Many students reported stories of low-stress, informal exchanges with Kayapó instructors and friends outside of course activities through music, food, card games, language exchanges, sports, conversations about family, or technology (GPS units, cameras, cell phone applications like Snapchat filters). These exchanges happened most often during course down time, but they had a meaningful impact on interpersonal relationships, particularly for students who returned to A'Ukre for a second or third field course.

Students who did participate multiple times noted the ways in which the community challenged them to learn more about the culture and language for deeper engagement and involvement. Participant Katrina (2019 interview) described her multiple visits to A'Ukre:

> And I think something else I learned the longer I was there – how much the community values or individuals value exchange of knowledge both sharing just about where you are from and what it was like to grow up in the middle of nowhere… or what our families are like and the same was like then sharing that with us. Or like how to use snapchat or sharing pictures and just like sharing experiences together… It was amazing all around for all of us. But some of the other kinds of conversations that I didn't hear as much until I had been there longer. I remember particularly Bepdjyre … telling me Katrina, "Before you ever come back, you have to learn Portuguese. You have to be fluent. You cannot

come back until you are fluent because you can't understand us unless you know our language."

And it was like a very stern conversation he was having with me of like, "you've been here enough times. You need learn. You haven't learned and you need to learn."

And I think that was something that at least for me individually I learned or I realized was a perspective too.

Student Interactional Wariness. Other students questioned the impact of their interactions, wondering if, when, or where it was appropriate for them to participate or be present during community activities. Students were aware of the insider/outsider dynamic of the experience, which was exacerbated by the extreme cultural and linguistic differences. Participant Kara articulated her discomfort:

> I guess I just was very aware that I was an outsider and that I guess it was hard for me to gauge how much I was wanted there or just… Because I couldn't communicate directly with the Kayapó, it was, it felt like I didn't want anyone to feel like I was just watching them like a show or something. And so I just kind of felt a little bit self-conscious, I guess. (2019 interview)

While the course is guided by university and Kayapó instructors, students ultimately make their own calculations about personal ethics with respect to community interactions. In our conversation, Alma explained her calculus:

> I think it's a tension that always kind of exists in this kind of situation where understanding the boundary between like, you know, participant observation and that sort of thing and voyeurism and knowing where the line is between, you

know, being like sincerely in search of mutual connection and understanding and being intrusive. And I think that's always really delicate. And it can, it can be hard to know where that line is … And so I think navigating that is always going to be difficult. And I don't know. And I'm not saying necessarily that that line was crossed at any point but always feeling very at least for myself, I was always very conscious and thinking like is this, "Am I being intrusive?" If I go here or say this and I think to some extent that's necessary [for students to ask themselves]. (2019 participant interview)

Transactional Relationships

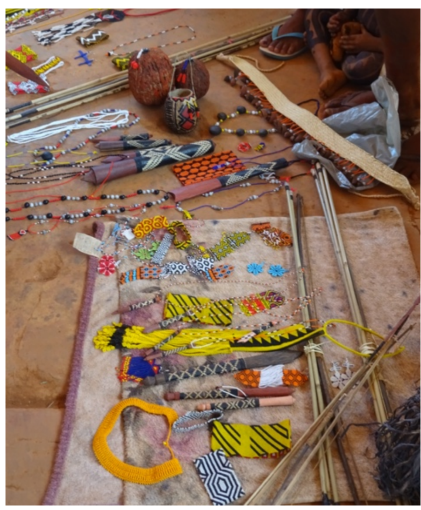
Transactional relationships include the material or financial exchanges with the community before, during, or after the course. Most transactions, such as community fees and course salaries, are managed by university instructors and NGO partners. However, the course fair was commonly cited by students as both a highlight and a criticism of the program.

The Course Fair. A trading fair takes place at the end of each field course. Members of the A'Ukre community situate themselves and their crafts around the perimeter of the ngà while the students and instructors occupy the center space (see Figure 25). The A'Ukre community members bring artisan crafts to the ngà to trade with students, who bring camping gear, clothing, electronics, and so forth to trade with the A'Ukre community. Popular items include tents, backpacks, batteries, headlamps, and other gear mentioned by the Kayapó (see Chapter 4). University students trade for baskets, bow and arrow sets, beaded necklaces, earrings, and other artisan works. According to Jose, a Brazilian student and instructor participant, the fair "generates a lot

of camping equipment for A'Ukre…Everybody [in A'Ukre] has a good tent, a North Face coat, nice boots." (2019 interview, author translation)

Figure 25

Kayapó Artisan Crafts Displayed at the Course Fair



Note. Source: M. Aruch, 2019

For many student participants, the artisan products they traded for represented important keepsakes and memories of A'Ukre and the Kayapó. Several participants noted that they shared or gifted these items to friends and family following the course. Participant Stanley (2019 interview) recalled his fair experience:

> And then certainly the last day in the village we conducted a trade [fair] where, I had a bright red rain jacket which I was told that they [the Kayapó] really liked bright colors and so it really, it was a hot item. A lot of people wanted to trade me for my rain jacket and I got some really cool stuff. You know, the glass bracelets…. The bracelets that they make from the glass beads, necklaces earrings. I had my ear pierced at the time so I had like, like gold hoops and they

> liked those and I traded them earrings that they wear for the earrings that I had. I remember that being a really awesome experience.

On the other hand, student participants often found the fair to be stressful, running counter to some of the course's themes of sustainability and Kayapó autonomy. In an interview, Kara recalled:

> The market [fair] day that we had at the end of the course was really stressful for me. I guess that's not that integral to the program itself, but it was, I don't know. It was really stressful… It just felt really chaotic and kind of brought this weird transactional tone, I guess, but yeah. And then all of a sudden it was about consumerism again and this weird shift that I really didn't like. (2019 participant interview)

Other student participants remarked that the fair may not be "fair" to either the Kayapó or university students. University students cited pressure they felt to trade with certain Kayapó community members or to trade away personal items. Student participants felt the fair distorted the value of items, sometimes creating stressful encounters and inequities between items given and items received between Kayapó and kuben. Participant Katrina (2019 interview) discussed her experience:

> The trade fair. I found that very stressful and unfair in some ways. The way there wasn't a lot of effort made to make sure that people were giving or that community members were getting a fair price for their goods… like to trade a flashlight for a bracelet you know took 8 hours to make where their [field course student] flashlight was 10 dollars off Amazon or something like that. Like it was very upsetting to see those kinds of interactions especially because they had been

> in the community… and had this kind of greed take over about what they could get for what they had and it just didn't seem fair at all to the community members, but at the same time they [the Kayapó] were super happy to get the stuff that they had, but I think that there could have been, there could be a lot more thought put into how that is done… Trying to figure out what was traded for what and still it all happens very quickly and under very high stress situations that it is hard to keep track of.

Overall, university students cited the fair and other transactional exchanges as an important part of the field course, even if they represent a capitalist or consumerist turn. Students noted that A'Ukre exists in an increasingly market-based economy, and transactional relationships are an important mechanism for A'Ukre to generate and access valuable financial and material resources from their international network. Reflecting on these transactions in our conversation, Eden shared:

> So I guess this also kind of goes back to capitalism and money but they know that like each year you [author] are going to bring new [soccer] uniforms. They know that each year somebody is going to bring sports bras or something like that. And it's not like a huge thing. But I think even though I guess that's a financial driver for them when you get down to it. I think it's also just finding other ways to support the community. So I think they like that we've [the field course participants] found different ways to support them. (2019 participant interview)

Field Course Tensions Among University Partners

University participants represent a diverse group of ages, languages, cultures, and disciplines. Not surprisingly, participants shared several areas of tension or conflict. In

particular, disciplinary and national boundaries were two often-cited areas of tension amongst university instructor and student participants.

Natural and Social Science Disciplinary Divide

University students and instructor participants pointed out an ongoing disciplinary division between the legacy of biological sciences and the more recent turn to anthropology and the social sciences. The tension exits between institutional (NGO and university), and manifests during the course geographically (Pinkaiti and A'Ukre) in terms of resources and curriculum. The tension derives partly from the historical and institutional memory of research era Pinkaiti activities.

University participants (students and instructors) noted distinctions among the values and practices emphasized during the course. Broadly speaking, conservation biologists were perceived to be "forest focused," while social scientists were "community focused."[138] Participant Katrina (2019 interview) clearly articulates how students picked up on these perspectives and subtle distinctions during the field course:

> I noticed tensions between individuals or between just disciplinary sometimes too. Thinking about A'Ukre should operate in the political landscape it is in, whether it is starting an NGO or continuing to work with AFP or whatever. There sometimes seemed to be a perspective from more of the like biological conservation side of – to protect the community from XYZ, whereas I think the other people had a perspective of working with and not protecting them from the quote unquote outside world. So that was interesting to observe and be around.

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[138] Not discussed in great detail, but this discussion echoes a similar debate amongst former CI staff about a shift in CI's mission (see Chapter 5).

Student participants also noted how different values among instructors and different activity spaces represented varying ethical ideas with respect to photography or media. Participant Jason (2019 interview) reflected on the rules and ethical considerations of filming and photography at Pinkaiti nature compared to people and A'Ukre:

> The discrepancy between the conservation biology side and the anthropological side, because you could, could document or do whatever you want with the wildlife and the scenic nature and, and showing the level of biodiversity that is there and thriving. But then when it came to the anthropological side, it was very different. Which makes sense because we're talking from an ethical standpoint it is very different.

This diversity of perspectives and disciplines, while a source of tension, is also an asset to program innovation and sustainability, ensuring a variety of opinions contribute toward a shared goal. Regarding the interdisciplinary team, course instructor Joan reported that despite differences:

> various entities understand one another's goals and respect them. The priorities are not the same, yet that too is understood among the partners. So, for example, CI and CFC may have prioritized set-asides for absolute preservation, whereas anthropologists may prioritize Indigenous agency. Yet these goals well complement one another. And, as I have said, they are indeed these goals are shared among partners. This may be why it works. (2018 participant interview)

In fact, to address these tensions, there has been a concerted effort among instructors to balance resources across course infrastructure and curriculum, in particular to link the

biological and social sciences within course content and activities (personal observations, 2016; 2017; 2018; 2019).

Finally, one should note that these disciplinary and geographic divisions are social constructions of the kuben (non-Kayapó). As Jose, a Brazilian student and instructor participant reinforced: “that division between that ecological part and that, let’s say, more anthropological part is a something that is very much ours (non-Kayapó). The Kayapó don’t create that division” (2019 interview, author translation).

Comparing Brazilian and North American University Course Experiences

Another ongoing tension exists between Brazilian and North American university partners regarding communication and inclusive participation.

English/North America as the Language/Culture of Instruction. While the course takes place in Brazil, English is the language of instruction. Brazilian students are expected to have conversational knowledge of English in order to participate. At times, the reliance on English generated tension among program participants. Instructor participant Joan (2018 interview) shared: “There has been animosity between factions of students. One year the Brazilian students criticized the American students for speaking English.” At the same time, Brazilian students said that their ability to speak Portuguese created more intimate contact with the A’Ukre community members. In one conversation a Brazilian student participant, Tania, compared the challenges of working in English with her community engagement:

> It was a lot of information, not just from the Kayapó’s, but also from the foreigners, from North America, that make up the majority of the group. The first time I went it was only [one Brazilian student and one instructor] and the rest

> were foreign [students and instructors]… the academic part was very intense. It was exhausting. We slept little and there, there were lots of activities and you had to communicate the whole time, for the most part [in] English. Speaking with the Mẽbêngôkre and trying to understand Mẽbêngôkre with some of them speaking Portuguese. We were able to converse better with them [the Kayapó] in Portuguese. (2019 interview, author translation)

Brazilian university instructors shared that most North American students did not have the situational or contextual knowledge of Brazil or the Amazon region necessary to fully understand the Kayapó context and course framework. This creates important knowledge gaps that potentially reinforce stereotypes of Brazilian culture or Indigenous peoples. As a solution, university instructors considered ways to onboard and ramp up knowledge of Brazil and the Portuguese language in the lead up to the field course. Brazilian instructor participant Daniel shared one ongoing (but yet to be implemented) idea amongst field course faculty to incorporate supplementary languages and culture-based curriculum:

> The idea was that they [students] would do in the semester before the field course a kind of class on the Brazilian culture. They would do a course in Portuguese, even considering that students could spend a week at the [Brazilian] University before going to Marabá… I was organizing that with some history professors and professors from the Faculty of foreign languages, that they would do a course here for 3 days before leaving for Marabá. (2020 interview, author translation)

Program Access for Brazilian Students. Program access and finances are another ongoing area tension between North American and Brazilian university

counterparts. Brazilian and North American faculty would prefer additional Brazilian student participation in the course. Unfortunately, costs are prohibitively expensive, and faculty are not sure that Brazilian students would pay to participate in a rustic, camping-style experience. Roberto, an early Brazilian researcher, now course instructor explained the dilemma about Brazilian student participation:

> I'm not sure if it's possible because, as you know it's very expensive. And for, for the foreign students, it's something like two thousand, no twenty thousand reais [about $5,000 USD]. So coming from inside [Brazil] would go to fifteen thousand, not much cheaper. Fifteen thousand reais is a lot of money. How many Brazilians would be willing to pay for this amount of money to stay in humble shelters and travel through poor places and I don't know eat food that is not, it's OK, but it's not what they are used to? So I'm not sure if it's possible, but that's something that I'd like to see. And if it's not possible what I would like to see more often…I'd like to see more people coming. Like more classes. For two reasons. First because there would be more opportunities for interested people to work there, including me. And also more revenues. More money for the Indians because I'm really worried about these prospects of mining and industrial mining inside the villages. (2019 participant interview)

For Brazilian students interested in independent projects or research, North American university participation precludes Brazilian involvement. The daily wage paid to Kayapó instructors during the field course exceeds the amount a Brazilian student could offer, making the costs of A'Ukre based education or research too expensive for a typical, independent Brazilian student or researcher. One Brazilian participant, Catalina,

shared a sentiment echoed by other Brazilian students: "You [North Americans] have eliminated all the competition. There is no way to compete with you [with the wages]. There is no way." (2019 interview author translation)

North American and Brazilian university partners agreed that increased Brazilian representation, participation, and leadership across the course curriculum are vital for future field course administration and program activities. Unfortunately, structural barriers challenge the ability to increase Brazilian university participation. Leah, a North American instructor participant, discussed the goal of more inclusive and representative Brazilian university course participation and leadership, noting that the course ideally:

> includes representation of faculty across a wide range of different fields as well as institutions including Brazil, as well as student representation, which … has been historically quite low from the Brazilian partnering institution, mainly because of the way in which the financial structures of the course are set up and, and have to be set up to have it run, with little possibility of additional students without additional external funding or other wherewithal to get them there… Ideally, it would be … the local [Brazilian] institution being a lead on the course … at least in my mind, and then, for example to be kind of a collaborating partner from the U.S. as kind of a co-lead but not the kind of main lead on the course. (2019 participant interview)

Dialoguing Through Tension and Conflict

As the field course includes more partners and activities, there are multiple visions with respect to course objectives and activities. Still, the course represents a unique opportunity for cross-cultural learning and engagement. University instructors

cited open communication, extended and ongoing collaboration, and shared visions (despite nuanced differences) for student learning, Indigenous autonomy, and tropical forest conservation as mechanisms for dialoguing and working through tensions. Each year, university instructors make adjustments and respond to feedback from multiple partners. Neither the course nor its partners are static, but as Leah noted, the course must center on the demands of the A'Ukre community while balancing university and NGO objectives:

> The course continues to evolve, every year we get feedback as you know from the community. We get feedback from the students. We get feedback from our institutional partners. Because it's a big partnership, there's a lot of voices and it's hard I think to attend to everything at once and there are kind of competing visions on what and how the course should be. And so trying to find that that medium, … that happy medium that benefits the community, that the community can control and can govern and feel ownership over rather than other, other interests competing that out.

University Summary and Discussion

University actors have played an important role in the Pinkaiti Partnership's history. These actors have offered a distinct set of structures, processes, activities, and outcomes within the Pinkaiti Partnership in order to create a unique knowledge and learning experience within the A'Ukre community and at Pinkaiti.

Internal Structure

The **category and function** of university activities shifted through four research and education models. First, Pinkaiti was a space for short-term university research. In

early research, mostly Brazilian graduate students pursued their research agendas. During the international research era, Pinkaiti was a space for graduate research, but UT faculty and students began to incorporate some elements of global learning and study abroad. In 2004, the model transitioned completely to a field course based on more typical university for-credit learning opportunities.

Over the four partnership eras, the number of university **actors** expanded or contracted depending upon the category and function of partnership activities. Through most of the research activities, university participants came to Pinkaiti through informal, relational networks. In in the field course era, partnership relations became more formalized, with a series of institutional agreements between North American and Brazilian university partners. The number of university partners continues to increase as the network of student and faculty participants expands (see Table 18).

University **leadership** has always worked in collaboration with NGO and community partners. However, through partnership initiation, early research, and international research, university leadership and participation was a resource or activity within CI's Kayapó Project agenda and objectives. During international research, Zimmerman's dual appointments with CI and UT made the connection between university and NGO explicit (Zimmerman & Malcolm, 2001). In the field course era, university leaders took on more direct roles and responsibilities in driving Pinkaiti and A'Ukre-based activities, course curriculum, and community engagement. With multiple university partners, leadership has become more distributed during the field course.

From partnership initiation, locating the right university **fit** has been a key part of the partnership structure. CI's engagement with INPA and USP was an effort to find the

best institutional fit for a Brazilian university counterpart to sponsor Pinkaiti research. While INPA was not a match, the early research era found the right fit with a set of USP faculty. During international research Zimmerman's dual UT-CI appointment meant UT was positioned to secure Pinkaiti research grants to support NGO objectives. The shift to the field course recalibrated how multiple Brazilian and North American universities work together to balance of shifting and overlapping responsibilities and relationships.

The **financial context** for universities also evolved in relation to the NGO partners. Initial university researchers were supported by CI. Early USP researchers secured government grants. International researchers were funded in part by university and NGO-generated funding. During the field course, universities became responsible for the financial sustainability of Pinkaiti activities. The field course is mostly financed by North American student participants who cover lodging, logistics, Kayapó salaries, and subsidize the participation of Brazilian university students.

External Partnership Structure

The university **political environment** always relied upon ongoing relationships interactions with local, national, and international political actors. In partnership initiation, institutional confusion and miscommunication between CI and INPA around FUNAI rules and regulations slowed the onset of Pinkaiti research activity. During early research, most Brazilian university participants reported a friendly national (Brazil) and local (A'Ukre) political environment where A'Ukre leadership was responsible for deciding Pinkaiti access and authorization. However, as CI began to institutionalize their Kayapó Project conservation program, international Pinkaiti researchers became entangled within local, national, and international geopolitical concerns regarding

Brazilian's sovereignty and biopiracy (Escobar, 2015; FUNAI, 2004; Gusman et al., 2016). Ultimately, the political challenges for research permits fostered a shift to an education-based field course with a more palatable, but often confusing framing for FUNAI and other government actors.

Partnership Activities and Processes

From partnership initiation through international research, university **decision making** was determined by individual university actors pursuing individual research or the research agenda of their advisors. These individuals were responsible for coordination with their respective institutions, CI, and A'Ukre when necessary. During the field course era, universities themselves became more formal institutional partners. As a result, field course staff decision making became increasingly complex, particularly for North American partners who must move through institutional bureaucracies to obtain budget approvals, partnership agreements, curriculum authorizations, and so forth. For the course itself, field course staff also make important decisions around student services including curriculum, student engagement, safety, and compliance with university policies.

Similarly, **conflict management** became increasingly complex in the field course era. Through the research era, individual researchers managed issues with their institutions, the A'Ukre community, NGOs, or Brazilian government. In the field course era university instructors need to manage course related domains with Pinkaiti partners including resource allocation, curriculum design, financing, and competing institutional timelines for field course recruitment and course budgets. At times, changes in university policies can create policy mismatches (for example risk management; formal partnership agreement documents) between university and NGO partners (personal observation,

2018; 2019; 2020). While conflicts create tension, ongoing dialogue and attempts at regular communication help mitigate conflict among partners who have typically known one another or worked together for several years.

Knowledge and information have always been shared among university partners and participants in several ways. First, university participants generated a wealth of knowledge products across disciplines (see https://tinyurl.com/de5r56b5). Second, Overlapping social and academic networks among Pinkaiti researchers across partnership generated informal information about Pinkaiti research processes, collaboration with CI, working with the Kayapó, and navigating the Brazilian government. These informal networks were particularly important for onboarding new researchers. Many researchers (now field instructors) still share these lessons with field course participants.[139] Third, and more practically, university partners always communicated using ICTs to share important information via websites, Facebook groups, listservs, or group messaging services.[140]

Partnership Outcomes

University participants discussed partnership outcomes related to knowledge and learning, social networks, feedback loops, environmental protection, and program sustainability.

Across all four partnership eras, participants highlighted unique **knowledge and learning** opportunities and outcomes. In both research and the field course, Pinkaiti and

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[139] I learned much from my conversations with Pinkaiti researchers in designing my own field study including the expectation to build in down time, participate in community events, and plan for breaks and meals.
[140] See an early version at http://web.archive.org/web/20011202032432/http://geocities.com/pinkaiti/

A'Ukre represent unique settings for learning about a range of academic disciplines. Even more so, participants cited the social and emotional learning that comes from interacting with different cultures, languages, and environments. For many university participants, the experience continues to resonate years or decades after participation. In addition, university partners have generated a number of knowledge products including journal articles, theses, conference proceedings, films, etc. (https://tinyurl.com/de5r56b5).

University participants also cited the important **social networks** and social capital they developed via Pinkaiti Partnership participation. Many university participants highlighted the important relationships they developed with faculty, NGO, or community leaders and how their experience contributed to their professional or academic trajectory.

Relatedly, the social network creates important **feedback loops** for continued collaboration among university, NGO, and community partners across eras and institutions. Researchers and field course participants are recruited into the NGOs as professional staff. Early and international researchers continue as field course instructors. Field course participants reengage with A'Ukre, AFP, and their universities to pursue advanced degrees, create new projects, or return as instructors themselves.

University partners (like NGOs and the A'Ukre community) cited the partnership as a mechanism for A'Ukre to build allies, social networks, and feedback loops with non-Kayapó. Participants noted that the course is one of the few ways that A'Ukre can learn about the outside world and share their culture with visiting students and instructors. A'Ukre in particular is unique among Kayapó communities, and *projetos* (projects) like Pinkaiti and the field course are social capital when interacting with other Kayapó

communities and regional NGO and government actors (Escobar, 1994; Isabel, personal communication, 2019).[141]

Finally, university participants noted social networks as a mechanism for **environmental protection and tropical forest conservation.** Protecting Kayapó forests is a core concept within the Pinkaiti Partnership. University research eras centered on tropical forest ecology, and the field course retains the title *Conservation and Indigenous Peoples* (UMD, 2020). Participants felt that without university activities coupled with A'Ukre's participation and protection, the forest would have probably been logged of its mahogany. Many researchers noted that without university activities, they were not sure the Kayapó would be able to protect their land. Participants noted the important role of the 8,000 hectare Pinkaiti in building the Kayapó conservation programs of CI and ICFC. For university-A'Ukre-NGO collaboration, Pinkaiti was an innovative concept—an Indigenous community setting aside a parcel of land for foreign research and education opportunities.

A Note on University Sustainability.

University partners cited a handful of drivers and barriers to **sustainability,** including individual champions, community involvement, and the appeal of Kayapó culture and the Amazon forest, and the role of institutions.

Institutional Champions. Key university actors worked as *institutional champions* to help maintain continuity, trust, and legitimacy across partnership eras and institutions. These champions entered the partnership at different eras and have

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[141] Isabel shared a personal observation of a young Kayapó woman posting to social media that she is, "from A'Ukre, the 'community where the kuben come.'"

represented multiple roles within and across different institutions. Most university participants can trace their participation back to either Zimmerman or Chernela. Since, university leaders (e.g. Zanotti) and NGO leaders (e.g. Jerozolimski) emerged to drive and shape university activities. The commitment and tacit knowledge of these champions drives both program sustainability and expansion.

On the other hand, university participants wondered if there is an overreliance on certain individuals or institutions, wondering what would happens if/ when Zimmerman retired or AFP leadership shifted their focus and resources away from the course? The proliferation of institutional partners in the field course era helped to build redundancy into the network ensuring some amount of resilience and continuity (Seixas & Berkes, 2010).

Community Participation. Ongoing A'Ukre community participation and autonomy were often cited as drivers of program sustainability. University leaders have attempted to move beyond the "band of biologists" or "conserve and control" critique of the early research era (Heitor, interview notes, 2019; Leah, personal communication, 2021). Ongoing and expanding relationships with university partners have reinforced future university-community research and education collaborations. On the other hand, activities are reliant on continued community interest. Ultimately, the A'Ukre community determines whether or not they want to host the field course. Future A'Ukre leadership may decide it no longer wants to participate in the field course or Pinkaiti, terminating future education or research activities.

The Appeal of Learning with the Kayapó in the Amazon Forest. University participants are drawn to the opportunity to visit the Amazon and work with the Kayapó

(Aruch, 2019 interview participant notes). The continued appeal of working in a protected area within the already protected TIK makes A'Ukre a particularly unique setting for research, teaching, and learning. Participants noted some concern that A'Ukre could become involved in the destructive mining activity seen in nearby Kayapó villages at the border of the TIK. One field course instructor participant (2019 interview) told me bluntly that "if the gold miners get into A'Ukre, it is over [for the course]." Without the attraction of the Amazon forest, there may no longer be incentive for universities to continue research or education activities.

Brazilian Government Policies. University partners are concerned with two areas of Brazilian government policy. Specific to program activities in A'Ukre, university actors understand that with any leadership or policy shift, FUNAI could revoke or stop authorizing research or course activities in Indigenous lands, noting that "the government can shut us down at any time" (Joan, 2018, participant interview). University partners are also concerned with broader Brazilian policies toward Indigenous communities and the Amazon, particularly related to permitting mining and other extractive and environmentally destructive activities (Anderson, 2019; Nobre, 2019).

University Policies and Practices. University policies presented another set of sustainability concerns for participants, who cited challenges relating to safety, finances, recruitment, and administration. Research and course activities take place in a remote location, and course instructors wonder about safety risks and the viability of the course should an incident occur. Similarly, field course success is contingent upon student interest and the financial feasibility of the course. As higher education or program costs increase, instructors and students wonder if universities will continue to support boutique,

community-based programs like the Kayapó field course. At the same time, with increasing costs, will North American partners be able to justifiably subsidize their Brazilian peers? Student interest and willingness to pay is paramount to program sustainability.[142]

Conclusion

This chapter demonstrated that universities represent a key stakeholder group within the Pinkaiti Partnership. During partnership initiation, Zimmerman recruited university partners from her transnational professional and academic networks. During partnership initiation, the first university-based Pinkaiti researchers facilitated fundraising, offered legitimacy, and provided "proof of concept" for the nascent Pinkaiti research program. In the early research era, primarily Brazilian-based graduate students developed the foundation for extended student research projects and community relationships. Early USP student researchers were an ongoing Pinkaiti presence, responsible for most research activity.

In the international research era, students from UT borrowed and built upon the early research foundation. Supported external funding and CI institutional support, international researchers increased the number of research projects and shifted the model to expand A'Ukre community engagement and participation. International research declined when Pinkaiti activities became a sticking point in CI-FUNAI partnership negotiations (FUNAI, 2004) and external funding ran its course.

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[142] These concerns are particularly salient through 2020–2021. Both the 2020 and 2021 field course seasons were cancelled due to the COVID-19 pandemic.

Leaning on more than a decade of Pinkaiti research experiences, UMD piloted the Kayapó field course in 2004 model. Since the pilot, the field course has developed its own identity and expanded to include an additional course and more Brazilian and North American university partners. New partners have introduced emerging and innovative collaborative project opportunities alongside A'Ukre community, NGOs, and government partners.

Over the duration of the partnership, university activities generated important educational, social, economic, and environmental outcomes. For university participants, Pinkaiti experiences were far more significant that "data collection" research or "for-credit" education opportunities. University participants integrated themselves in to Pinkaiti Partnership to create mutually reinforced feedback loops and relationships within and among stakeholder groups. In many cases, university relationships transcended geographic and temporal boundaries to create a resilient, sustainable, and evolving program infrastructure. As Jeffrey noted in the beginning of the chapter, Brianna, a researcher and course instructor reiterated the power of Pinkaiti as a life altering learning experience:

> I think it's [the field course] fantastic. The proof of this is the number of students that come back and want to work or come back to the course again. I think it's an experience for life. I was lucky… When I came [to Pinkaiti] during my undergrad….I went to A'Ukre, to Pinkaiti as a researcher [and] to help a researcher and it changed my life… It changed my life and the ways my life went…It's a really great experience for those people who are open to this kind of thing. (2019 participant interview)

Chapter 7: Partnership Synthesis

> I want to show people that [Pinkaiti and] Associação Floresta Protegida didn't just descend from a helicopter. It was a battle and we had to fight in order to make it happen. We did it. We were able to create AFP... [It started when] the CI president came to visit Pinkaiti. When he left, Barbara and I started talking about organizing a big meeting in A'Ukre to speak about protecting the land, monitoring Kayapó territory, and how selling mahogany is not good for the Kayapó. Afterward, the students began to arrive to study ecology [at Pinkaiti]. And then we had another event, a beautiful gathering [of Kayapó leaders]. There, the [CI President] said, "…you need you have your own Kayapó institution…and we started to think about creating an association. And that was how AFP was created.
>
> —Paulinho Paiakan, 2019 participant interview

I spoke with Paiakan at the 2019 AFP General Assembly in Tucumã. At the assembly, more than 60 Kayapó Caciques from AFP's 31 representative aldeias were present to discuss the previous year's NGO activities and deliberate on AFP's objectives and activities for the coming year (Aruch, 5/2019 field notes). Paiakan's commentary succinctly connected the 2019 AFP assembly of Kayapó leaders with the efforts detailed in Chapters 4, 5, and 6. One can trace the 2019 AFP Assembly back to the origins of the Pinkaiti Partnership and the invitation Paiakan and A'Ukre leaders extended to Zimmerman. As Paiakan noted, "AFP didn't descend from a helicopter." It was decades-long set of challenges and opportunities, relationships and activities that created the Pinkaiti, that facilitated the creation of AFP, and that led to the Kayapó field course. When Zimmerman wrote to her academic mentors and colleagues about an idea to involve a "conservation organization in an exciting project with a traditional Kayapo Indian Village in the Xingu region of Brazil" (Zimmerman, 1991b), it was impossible to know that Pinkaiti and subsequent projects would become Zimmerman's (and many others) life's work.

Descriptively, Pinkaiti is an 8,000 -10,000 hectare ecological forest preserve within A'Ukre community lands at the center of the TIK (see Figures 1 and 2). However, chapters 4-6 of demonstrate how Pinkaiti's influence reaches far beyond its physical geography. Pinkaiti is a focal point in the transnational coordination of multi-stakeholder partnership activities. Pinkaiti maintains relevance as a research station; as a concept; or as a set of related ideas, activities, and relationships traveling from the forests of TIK to the halls, offices, journals, film festivals, and conference proceedings of Brazil, the United States, Canada, and the United Kingdom. In effect, Pinkaiti has become a boundary object for collaborative work amongst transnational partners, enabling "different groups to work together… with a situation of multisite work relations and requirements" (Akkerman & Bakker, 2011, p. 141).

This final chapter integrates the embedded stakeholder groups (see Figure 12) to discuss the Pinkaiti Partnership as a whole, addressing the important need for embedded case studies to return to the "larger unit of analysis" (Yin, 2014, p. 55; Figure 12). In addition, I revisit the conceptual and methodological tools of boundary objects and comparative case study discussed in Chapters 2 and 3 (Akkerman & Bakker, 2011; Bartlett & Vavrus, 2017c; Star, 2010; Star & Griesemer, 1989: Star, 2010; see Figures 7-10). The chapter is organized to address the three research focus areas outlined below.

Research Area 1: Recreate and detail the *structure, processes, and outcomes* of the Pinkaiti Partnership using the perspectives of different stakeholder groups: A'Ukre community, NGOs, and university partners.

The first section brings together the Pinkaiti Partnership as a whole case, mapping out and linking together partnership structure, processes, and outcomes across the four partnership eras

Research Area 2: Apply *boundary object* theory to analyze the Pinkaiti Partnership as a transnational multi-stakeholder partnership.

The second section identifies Pinkaiti as boundary object and uses the boundary object concept to analyze and discuss the Pinkaiti Partnership's dynamics, noting stakeholder interactions and movement through horizontal, vertical, and temporal axes (Akkerman & Bakker, 2011; Bartlett & Vavrus, 2017c). In addition, I note how Pinkaiti takes on multiple boundary object forms to permit inclusion and exclusion of partnership actors at various points in the partnership (Akkerman et al., 2012; Fox, 2011; Riesch, 2010).

Research Area 3: Generate *usable knowledge* for the design, implementation, or evaluation of research or education-based transnational multi-stakeholder partnerships.

In the third section, I reflect on the opportunities and limits of boundary objects, generating applied knowledge toward the design, implementation, or evaluation of future partnership activities (Cash et al., 2002; Clark et al., 2016). Finally, I reflect on the case study, considering critiques, limitations, applicability, and recommendations for transnational, multi-sectoral partnership work.

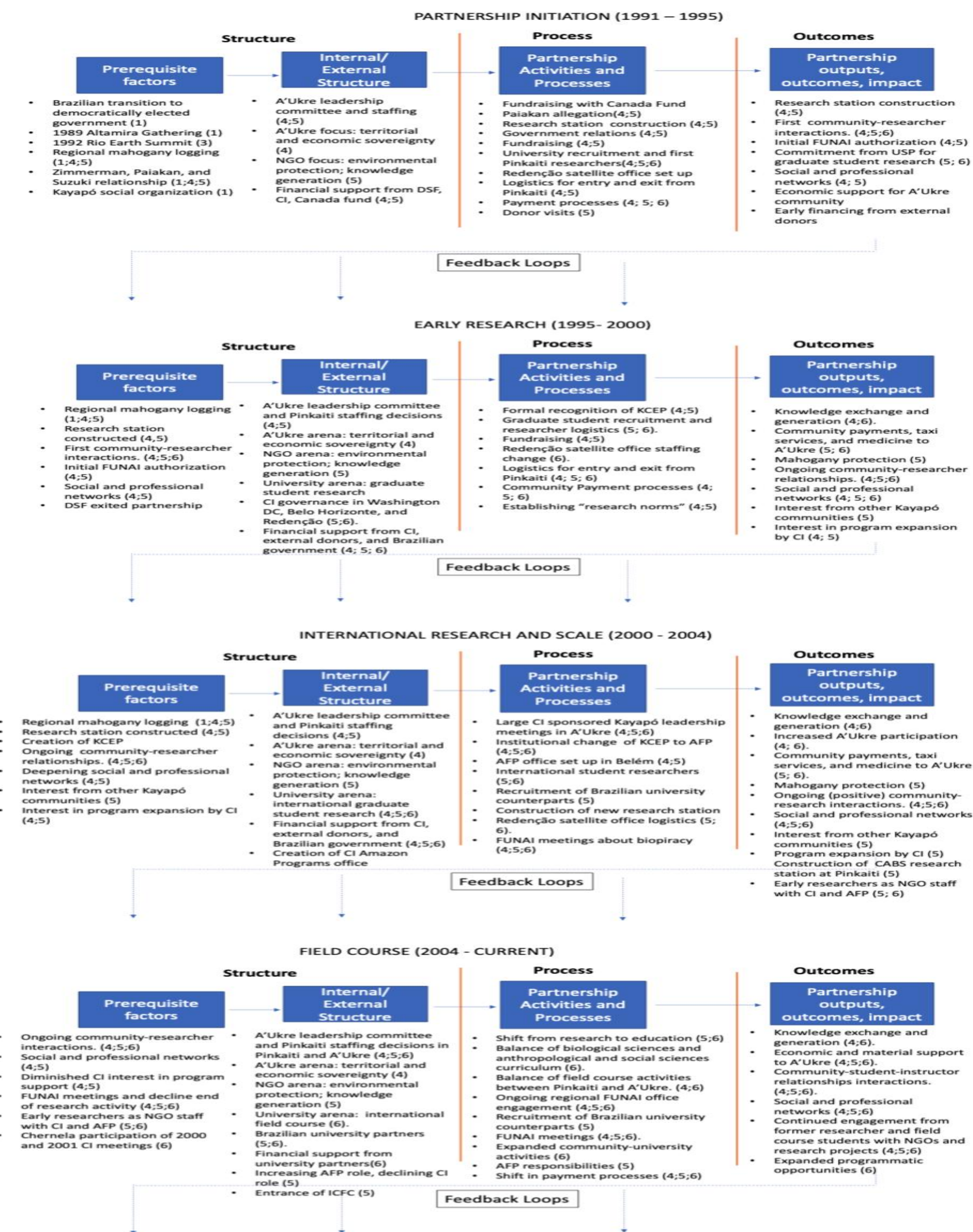
Recreating the Pinkaiti Partnership

Figure 26 uses the partnership framework from Chapter 2 (Brinkerhoff, 2002b; 2007; Kamya et al., 2016; Sabatier et al., 2007; van Tulder et al., 2016; see Figure 7) to

integrate key details from previous about Pinkaiti Partnership prerequisite factors, structure, processes, activities, and outcomes. In the figure, the reference chapter is noted in parenthesis. Of particular note and relevance within Figure 26 are the feedback loops that exist along the partnership framework, reinforcing prerequisite factors, structures, processes, and activities for subsequent partnership eras. Below, I discuss a few key aspects of partnership structure, processes, activities, and outcomes.

Figure 26

Understanding Structure, Process, and Outcomes Across Pinkaiti Partnership Eras



Partnership Structure, Processes, and Activities

Over the four Pinkaiti Partnership eras, partnership structure has depended greatly on the fit and interdependence of the partners (Biermann, Pattberg et al., 2007; Brinkerhoff, 2002c; Gray, 1989). Across the eras, fit and interdependence have varied significantly depending upon external social, economic, and political factors (Berger et al., 2004). National and international support for inclusive, multi-sectoral partnerships such as Pinkaiti was at the forefront of the global governance agenda in the aftermath of the 1989 Altamira Gathering and the 1992 Rio Summit (Hemmati & Whitfield, 2003; UN, 1992; Witte et al., 2002). The effort to slow or stop mahogany logging and gold mining in the Kayapó socioenvironmental context of southeastern Pará provided a prime opportunity for Paiakan, Zimmerman, and Suzuki to seek the support of an international NGO like CI and count on the (at least tacit) Brazilian government support for a project such as Pinkaiti within Indigenous territories (Correa da Escossia Nogueira, 1993; Santilli, 1992; Zimmerman, 2010; Zimmerman et al., 2001).

CI, DSF, and A'Ukre took advantage of the moment to create the necessary physical and knowledge infrastructure to begin formal activities in both ecotourism and small-scale research. With the station infrastructure in place, DSF felt it had accomplished its goals and exited the partnership (Suzuki, 2006, p. 191). At the same time, USP graduate student research took hold, creating an ongoing but small-scale research program within A'Ukre at Pinkaiti and establishing a relatively low-risk set of positive relationships and interactions amongst NGO, university, and community partners. For the most part, although CI shared project updates, FUNAI remained relatively uninvolved (Zimmerman, 1997).

Following the early success of Pinkaiti, partners began to reconsider the scope, fit, and interdependence of partnership activities. CI expanded and scaled conservation program activities to include all Kayapó communities (CI Brazil, 2001; CI Brazil, 2002b). A'Ukre demanded increased community participation and remuneration. Zimmerman recruited North American graduate student researchers from UT. These activities required additional FUNAI and Brazilian government involvement (FUNAI, 2002; FUNAI, 2004; Hass, 2004)

This equilibrium shift disrupted organizational identities and partnership fit. International researchers relied heavily upon CI to facilitate FUNAI research authorizations. However, scaling Kayapó programs meant CI no longer intended to supported research authorization, shifting local Kayapó program implementation to AFP, the newly created Kayapó NGO. In addition, international research activity was stalled when researchers were caught between ongoing negotiations between AFP, CI, and FUNAI as CI shifted to 'phase two' of the Kayapó conservation project (CI Brazil, 2001). At the end of the international research and scale era, NGO, government, and university partners no longer "fit" for three primary reasons:

1) CI no longer supported individual programs like Pinkaiti, instead financing and relying upon regional and local institutions such as AFP to implement programs.
2) The Brazilian government and FUNAI had increasing concerns about international intervention in the Amazon regarding intellectual property rights and biopiracy, complicating research authorizations.
3) Universities found it difficult to generate financial and human resources for research given the constraints of the first two points.

The decline of research and subsequent shift to the field course era dramatically changed governance and participation arrangements (see Table 20). From partnership initiation to the field course, governance mechanisms evolved from a reliance on individual relationships to a complex system of globally integrated vertical and horizontal decision-making arrangements (Bartlett & Vavrus, 2017c). Over the duration of partnership engagement, the Pinkaiti Partnership took on a more collaborative model of governance and decision making that involves "organizational systems of state and non-state actors with institutionalized norms that persist over a long period" (Gray & Purdy, 2018, p. 157).

Table 20

Governance and Participation Shifts in Pinkaiti-Related Activities by Stakeholder Group Across Partnership Eras

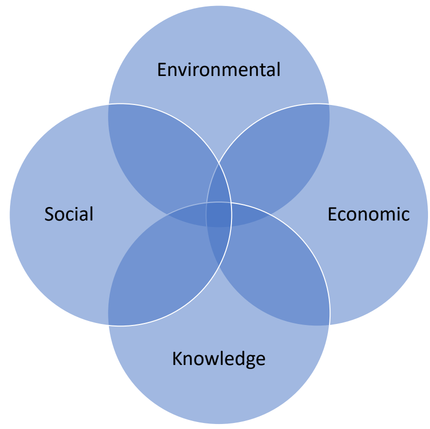
	Initiation →	**Early research →**	**International research →**	**Field course**
A'Ukre community	• A'Ukre committee and Pinkaiti coordinator • Individual relationships	• A'Ukre committee and Pinkaiti coordinator • Little community participation	• A'Ukre committee and Pinkaiti coordinator • Increased community participation	• A'Ukre-driven curriculum and activities • Expanded community participation • Creation of A'Ukre Association (Pykôre)
NGOs	• DSF and CI • Individual relationships	• CI governance at local (Redenção), national, and international offices	• CI governance at local, regional (Belém), national, and international offices • Local association in AFP	• CI → ICFC • International NGOs take an outside role • AFP increases roles and responsibilities
Universities	• Individual relationships • Limited decision making • Research as input for NGO goals	• Individual researchers • Limited decision making • Research as input for NGO goals	• Individual researchers • Limited decision making • Research as input for NGO goals	• University-driven curriculum and activities • University-financed programs • Field course as shared goal between university, NGO, and community

Partnership Outcomes

An overview of thirty years of Pinkaiti Partnership activities provides a holistic look at four linked outcome domains: environmental protection and sustainability, material and financial resources, knowledge sharing and generation, and social networks and feedback loops (see Figure 27). Special attention is paid to how feedback loops amongst partners did or did not contribute to ongoing partnership activities.

Figure 27

Overlapping Pinkaiti Partnership Outcomes



Environmental Protection and Sustainability

Sustainable Kayapó livelihoods and protection of the environment continue to be durable and shared partnership goals. Despite the continued threats along the "arc of deforestation," aerial views of TIK and continuous neighboring Indigenous lands clearly illustrate how successful Kayapó partnerships are in tropical forest conservation of the Xingu region (Anderson, 2019; ICFC, 2020a; Nepstad et al., 2006; Schwartzman & Zimmerman, 2005; Schwartzman et al., 2013; Zimmerman et al., 2020; Figure 3). It may be a stretch to say that Pinkaiti is directly responsible for these hard-fought (and ongoing) battles against forces of environmental destruction (Hecht & Cockburn, 2010; Schmink &

Wood, 1992; Zanotti, 2016), but as Paiakan's initial quote illustrates, this case study illuminates the relationship between Pinkaiti Partnership actors and the current network of Kayapó NGOs (AFP, Instituto Kabu, and Instituto Raoni), international organizations (CI and ICFC), and universities (UFPA, UFU, UMD, UnB, Purdue; USP).[143]

Material and Income Generation

The Pinkaiti Partnership generates important material and financial resources across stakeholder groups. The A'Ukre community benefits from payments of goods, money, medicine, and air travel. The course fair generates important and useful gear for A'Ukre's residents. A typical field course generates close to $25,000 per year for the A'Ukre community (Zimmerman et al., 2020). In addition, with their NGO and university allies, A'Ukre participants travel throughout Brazil, North America, and Europe for conferences, film festivals, and other activities. NGOs generated a number of external grants and funds through the success of Pinkaiti to initiate, sustain, and scale Pinkaiti and Kayapó projects. During initiation, Pinkaiti won a CIDA Canada Fund for small projects award in the amount of $21, 295 CDN (Zimmerman, 1992w). At scale, CI's Kayapó Project received nearly one million dollars from the Global Conservation Fund and other donors between 2000 and 2004 (CI, 2003b). Similarly, university participants have crafted successful research and grant proposals that narrate the unique social and natural science research opportunities present at Pinkaiti and A'Ukre.[144] FUNAI also acknowledged resources made available through the Pinkaiti partnership, including a

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[143] This case is one example. Kayapó NGOs and Pinkaiti actors are also involved with other regional, national, and international partnerships and networks.
[144] This research, for example was funded by successful grant proposals to Fulbright and Cosmos Foundations.

vehicle for the Tucumã office, as well as external resources to help meet their institutional goals for the supervision and monitoring of Indigenous lands and institutional partnerships (FUNAI, 2020b; FUNAI participant interviews, 2019).

Knowledge Generation and Exchange

The research station and field course undergird a commitment to the production and dissemination of knowledge in multiple forms including academic knowledge (across disciplines), traditional (Indigenous) knowledge, and institutional knowledge. From the outset of the partnership, A'Ukre leveraged the Pinkaiti Partnership to protect an area of forest that could be used to maintain and share cultural and ecological knowledge (Paiakan, 2019, participant interview). CI in particular wanted to use the research station to learn about the impacts of selective mahogany logging on tropical forests on biodiversity and other aspects of tropical ecology. Similarly, universities sought to leverage the research station to pursue basic and applied research questions. Through research-based interactions at Pinkaiti, new forms of knowledge were produced as the A'Ukre community shared their culture while learning about the kuben from Brazil and North Americans. At the same time, NGO and university participants integrated their "science" with Indigenous Kayapó cultural and ecological knowledge. Beyond research activities, new and important knowledge was created for NGOs and universities on how to work alongside Indigenous peoples. The A'Ukre came to *mari mej* (know well) the ways of the kuben and became 'expert consultants' for other Kayapó communities seeking NGO or university based projects.

In the end, dozens of knowledge products, including theses, journal articles, conference proceedings, and film screenings, were generated through the partnership (for

example Aruch et al., 2018, 2019; Chernela & Zanotti, 2014; Jerozolimski et al., 2009; Jorge & Peres, 2005; kokojagoti.org; Morsello, 2006; Peres & Baider, 1997; Peres & Nascimento, 2006; Peters et al., 2006; Ribeiro et al., 2014; Salm, 2013; Salm et al., 2007; Zanotti, 2016; Zanotti & Chernela, 2008; Zimmerman et al., 2001, 2020).[145] Less formally, research and education activities created a transcultural cohort of field course alumni (students, researchers, instructors) from A'Ukre, the NGOs, and universities. In particular field course students share and amplify their experiences with Pinkaiti, A'Ukre, and the Kayapó, creating future cohorts of Pinkaiti participants.

Social Networks and Feedback Loops

The Pinkaiti Partnership relies upon and generates important social networks for transnational advocacy (Conklin & Graham, 1995; Keck & Sikkink, 1998; Schwartzman & Zimmerman, 2005; Schwartzman et al., 2013; Smith, 2012). To get Pinkaiti off the ground, Zimmerman and Paiakan relied on their networks of NGO, university, and government allies. For the A'Ukre community, cultivating these intercultural transnational networks continues to be an important partnership outcome (P. Paiakan, 2019, participant interview). University participants noted the academic and professional connections generated by their participation, as NGOs often recruit and hire from research and field course participants. As more and more individuals and institutions became involved, these social networks frequently resulted in ongoing relationships and feedback loops between individuals within and across institutional actors (see Figure 26). Table 21 notes more successful partnership feedback loops.

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[145] For a periodically updated and comprehensive list of knowledge products, see https://tinyurl.com/de5r56b5.

Table 21

Partnership Actors and Successful Feedback Loops

Partnership actor	Successful Feedback loops
A'Ukre community	• Leadership and participation in the field course, with NGOs, and with FUNAI • Intergenerational participation with children of research associates participating as field course instructors • Feedback loops with their NGO and university partners for important professional and advocacy networks • A'Ukre has taken lessons learned from its experiences with CI and AFP to create its own community association, Associação Pykôre. • A'Ukre advises other Kayapó communities
Pinkaiti researchers (Brazilian and international)	• Continue to conduct research in the region, occupy leadership roles in various NGOs, or act as instructors for the field course
NGOs	• Ongoing NGO leadership within and across NGO institutions • Former researchers took roles in CI, AFP, and ICFC • Former field course participants took roles in AFP and ICFC • As partnership participants take roles within other institutions, networks of support and information sharing are created
Field course students (Brazilian and North American)	• Brazilian university study participants continue to pursue projects with A'Ukre as student researchers, NGO staff, or field course instructors • Bring their experience home to raise awareness of Kayapó and Amazon issues introduced in the course, recruiting new course participants
Field course instructors (Brazilian and North American)	• Develop new projects and opportunities with the A'Ukre community in collaboration with NGO, government, and other university partners • Bring their experience home to raise awareness of Kayapó and Amazon issues introduced in the course through presentations or meetings

Over the duration of the Pinkaiti Partnership, institutional feedback loops were noticeably absent among Brazilian university and government institutions. Across partnership eras, absence of Brazilian university and government relationships generated notable examples of tension or conflict.

Formal Brazilian university research counterparts were hard to come by for CI from partnership initiation through international research. Although an informal relationship with USP was successful, interest has waxed and waned among Brazilian research universities and institutions such as INPA, USP, MPEG, and UFPA. During the

field course, Brazilian universities such as UnB, UFU, and UFPA became official partners, often signing institutional agreements with North American partners. In the field course, we see some Brazilian university feedback loops beginning to develop as field course participants take roles in universities and NGOs (ex. Purdue-UFU field course).

The churn of FUNAI leadership and personnel has precluded institutional feedback and complicated issues of research and NGO practice through the duration of the partnership, particularly in Brasília. Pinkaiti partners always felt they needed to reexplain the purpose of research or the field course to new FUNAI staff. Again, in the field course era, we see beginnings of feedback loops with FUNAI. In Brasília, the course benefits from the consistent timing and structure of the field course, making in a known entity (FUNAI Brasília, 2019 participant interview). The regional FUNAI office coordinator in Tucumã has remained the same throughout the field course era. The AFP office staff and field course instructors have built personal relationships with the Tucumã coordinator, an ally of the field course (Tucumã FUNAI, 2019 participant interview).[146]

Linking the Boundary Object Concept to Partnership Work

Boundary work was initially conceived as a strategy for demarcating science from nonscience in order to capture resources or legitimize expertise (Gieryn, 1983, 1995, 1999). In Gieryn's context, boundary work was often exclusionary. Star (1989) and Star and Griesemer (1989) introduced the concept of boundary objects, reframing the boundary work discussion to include multi-actor collaboration without consensus. Later scholarship placed boundary objects and boundary work within the context of boundary

[146] This may change. The Tucumã-based FUNAI coordinator was replaced in September 2020 with someone unfamiliar with the field course.

organizations, often working at the interface of research, policy, and practice (Clark et al., 2011; Gustafsson & Lidskog, 2018; Guston, 2001; Riesch, 2010). Clark and colleagues (2011) note that effective boundary work exhibits meaningful participation, accountability among stakeholders and the production of **boundary objects** (p. 4615). Boundary objects exhibit four characteristics: interpretive flexibility; standardized processes; ambiguous work; and tacking (see Table 3).

Boundary objects can take multiple forms, and a variety of artifacts have been labeled "boundary objects" across a broad range of disciplines (Akkerman & Bakker, 2011; Fox, 2011; Huvila et al., 2017). Huvila and colleagues (2017) noted the diversity of boundary objects, which include group activities, archival standards, design concepts, group affiliations, and metaphors. Boundary objects often travel with their users across temporal and spatial dimensions to facilitate multi-sited asynchronous or ambiguous work (O'Mahony & Bechky, 2008; Star, 2010; White et al., 2010).

In this respect, boundary objects as a conceptual tool are sometimes critiqued (Riesch, 2010) because they articulate both inclusion (Star, 2010; Star & Griesemer, 1989) and exclusion (Gieryn, 1983, 1999). Riesch (2010) contended that scholars need to "reappraise the general usefulness of the boundary metaphor" (p. 457), and Cantwell Smith (2015) wonders if the concept is overly broad. Despite these critiques, I argue that the conceptual malleability or "interpretive flexibility" of boundary objects is what makes the concept a powerful framework for illuminating the inclusion/exclusion of ongoing Pinkaiti Partnership structure, processes, and outcomes.

Through the case study, Pinkaiti is a boundary object with multiple forms. In its physical form, Pinkaiti is a research station. However, Pinkaiti also represents a

community of practice, or set of organizational processes as it travels from the interior forests of TIK to offices, classrooms, and other local, national international arenas. Thus, by tracing Pinkaiti as a boundary object, we understand and compare how Pinkaiti partners interact within vertical, horizontal, and transversal axes (Bartlett & Vavrus, 2017c). To illustrate this point, I revisit the conceptual model of Pinkaiti as a boundary object (see Figures 8 and 17).

Figure 28

Revisiting Pinkaiti and the Boundary Object Framework

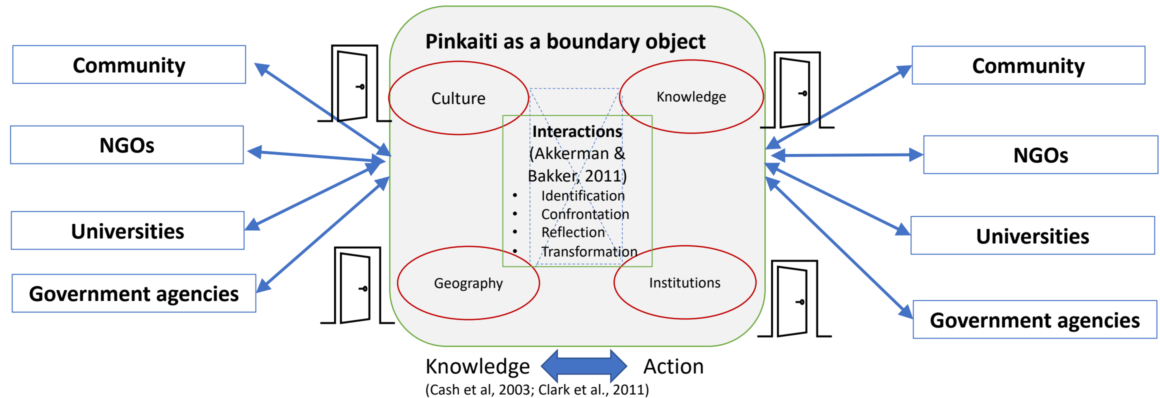

Figure 28 replicates Figure 9 from Chapter 3, but the new figure includes four partnership gateways. The four gateways present multiple "translation" opportunities (Callon et al., 2009; Star, 2010; Star & Griesemer, 1989) whereby individuals or groups may engage in boundary crossing (Akkerman & Bakker, 2011; see Table 4). The figure illustrates cultural, geographic, institutional, and knowledge-based "obligatory passage points" (Callon et al., 2001; Franco-Torres, 2020; Star & Griesemer, 1989). The gateways, derived from prior chapter discussions, serve two purposes. First, those interested in engaging in partnership activities must be authorized entry into the partnership via one of the other stakeholders through one of these gateways. Second, during ongoing partnership, activities "tack back and forth" through the boundary object

at these various translation points (Griesemer, 2015; Star & Griesemer, 1989). The dotted line connects these passage points, demonstrating they are not exclusive but are interconnected with one another and representative stakeholder groups.[147] Examples below unpack how depending upon circumstances, individuals or institutions enter, move within, or are excluded from partnership activities across Pinkaiti as a "facilitative" or "inhibitive" boundary object (Fox, 2011, p. 75).

Cultural Boundaries

Stakeholder groups and representative institution embody their own cultural norms and practices. However, the Pinkaiti Partnership demonstrates how cultural practices represent unique, shared, or exclusive identities.

Unique Cultural Identities

Stakeholder groups continue to maintain their own values and identities within the partnership. For example, stakeholder logics and visions differ. Conservation NGOs and tropical ecologists ostensibly prioritize forest protection. Participants from these groups felt that if they protected the forest, then they protected Kayapó culture. On the other hand, many participants from A'Ukre or FUNAI as well as university-based anthropologists had a different logic. These participants felt that if they protected A'Ukre and the Kayapó, then they protected the forest. It is a nuanced difference, representing the interpretive flexibility of Pinkaiti as a boundary object (Bijker, 2001), but one important for understanding partner collaboration and tensions. Over time, we can see how these

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[147] Furthermore, this a starting point for discussion. Another boundary object might display a separate set of arrangements. For example, in another case, there might be a technical requirement that sits as a boundary gateway.

different value sets and visions intersect or compete as we moved from "forest focused" to more "people centric" model (Peres & Zimmerman, 2001; Schwartzman et al., 2000; West et al., 2006).

A'Ukre participants noted how research and the field course reinforced their identity as Mẽbêngôkre-Kayapó who continued the customs and traditions of their parents and grandparents (Aruch participant interview notes, 2019). At the same time, Pinkaiti created a unique cultural identity for the community in relation to other communities. A'Ukre's identity includes its relationship with kuben. Numerous A'Ukre participants reminded me that "only A'Ukre" has a project like Pinkaiti or the field course and that A'Ukre was the starting point for AFP. Furthermore, A'Ukre residents are confident they " mari mej (know well) the work of the kuben" and will be able to see their CBO Pykôre, "grow up and walk on its own" to support the community (Aruch field notes, July 2019). One motivation for creating Pykôre was the ongoing tension Pinkaiti created with other Kayapó communities (See Chapter 4). By separating Pinkaiti from AFP, A'Ukre hoped to reduce intervillage conflict and build on its history of transnational collaborations.

Shared Cultural Identities

Over time, Pinkaiti Partnership participants developed a shared identity.[148] Participants, particularly those engaged in research activities, discussed at great length the experiences, stories, and behaviors that bound individuals and institutions together

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[148] This was evidenced in the enthusiasm of participants when solicited for interviews with a message entitled "Pinkaiti." Many participants noted how surprised and excited they were to see the word and share their stories.

through repeated interactions. Representative participants from universities, NGOs, and A'Ukre all used the term "family" to describe one another and their experience. The shared experience of research and the field course has built (and continues to build) a large cohort of students, researchers, and practitioners with a shared connection to the people, spaces, and activities of the partnership.

Anecdotally, at the 2018 Congress for the International Society for Ethnobiology in Belém, Brazil, I was walking through the conference hall with an A'Ukre community leader. A Kayapó from a different community called out and asked the A'Ukre leader, "who is this kuben?" The leader responded, "He is one of "our" kuben. One of the kuben from A'Ukre." The Kayapó questioner smiled at me and nodded knowingly (Aruch, ISE Belém field notes, August 2018).

Exclusive Cultural Identity

Still, Pinkaiti Partnership cultural activities reinforce cultural boundaries as well (Gieryn, 1983). Among partnership participants with long term engagement, some felt that power continues to reside within the older biological sciences and Indigenous community-conservation partnerships from the original Pinkaiti design. In their view, there is a cultural legacy that continues to privilege the "band of biologists" (Heitor interview notes, 2019) at Pinkaiti instead of a more inclusive, participatory model. In effect, internal Pinkaiti culture still resists emerging ideas and perspectives.

At times, many participants felt excluded from ongoing partnership engagement if they did not share common values. In particular, some university participants confided that they felt unable to penetrate the cultural and institutional barriers of the Pinkaiti Partnership. They felt their project concepts were too far outside the cultural norms of the

key institutions or gatekeepers, and therefore they were unable to continue to engage with A'Ukre, the NGOs, or university research. Although the intent was there, they felt rejected and discouraged by important cultural and institutional passage points.

Geographic Boundaries

Geographic boundaries of the partnership come to light as partners converge on physical spaces of A'Ukre and Pinkaiti or carry the Pinkaiti boundary object with them to their respective institutions.

Arrival and Departure

Entering or exiting A'Ukre and Pinkaiti is a geographic accomplishment in itself. The physical hurdles are impressive as participants make their way to Pinkaiti. Non-Brazilians must first travel to Brazil. Once in Brazil, one must travel through the state of Pará, seeing first-hand the expansive deforestation and agricultural enterprises. The staging area to enter A'Ukre is a frontier town, either Redenção (until the field course) or Tucumã. From there, participants take an air taxi to A'Ukre. From A'Ukre, the final step is a two hour motorized canoe trip up the Riozinho River. Travel takes several days and can be physically challenging. University and NGO participants almost unanimously recalled the impressive delineation between Brazilian ranch lands and Kayapó territories (see Figure 29) and the impression it had as they entered and later exited Pinkaiti, A'Ukre and TIK.

Figure 29

Aerial View of the Border at the Kayapó Indigenous Territory

Note. Photo by M. Aruch, June, 2019.

Physical Proximity as a Means for Collaboration

The impressive physical distance and required coordination enhances the necessity for collaboration, both in the processes and procedures required to get to Pinkaiti and in the focused work that takes place upon arrival. As partners converge on Pinkaiti, one sees “standardized processes” (Fujimora, 1992; Star, 2010) in action including the need for authorization, decisions around entry and personnel, supplies, logistics, research protocols, and course activities. When Pinkaiti as a physical space is activated, there is shared understanding or at least standardized norms for behaviors and activities. Structures become tightly wound around concurrent activities, constrained by timelines or course dates. The pressure of convergence forces synchronized work and collaboration among partners.

However, as Pinkaiti “travels” outside of its shared physical space, the ambiguous, tailored work of different actors begins to emerge (Star & Griesemer, 1989; Star, 2010). In these distal, liminal spaces, tensions start to arise as actors take the object back to work within their respective institutions or frame their own interpretations of Pinkaiti. Once away from research or the field course, different institutions must contend

with a diverse set of administrative, institutional, or professional pressures. At times, the tension builds. Daniel, a Brazilian instructor explained this phenomenon:

> We [NGO, community, university field course team] always valued this personal experience a lot [the field course], how good it was to be there [in A'Ukre] and often that was the reason we got over our disagreements with other people that it was so good to be there… It brought such great happiness from a personal point of view… You are living with [the Kayapó] and you spend time in the village bathing in the river, hiking, going to the waterfall and participating in those dances. So that was so good, bringing happiness so great that it made us overcome the problems [between individuals and institutions]. (2020 participant interview, author translation)

FUNAI research authorizations during international research is another salient example of tracing the boundary object through geographic spaces. In the authorization process, partnership activities moved back and forth within local, national, and international arenas. Each actor group occupied a different role in soliciting (university and NGO), supporting (NGO and A'Ukre), or authorizing (FUNAI) research. Chapters 4, 5, and 6 trace different perspectives on the research authorization process as the process moves along the vertical axis from the research station to A'Ukre, Redenção, CI Brazil, FUNAI offices in Belo Horizonte and Brasília, CI Washington, and university spaces in Toronto. Pinkaiti Partnership actors worked in ongoing (yet independent) collaboration, often without consensus, across these global spaces with the goal of authorizing Pinkaiti research activities. As the case study reports, a combination of geographic and institutional barriers that inhibited ongoing research authorizations.

Kayapó Autonomy and Activity Boundaries

A physical separation of activity spaces exists both between A'Ukre and Pinkaiti and within A'Ukre (Figures 1 and 2). First, all non-Kayapó must request formal permission from A'Ukre residents to enter and work with the community regardless of prior government, university, or NGO approval. In addition, intentional spaces are designed to maintain geographic and cultural distance between the Kayapó and non-Kayapó. A'Ukre is about 12 km and a two-hour boat ride from Pinkaiti (Figure 2). This geographic and physical separation between the village and research station has been an important consideration and standardized practice for partnership activities since partnership initiation (Zimmerman, 1991a).[149] To some extent, Pinkaiti became as socially constructed third space (Bhaba, 1994) for intercultural engagement and knowledge exchange free from expectations and norms of village life. Similarly, during the field course, student lodging is physically separate from the rest of the community, intentionally segregating course activities from the daily routines of village life (see Figure 1). More than one participant noted that the success of the research and education activities likely had to do in part with this geographic separation. Jordan, an international researcher said one reason for Pinkaiti success was:

> I think the distance, to be honest between Pinkaiti and the village is beneficial because it provides a sort of separation between what goes on in the village, you know, be it social, economic, or political or anything any kind of like conflicts that are happening there or distractions for that matter. And you have Pinkaiti, a

[149] See Chernela (2011) for a discussion of *islamiento* as an ecotourism strategy amongst the Kuna in Panama.

good two hour boat ride essentially… I think is a big plus. (2019 participant interview)

The physical geographies can also limit community participation. During early and international research activities, most Kayapó women and youth were excluded from Pinkaiti participation because being so far from the village was not appropriate to their gender, age grade, or knowledge set. With more diverse A'Ukre-based activities in the field course, there is more gender equity in participation (Zanotti, 2013b; Zanotti & Chernela, 2008).

Knowledge Boundaries

As a partnership anchored in research and education, Pinkaiti incorporates multiple academic disciplines and knowledge sets into partnership activities. Most notably, the partnership integrates scientific and Indigenous knowledge into conservation and sustainable development strategies (Agarwal, 1995; Berkes, 2009; Schroth et al., 2006; Schwartzman et al., 2013; Zimmerman et al., 2001). In practice, multiple disciplinary and institutional knowledge practices serve to include or exclude partnership participation.

Interdisciplinarity

There are two important themes corresponding to interdisciplinarity. On one hand, participants highlighted that partnership strength comes the broad range of intellectual and practical perspectives. On the other hand, Pinkaiti partners, particularly NGO and university participants noted strong disciplinary boundaries. During interviews, NGO and university participants often referred to partnership colleagues as the "biologists" or the "anthropologists." These labels were used in conversation about resources, curriculum,

and activities. Participants involved in the field highlighted that the course increasingly integrates and balances interdisciplinary perspectives.[150]

Knowledge Processes

Partnership participants also reported gaining knowledge of processes and practices for successful transnational engagement. The creation of Kayapó associations and NGOs is a clear example of how Kayapó participants "learned the ways the kuben work" (Aruch, 2019 field notes). During partnership initiation, A'Ukre did not have the cultural or technical knowledge to navigate administrative hurdles and create the A'Ukre Association and receive external funding. Eventually, the A'Ukre Association became KCES (in Redenção). The success of Pinkaiti caught the attention of CI and other Kayapó communities. At the 2000 and 2001 A'Ukre meetings, KCES became AFP. With the help of many Kayapó and kuben Pinkaiti participants on staff, AFP has flourished. Learning from this history, A'Ukre created its own Pykôre Association in 2019.

Over three decades of activities, university and NGO partners also learned much about how to work with Kayapó knowledge and culture. The field course continues to integrate and build on these knowledge sets in its own design and implementation as new initiatives emerge such as the Self-determination in a Digital Age project and Kôkôjagõti media center (Ramon Parra et al., 2018).

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[150] Since 2014, research interest in Pinkaiti has increased. Ribeiro (2014) in collaboration with AFP created a proposal to create a government recognized research program in biodiversity (PPBio). At the same time, a new wave of graduate student research projects initiated more interdisciplinary approaches from Brazilian, North American, and European universities. Projects include those focused on media, anthropology, international education, ethno-ornithology, and tropical ecology. Unfortunately, prospective researchers face authorization barriers exacerbated by the COVID-19 pandemic. At the time of writing, entry into Indigenous territories has been prohibited since April 2020.

Institutional Boundaries

The Pinkaiti Partnership has always been an assemblage of formal and informal arrangements between individuals and institutions at different scales and localities. The preceding chapters illuminated how institutions have acted as important passage points within Pinkaiti Partnership work.

Formal and Informal Arrangements

Particularly during partnership initiation and early research, Pinkaiti Partnership activities were centered on personal relationships amongst individuals within A'Ukre (Paiakan), CI (Zimmerman), and DSF (Suzuki) who drove partnership activities. As the partnership matured, these institutions required more formal arrangements (see KCES). Negotiation of these formal agreements was often representative of how institutional partners tack back and forth across the boundary object (Akkerman & Bakker, 2011; Griesemer, 2015; Star & Griesemer, 1989) at vertical and horizontal axes over time (Bartlett & Vavrus, 2017c).

A clear example of this back and forth amongst stakeholders is the ongoing recruitment and participation of Brazilian universities. During partnership initiation, attempts were made to create a formal partnership arrangement with INPA as a formal partner. Chapter 6 illustrates the back and forth between Zimmerman, INPA, FUNAI, and CIDA. Ultimately, it was the informal arrangement with USP that flourished. However, the informal USP agreement only allowed for small-scale activities. In order to scale, Pinkaiti required a more formal, sustainable Brazilian university partner to support both Brazilian and international research. During the research eras, the vertical arrangement between Brazilian universities and CI never amounted to a formal agreement. However,

during the field course era, the horizontal arrangement between universities generated several formal institutional documents (UMD-UnB and Purdue- UFU). Currently, a partnership agreement is in progress between UMD and UFPA (personal observations, 2019; 2020). Formal agreements were likely easier to navigate horizontally across peer institutions (university - university) than vertically between stakeholder groups (university-NGO).

Institutional Autonomy

Tracking Pinkaiti as a boundary object shows the kind of autonomous, specialized work unique to the stakeholders. Each stakeholder and representative institution fit strategically within the partnership, either working alone or collaboratively with one or more other stakeholder groups. For example, the field course involves ongoing processes of autonomous or "ambiguous" work tailored to specific institutions and individuals (Akkerman & Bakker, 2012; Star, 2010; Star & Griesemer, 1989). During field course preparations, each stakeholder group works independently. A'Ukre maintains the field station trails and organizes the community. At the same time, North American universities are recruiting students, navigating administration, and creating curriculum. Brazilian universities are helping to create the curriculum and working to ensure course authorizations with FUNAI. AFP coordinates the course including authorizations, staffing, and logistics.

With the exception of selected leaders or "boundary spanners," most partnership participants never meet or work directly with one another and know only a subset of participants. For example, I have been to the community several times, but I had met very few AFP staff until this dissertation research. Similarly, most AFP staff may know their

FUNAI counterparts and some of A'Ukre's leadership, but likely have never been to A'Ukre for the field course or visited Pinkaiti. Caleb, who worked on Pinkaiti activities for twenty years with KCES and AFP never visited A'Ukre as an AFP employee (Caleb, 2019, participant interview).[151]

Champions, Gatekeepers, and Individual Agency

The case study frames partnership work by stakeholder group, but by looking closely at Pinkaiti as a boundary object, one can observe that many boundary interactions take place between a handful of individuals who act as boundary spanners and champions. These are the front-facing partners tasked with communication, coordination, and negotiation (Seixas & Berkes, 2010; Williams, 2019). Champions including A'Ukre's Caciques, Paiakan, Zimmerman, Chernela, Zanotti, and Jerozolimski (and others) span partnership eras and institutions, ensuring continuity, driving partnership practice, and recruiting future participants.

Another set of individuals serve as the gatekeepers for their respective institutions. These include the A'Ukre coordinators, university advisors or instructors, and NGO leadership. For example, early and international graduate student research eras were overseen by one Brazilian (early research) and two Canadian (international research) faculty advisors. Without support from these faculty advisors, Pinkaiti research would have been impossible for graduate students trying to navigate the many logistical, geographic, and cultural challenges. Similarly, today, university instructors must comply with and navigate the university administrative, legal, and risk management policies.

[151] Caleb has since visited to install solar panels as part of his private business (Caleb, 2019, interview notes).

University gatekeepers play an important role in marketing and recruiting the course to their institutions and interested students.[152]

Finally, it is important to note the role of individual agency, as participants sought out their own involvement in the Pinkaiti Partnership. University participants shared a number of motivations including meaningful personal connections with the Amazon; the pursuit of social, academic, or professional goals; and prior experience from close family or friends. Whatever their motivations or networks, participants needed to overcome financial, technical, and institutional barriers to participation in the partnership. For some individuals, the barriers to entry were too high. Faculty advisors noted that several graduate students selected other research sites, and many potential field course participants found the barriers (e.g. financial, logistical, cultural, geographic, institutional, administrative, time) prohibitive. Participants interviews revealed multiple support networks and strategies for overcoming the significant barriers to participation in Pinkaiti research or education activities.

Research → Practice: Boundary Object Opportunities

The discussion above uses a boundary object framework to better reveal the extensive Pinkaiti Partnership structure, processes, activities, and outcomes. Here, I would like to discuss a few of my reflections on the potential use of boundary objects as conceptual tools for understanding partnership work.

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[152]Likewise, the course is only offered at a handful of universities. Students seeking credits must navigate administrative systems to enroll in these universities. In 2011, ICFC started an internship program to support non-credit bearing students. Field course faculty and staff onboard interns as if they were students.

Boundary Objects Trace Trajectories to Uncover the Big (Often Hidden) Picture

This case report is an expansive look at different partnership arrangements and interactions focused on education and research activities. However, this study also illustrates how boundary objects help trace trajectories of individuals, activities, and institutions along the transversal axis (Bartlett & Vavrus, 2017c), revealing the importance of partnership histories to ongoing activities.

Using Pinkaiti as a boundary object, one can trace how Zimmerman translated her relationships with Paiakan and Suzuki into Pinkaiti and a professional career with CI and ICFC. Similarly, A'Ukre's Pykôre Association is more easily understood if one traces the development of A'Ukre associations over time (A'Ukre →KCES →AFP →Pykôre). Clearly, the successes and challenges of current A'Ukre-based projects are better understood with context and perspective on partnership history.

Boundary objects also help trace the trajectories of institutions. For example, by looking through the lens of Pinkaiti, one can trace CI's trajectory with the Kayapó. Pinkaiti started as a small project within CI Brazil's portfolio. Pinkaiti's success became a foundational piece in the Amazon conservation work of the Kayapó NGOs (AFP, Instituto Kabu, and Instituto Raoni), the Amazon Fund, CI, and ICFC.[153] Upon hearing an overview of this case study research, Joel, a former CI Brazil executive noted the importance of seeing the big picture and how small projects like Pinkaiti can scale up. Joel reflected:

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[153] See https://www.conservation.org/projects/brazils-kayapo-stewards-of-the-forest; https://icfcanada.org/our-projects/projects/kayapo-project

> Sometimes people they analyze only the small projects, but they don't see the impact of the small project at the large scale. We stay all our lives on a small project, but they don't see the impact of this project at large scale. And in this case [Pinkaiti], I think is quite interesting. … I didn't know all the things you are telling me about [field course and other projects]. So in the end, at the end, if I remember well, the way that we designed things, I think [it is] a very nice successful story. (2019 participant interview)

Boundary Objects Illuminate Feedback Loops

Boundary objects also help to showcase important feedback loops among people and processes. Via Pinkaiti, one can see who participated, when they participated, and how they became included or excluded from ongoing partnership activities. For example, some Pinkaiti graduate student researchers sought to continue working at Pinkaiti with the NGOs or with universities following their research studies. However, NGO leadership invited only a handful of former researchers to continue with the NGO or pursue other projects. The others felt excluded and remained outside the partnership, revealing the inhibitory nature of cultural and institutional passage points at the boundary object (Fox, 2011; Figure 28).

Similar to personnel, there are also process feedback loops. We can track processes that were refined, repeated, or replaced at Pinkaiti. One clear example is the process for making cash payments and pedidos*.* The initial system had the Kayapó radio out their requests and then Zimmerman (or another research) would fly in all the pedidos into A'Ukre. The system worked from partnership initiation through international research eras because there were fewer Kayapó participants, and enough flight traffic

(with incoming and outgoing researchers) to periodically transport goods and people to and from Redenção. As community participation expanded in the field course era, keeping track of the money and pedidos became increasingly difficult. For newer university partners, it made sense to rethink the processes for delivering cash and materials to the community. The new cash-on-delivery process responded to A'Ukre's concerns and was directed by a university instructor (see Chapter 4 and 5). An emerging set of leaders across community, NGO, and university stakeholder groups continue to bring new ideas and innovations around media, curriculum, research, and course activities.

Boundary Objects Link Adversity and Collaboration

Pinkaiti Partnership's progress and innovation were often driven by the need to address adversity and complex problems. Boundary objects can help articulate the interactions among stakeholder groups at these disruptive inflection points. In the Pinkaiti Partnership there are several examples. During partnership initiation, Paiakan's alleged sexual assault threatened the onset of partnership collaboration. Looking at the outcome through the lens of Pinkaiti helps one to understand how partners managed the fallout from Paiakan's accusation. In the aftermath, A'Ukre created a more evenly distributed leadership structure. Champions within the NGO organization pressed on despite reservations from donors. USP university faculty continued to be interested in Pinkaiti research. Looking through the boundary object, we see how different stakeholder groups responded to this moment of adversity.

Another important example where Pinkaiti links adversity and collaboration is the transition to the field course era. The ongoing NGO- FUNAI conflicts regarding

biopiracy and international research led to a partnership innovation. The confluence of FUNAI's concerns, CI's shift in focus, the emergence of AFP, and the involvement of Chernela led to the pilot field course in 2004. Zimmerman, A'Ukre, and Chernela had to rethink the partnership arrangement, shifting Pinkaiti from a research focus to an education focus.

Boundary Objects Reveal Coincident and Invisible Work

The Pinkaiti Partnership study focuses on coincident work, where two or more stakeholder groups interact within partnership arrangements. However, Pinkaiti as a boundary object also reveals much (but not all) of the background processes and invisible work required to support partnership work (Bowker & Star, 1999). Through the boundary object framework, we can see the micro-interactions and relationships required for successful partnership work, for example, the personal touch, sense of responsibility, and shared affection between the Redenção office staff and the graduate student researchers as they prepare for entry to A'Ukre. Ultimately, boundary objects have the potential to reveal multiple levels of analysis depending upon the desired detail and depth of inquiry.

Research → Practice: Limits of Boundary Objects

Similarly, the Pinkaiti Partnership case highlights a number of limitations for the boundary object concept. Here I reflect on a few limits to boundary objects related to bias and power dynamics.

Boundary Objects Reflect the Bias of Their Designers

Boundary objects, like other artifacts, are socially constructed and represent the biases of their designers (Bijker, 2001; Dar, 2018; Huvila, 2016). My choice to focus on Pinkaiti rather than the A'Ukre community was a decision point questioned by many

colleagues and research participants. I responded with two points. First, I argued that Pinkaiti's creation ultimately led to subsequent relationships with the A'Ukre community. Second, I tried to use Pinkaiti as vehicle to tell the story from all stakeholder perspectives, including A'Ukre.[154] However, one could imagine another study focused on a different set of relationships and activities. Also, because boundary objects are an interpretive framework, my familiarity with the case and participants likely shaded my view of the partnership as one of collaboration without consensus. Perhaps someone more or less familiar with the case and its participants would come to a different set of interpretations, analyses, or conclusions from the same data set and conceptual framework.

Unless Explicit, Boundary Objects Do Not Uncover Power Dynamics

Unless explicit and built into the framework, boundary objects will not effectively reveal power dynamics and structural inequalities. In this study, power dynamics are only lightly touched upon. Instead, I choose to focus on how Pinkaiti moves between and among actors. A different interpretation could have chosen to focus on Indigenous rights or how Pinkaiti research and international education fits within the complicated regional political ecology of miners, loggers, ranchers, NGOs, university partners, and market forces. For example, Brazilian participants across all partnership eras discussed a tacit colonialism manifested in research and the course through geography, resources, language, and access. A different interpretive framework might more effectively reveal explicit and implicit relational power dynamics.

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[154] This was also critiqued by those who noted that one cannot separate Pinkaiti from A'Ukre. Pinkaiti is not a neutral space, but one that belongs to the community.

Boundary Objects Can Be Too Narrow or Too Broad

As I conducted the study, I thought of the boundary object framework as a flashlight shining on the Pinkaiti Partnership. Ultimately, the framework is limited in how much (or how little) it can illuminate. In this ECCS, the lens focuses specifically on Pinkaiti and A'Ukre partnership activities related to research and education. Although a limited vantage point of the partnership, I believe the case study reveals the expanse and intricacies that make complicated transnational collaborations possible. However, the Pinkaiti study barely touches the surface of the social and environmental issues A'Ukre and other Kayapó communities face in Pará and Mato Grosso states of Brazil. Nor does the study address the full scope of the NGO or university partners and their work with the Kayapó or in other arenas. Similarly, discussion of the full partnership timeline may be too broad to reveal anything of interest or importance. Perhaps it would be more beneficial to focus on a single time period.[155] On the other hand, too narrow a focus may obscure important historical or contextual information. Ultimately, an important research decision point, and one of the challenges of boundary objects as a conceptual tool, is finding the appropriate balance of analysis and inquiry.

Suggestions for Transnational Multi-Stakeholder International Education Partnerships

Guba and Lincoln (1990) called for applicability, and Flyvbjerg (2006a, 2006b) noted the need for reflexive, praxis-oriented knowledge. Case studies on interdisciplinary boundary work cite their capacity to produce salient, legitimate, and credible knowledge

[155] For example, forthcoming research looks specifically at the 2000–2004 time period, which included the large meetings in A'Ukre, CI's scale, AFP creation, and the FUNAI partnership agreement.

for action (Cash et al., 2003; Clark et al., 2011, 2016; White et al., 2010). While this case study is not transferable across contexts (nor should it be), there are some "rich theoretical insights that transfer to other times and places" (Bartlett & Vavrus, 2017c, p. 34). Insights in mind, I present 11 reflections from the Pinkaiti Partnership for colleagues considering research or education-based transnational collaborations.

1. **Consensus is not required for collaboration**. Consensus is not required for productive collaboration (Star, 2010). In fact, adversity and tension may drive partnership innovation. More important are shared, transparent, and standardized processes for participation and mutual understanding around interdependence, fit, and institutional advantages. The creation or identification of boundary objects can facilitate collaborations and identify tailored or specific work arrangements.
2. **Incentivize relationship building and feedback loops.** Feedback loops and social networks are essential aspects of partnership innovation and sustainability. Developing and welcoming diverse talent and human resource capacity creates repeated linkages and relationships that make partnerships innovative, resilient, and sustainable (Seixas & Berkes, 2010; Fowler & Biekart, 2017).
3. **Cultivate responsible champions.** Champions have the legitimacy and credibility to communicate across boundaries. Champions have the social capital and institutional knowledge required to steer partnerships through troubled times. Champions reinforce feedback loops and generate linkages across stakeholders. At the same time, be wary. Champions may also stifle innovation, have limited vision, or limit inclusive participation to those aligned with their vision.

4. **Effective communication is key.** Creating clear, transparent, and ongoing forms of dialogue and communication in multiple languages across long distances is challenging but essential. Communication should be symmetrical and be culturally appropriate, with materials translated as necessary. The proliferation of ICTs creates both opportunities and challenges. Whereas a few decades ago there may have been only one phone line or fax available, now the whole partnership team can communicate simultaneously via digital communication. While ICTs like web-based messaging may democratize communication, they may also fragment information sharing through dispersed networks or information saturation.
5. **Strive for participation and inclusion.** At all levels of the partnership, but particularly at the community level, partnership governance and activities should strive for increasing inclusivity and participation. Norms should be created and revisited for continued participation or engagement at all levels (Clark et al, 2011).
6. **Integrate and celebrate diverse knowledge systems.** Like human resources, knowledge resources create innovative and resilient partnership activities. Acknowledging and pursuing multiple forms of knowledge (especially including Indigenous knowledge systems) across boundaries is important within research and education collaborations (Berkes, 2009; Smith, 2012).
7. **Illuminate ethics.** It is easy to get caught up in the romanticism and novelty of new locations and cultures. Community partners should be consulted in multiple forms on multiple occasions to ensure participation and consent (Instituto Kabu, 2019; Wilson, 2009). Be wary of asymmetrical power dynamics, especially those embedded in "participatory" methodologies or practices (Escobar, 1994; Smith, 2012). Countering

engrained narratives is a challenge, but making them explicit early on helps to address them in practice and to build toward more ethical practice. If they aren't addressed early (and often), unethical practices may linger and generate resentment among partners.

8. **Partnership work is a balance**. Partnership work is an ongoing balancing act to find the right equilibrium amongst individual and institutional goals. Some considerations include the balance between and among preparation, instructional time, research practice, leisure, administration, access and authorization, time in the field, and community engagement. Pay particular attention to the constraints of research and education activities on the work-life balance of the partner community.
9. **Maintain distance but celebrate proximity.** Separation is important, both institutionally and geographically. Institutionally, recognize the strategic advantages of partners and support their success. Geographically, consider how closely embedded activities are in the day-to-day operations of the host community. Consider making partnership activities and sites separate from day-to-day community practices. On the other hand, it is rare for all partners to be in the same place at the same time. When possible, celebrate reunion events such as field courses, research symposia, conferences, film festivals, and so forth.
10. **Acknowledge invisible work.** The complexities of transnational partnership work generate frustrations related to miscommunications, mismatched workflow, and misaligned institutional goals. Recognize there is a lot you do not know about the history of partnership activities as well as the ongoing and invisible work of other stakeholder groups (Bowker & Star, 1999). Ongoing partnership activities are

typically built upon a rich history and partnership actors are often working simultaneously (on tailored, independent projects) in the background to ensure partnership success (Star, 2010).

11. **Share failures and celebrate success broadly.** Partnerships typically do not share their failures or mishaps. However, it is often these roadblocks that catalyze innovation and future partnership activities. Sharing these lessons may assist emerging or peer partnerships as they navigate similar terrain. At the same time, partners should celebrate individual, institutional, and overall partnership success both internally and externally. Partnerships are not a panacea (Bäckstrand & Kylsäter, 2004; Kolk, 2013), but they should be celebrated for both lessons learned and earned accomplishments.

Study Limits and Areas for Further Research

Using an embedded comparative case study approach, this dissertation provided a detailed account of the transnational, multi-stakeholder Pinkaiti Partnership, relating the structure, processes, activities, and outcomes of the A'Ukre community and its NGO and university partners. While the case study covers 30 years of partnership history, there is still a lot of depth to be discussed and explored in future projects. Ultimately, I came to view the dissertation as a database—a launching point for future inquiry. Each of the time periods, stakeholders, institutions, and key events could be explored in more detail from numerous theoretical or disciplinary perspectives. While writing, I generated a growing list of research ideas across disciplines including sustainability science, higher education, comparative international education, anthropology, policy studies, tropical forest ecology, and sociology of science, to name a few. I look forward to ongoing collaborations with

colleagues and Pinkaiti participants to continue unpacking these rich histories and experiences.

More critically, I see a number of areas where external reviewers might challenge my methods or findings. These critiques begin with the framing of the study as a partnership as opposed to a related term such as alliance (Schwartzman & Zimmerman, 2005; Zimmerman et al., 2001), network (Keck & Sikkink, 1998), or collaboration (Gray, 1998). Like Brinkerhoff (2002c), I agree that the dimensions of "mutuality and organization identity serve to better distinguish partnerships" from these other terms (p. 178). Furthermore, I feel Pinkaiti Partnership work resonates with the transnational dimensions of multi-sector partnership work described in a volume on Latin American sustainable forest management edited by Ros Tonen et al. (2007); essays of partnerships, governance, and sustainable development edited by Glasbergen and colleagues (2007); and a more recent text detailing multistakeholder partnership collaboration co-authored by Gray and Purdy (2018). Although I frame Pinkaiti as a partnership, I hope that this case study can contribute to academic and practitioners' discussions on transnational alliances, networks, or collaborations.

Logically, the next critical question is why boundary objects? As I presented my early concepts of this research at a 2017 academic conference, a colleague asked, "why boundary objects and not another framework such as a critical geographic space?" At the time, I did not have a great response. Now, I would respond as follows. First, I argue in this dissertation that Pinkaiti, like boundary objects, travels. It is as much a physical geographic space as it is a concept or idea for the partnership participants. Second, Pinkaiti partners always collaborated, but they have never had consensus. Star and

Griesemer's 1989 boundary object paper and Star's 2010 elaboration of boundary objects as artifacts for collaboration without consensus resonated with me. As I read more literature, the concepts and ideas related to boundary work, boundary objects, and boundary organizations intersected with partnership literature and the case study methodologies that framed this study.

Another important critique calls into question the asymmetry in data sources across stakeholder groups or the overreliance on document data from personal archives. In particular, I had access to hundreds of NGO documents from Zimmerman's personal collection. To address this critique, I attempted to bracket (bound not bound) each stakeholder chapter to include only the relevant data sources. In defense of my study, Scholz and Tietje (2002, p. 10), pointed out that embedded units often have their own data sources or methodology. To ensure I was not overstating the NGO perspective, I member checked early drafts of relevant chapters to check for accuracy and misinterpretation.

Of note, the case study is missing the important voice of FUNAI and the Brazilian government. There are a few reasons for this. First, I only conducted a handful of interviews with FUNAI staff, and available FUNAI documents were concentrated within a few key partnership moments during partnership initiation and international research. More practically, a deeper discussion on FUNAI's involvement would have resulted in the addition of another chapter to an already long dissertation. When appropriate, I attempted to add FUNAI's perspectives into the other chapters. Forthcoming research will discuss FUNAI's participation more directly.

Readers more closely associated with the Pinkaiti Partnership may critique my choice to name and center the partnership on Pinkaiti instead of A'Ukre. I discussed this earlier, but my choice stems from the premise that ongoing partnership activities originate from the Pinkaiti Ecological Research Station. However, I recognize the meaning and power in names of places and projects (Basso, 1996). Future projects could (should) recenter the A'Ukre community.

Personally, I do not feel my study pays close enough attention to internal and external power dynamics within and among stakeholder groups, particularly the A'Ukre community. In a project seeking to use the voices of participants, I am not sure if nuanced questions and concepts were effectively translated during the research process. I wonder how much meaning was lost as the research team and I moved back and forth between English-Portuguese-Mẽbêngôkre and into my interview notes. Similarly, I would like to further explore the dynamics between Brazilian and North American counterparts within universities, NGOs, and government agencies. Among Brazilian participants, there was recurring commentary on the implicit colonialism of gringo influence (through NGOs, researchers, and so forth) within Pinkaiti activities and Amazon geopolitics more broadly.

I would also like to further elaborate on the stories and experiences of the essential staff across stakeholder groups who keep the partnership together and in motion. While leaders are most visible, it has always been the office coordinators, cooks, project managers, grocery shoppers, research associates, and accountants who have made research and the field course possible. I would like to center the voices of the cooks, Brazilian research associates, AFP staff, and other invisible workers who are crucial to the partnership's activities and deserve their own discussion (Bowker & Star, 1999).

Unfortunately, many of our conversations were too contextual or specific to include in this report, but for me they were among the most revealing, meaningful, and interesting insights to the inner workings of the partnership.

Moving forward, I have two follow-up projects in mind. The first is a storytelling project on the shared field experiences of partnership participants. There were so many anecdotes shared during fieldwork that did not make it into this dissertation. I hope I can collaborate with Kayapó filmmakers to create a small video project where Pinkaiti researchers and Kayapó researchers reunite to reflect on and discuss their shared experiences together. A second related project is a Pinkaiti alumni reunion to commemorate the anniversary of Pinkaiti's establishment. Many recognizable Kayapó leaders, conservationists, government officials, business leaders, and academics have visited or worked at Pinkaiti since 1991. It would be beneficial to celebrate past successes and chart a path forward for new opportunities for supporting Kayapó lands and livelihoods, particularly in the current scientific and political climate in Brazil and the Amazon region (Anderson, 2019; Nobre, 2019; Zimmerman et al., 2020). June 2021 marks 30 years since Zimmerman's letter to BDFF colleagues (Zimmerman, 1991a), and although much has changed, many issues remain, and there is still much collaborative work left undone.

Conclusion

The process of researching the Pinkaiti Partnership exceeded all expectations. This was an ambitious project, and research participants and collaborators were beyond generous with their time and insights. I hope that my work here has done appropriate justice to their voices, perspectives, and experiences. Moving forward, I plan to apply my

own experiences and expertise to support the design, implementation, and evaluation of meaningful, equitable, and collaborative research and education initiatives. In addition, I hope to continue to support the A'Ukre community and its NGO, university, and government partners in ongoing work to further support shared goals of Kayapó livelihoods, Amazon forest protection, and dynamic teaching and learning opportunities.

Finally, I close this case study with a participant quote I believe to be representative of Pinkaiti Partnership participants across actor groups. The participant reflected on the ongoing and evolving processes of enchantment and disenchantment navigating back and forth across the cultural, geographic, knowledge, and institutional boundaries. The participant said:

> How marvelous. There is a course for students and people from different places in the world. It takes places in an Indigenous village. ... And you are connecting people from different places to develop work, strengthening work possibilities for Indigenous rights, for ecology. There are lots of different interests that are mixed together in one single experience. In truth … I wanted to come back here [to A'Ukre and AFP]. I was enchanted, dazzled. There is always that thing, right, as an anthropologist who works with Indigenous people. You share experiences [with one another]. You participate in some projects… and feel dazzled. After that enchantment, you lose something because some experience disrupts your image [of the work]. And after you start to reconstruct and [then] lose your feelings of enchantment constantly. It keeps changing. And you always have the moment in which you are completely enchanted with everything. I think that is wonderful.

Epilogue

Two weeks have gone by. It is now the first week of August, 2015. Once again, A'Ukre receives a radio message from the AFP office in Tucumã. About forty-five minutes later, the hum of the airplane engine gets louder as it approaches A'Ukre. Brazilian and North American students and instructors, their bodies freshly painted with genipapo designs, gather up their belongings. Many of them have traded their tents and hammocks for bows and arrows, warclubs, beaded earrings, bracelets, or necklaces. Some of the students are wearingly their jewelry, but many of these keepsakes are securely packed away in backpacks or luggage. For the larger (and sharper) items, the course cook has carefully boxed and taped the items for safe transport.

Once again, the wheelbarrows emerge with young Kayapó men who begin loading student luggage and transporting items across the village to the landing strip. In the kuben house, last minute Kayapó-kuben exchanges take place as new friends decide to gift personal items with those they shared personal connection during the course. Slowly, but steadily, the Kayapó, the students, and their belongings make their way to the airstrip. The plane has arrived and older Kayapó men and women are already at the air strip collecting and sorting boxes of pedidos from the plane's cargo areas. All of the boxes are labeled with the names of community members (Figure 30). The pilot, in conversations with A'Ukre community, sees the group approaching. The pilot waves and smiles at the NGO and university instructors he recognizes from prior field courses.

Figure 30

Plane Arrival at the End of the Field Course

Note. Source: M. Aruch, 2019

Student luggage replaces the coffee, sugar, rice, and other pedidos removed from the cargo hold. It is time for students and instructors to board the plane. After final exchanges, the kuben reluctantly make their way onto the plane. Some are crying, some are smiling, all are waving goodbye to the A'Ukre community and one kuben graduate student staying behind to complete their dissertation field work. The instructional team is hopeful they can return the following year, but course feasibility depends on the interest of A'Ukre, AFP, and the students and departments of their home universities. For most field course students, this will be their only visit to A'Ukre and engagement with the Kayapó. Other students may decide to pursue work with AFP or another Indigenous rights or conservation NGO. Some may decide to enroll in a graduate program to pursue research projects with the A'Ukre community. Still more will remain engaged with the Kayapó and their partners through social media or other technology platforms.

The plane door shuts. The students take their seats. The community and graduate student beginning walking away from the airstrip, preparing to resume their daily activities. The plane's engine starts up. The plane speeds up along the dirt airstrip, the same strip that many students walked along a few days earlier with their A'Ukre

instructors on a trek to the cerrado. After a bumpy acceleration, the plane ascends over the A'Ukre and over the forest. Students and instructors gaze quietly out the windows at the forest below, reflecting on their experiences with the A'Ukre community. Forty-five minutes later, the plane reaches the border of TIK. A small river demarcates TIK from the rest of Brazil. On the Kayapó side of the river is forest as far as the eye can see. The river itself is an intoxicating mixture of tannish, grey mud and turquoise water, the effects of illegal, wildcat goldmining. On the opposite side of the river, ranchlands stretch toward the horizon. It is an impressive and indelible image for many field course participants (See Figure 29).

Ten minutes later, the plane descends at the Ourilândia do Norte airport. An AFP representative helps students load their luggage onto a pick-up truck. Another vehicle transports students back to the hotel, where they can eat, shower, and rest before visiting the AFP offices later that afternoon, perhaps joined by a representative from the regional FUNAI office in Tucumã. The following day, students and instructors will ride a van toward Marabá. The day after, most will be on their way home, headed to different Brazilian or North American cities. While students and instructors are no longer in A'Ukre, there are a number of physical and bodily reminders. A'Ukre's red clay soil sits under their nails and cakes their skin and clothes. Many students wear the colorful Kayapó beadwork they traded for during the fair. Most obvious, are the dark black genipapo designs on field course participant arms, legs, chests, and faces. The designs will attract attention and questions from strangers until the genipapo begins to fade. Over two weeks, the genipapo designs will slowly fade, but for most students and instructors, their A'Ukre-Pinkaiti memories and experiences will endure.

Appendix A: Mẽbêngôkre-Kayapó- Portuguese -English Vocabulary and Translations

Mẽbêngôkre-Kayapó	**Português**	**English**
Amre bê	No passado	In the past
Benadjywre	Cacique; Liderança	Leader
Djàpêj	Trabalho	Work
Kra	Filho	Child
Kuben	Estrangeiro	Foreigner (non-Kayapó)
Kubenire	No Translation	Kuben (woman)
Kubenkayaka	Norte-americano	North American
Mari Mej	Saber bem	To know well
Mebenget	Idoso	Old person
Megaron	Fantasma	Spirit
Mej djwyj	No Translation	Awesome
Mejkumrej	No Translation	Catch-all phrase that means good, great, excellent
Mekurere	No Translation	Young woman with no kids
Menire	Mulher	Woman
Menoronyre	No Translation	Young man with no kids
Ngà	Casa de guerreiro	Warrior's house
Ngrere	Pequeno	Small or Diminutive
Penure	Ruim	Bad
Pi-y	Castanha	Brazil nut
Piok kaprim	Dinheiro	Money
Rekrekre	Fraco	Weak
Tyx	Forte	strong

Português	**English**
Ajudante	Helper
Aldeia	Village
Barraca	Tent
Borduna	War club
Cachoeira	Waterfall
Cerrado	Savannah
Contrapartida	Counterpart
Cutia	Agouti
Feira	Fair
Fofoca	Gossip
Garimpo	Placer Mining
Guerreiro	Warrior
Olho	Eye/ Watch

Appendix B: A'Ukre community Letters of Support and Research Permissions

ASSOCIAÇÃO FLORESTA PROTEGIDA
ALDEIA A'UKRE

Atestamos, para os devidos fins, que nós, Kruynhte Kayapó, Kaket Kayapó e Ngreikamoro Kayapó, caciques da aldeia Mebêngôkrê-Kayapó de A'Ukre, localizada na Terra Indigena Kayapó, no sudeste do Pará, após realizar uma consulta aos demais membros da comunidade, confirmamos o interesse de nossa comunidade na elaboração e desenvolvimento de projeto que visa explorar a história, o desenvolvimento e a evolução do Projeto Pinkaiti. Os projeto explorará a parceria e as relações entre os Mebengokre da comunidade de A'Ukre e os pesquisadores, estudantes, acadêmicos, e outros profissionais que visitaram esta comunidade durante as últimas três décadas.

Esse projeto tem o potencial de contribuir com o registro deste importante capítulo da história da aldeia A'Ukre e permitirá com que os membros desta comunidade, incluindo jovens e idosos, homens e mulheres, compartilhem suas histórias de interação com os *kubẽn* (não indígenas). Este projeto visa estimular a reflexão nesta comunidade sobre a rica história do relacionamento com os *kubẽn* e proporcionar uma oportunidade para fortalecer as estratégias para colaborações futuras. Além disso, o projeto tem como objetivo explorar a parceria em andamento entre culturas de países diferentes. Para tanto, solicitamos o apoio de nossos parceiros, o Prof. Matthew Aruch, a Profa. Dr. Janet Chernela, e o Prof. Diego Soares da Silveira, para desenvolver o projeto de pesquisa e extensão em questão a ser executado por meio da realização de entrevistas e da condução de processos formativos.

Desta forma, atestamos o interesse da comunidade A'Ukre no desenvolvimento da iniciativa que visa explorar a história, o desenvolvimento e a evolução do Projeto Pinkaiti.

20 de Julho de 2016, Aldeia A'Ukre, TI Kayapó (PA).

Kruit	Kàkêt Kayapó	NGREiKAMORO
Cacique Kruynhte Kayapó	Cacique Kaket Kayapó	Cacique Ngreikamoro Kayapó

ASSOCIAÇÃO FLORESTA PROTEGIDA
ALDEIA A'UKRE

We, Kruynhte Kayapó, Kaket Kayapó and Ngreikamoro Kayapó, chieftains of Mebengokre-Kayapo village A'Ukre, located in Terra Indigena Kayapó, in the southeast of Pará, after conducting a consultation with other community members, see an interest of all our community members in the design and development project that aims to explore the history, development and evolution of Pinkaiti project. The project will explore and evaluate the partnership and relationships between the Mebengokre A'Ukre community and researchers, students, academics, and other professionals who have visited this community over the past three decades.

This project has the potential to contribute to share and contribute to this important chapter in the history of A'Ukre village and allow members of this community, A'Ukre, older and younger, men and women to share their stories about interacting with *kubẽn* (non-indigenous). This project aims to stimulate reflection in this community about the rich history of the relationship with *kubẽn* and provide an opportunity to strengthen strategies for future collaborations. In addition, the project aims to explore the ongoing partnership between cultures from different countries. To do so, we request the support of our partners, Prof. Matthew Aruch, Profa. Dr. Janet Chernela, and Prof. Diego Soares da Silveira, to develop this research project and extension in question to be executed by conducting interviews and conduct of training processes.

Thus, we certify the interest of A'Ukre community in the development of this initiative to explore the history, development and evolution of Pinkaiti Project.

July 20th de 2016, Aldeia A'Ukre, TI Kayapó (PA).

Krùt	KàKÛ Kayapó	NGREIKAMORO
Cacique Kruynhte Kayapó	Cacique Kaket Kayapó	Cacique Ngreikamoro Kayapó

Serviço Público Federal

Universidade Federal do Pará

Núcleo de Altos Estudos Amazônicos - NAEA

TERMO DE ANUÊNCIA

Nós, lideranças da Aldeia Aùkre, localizada na Terra Indígena Kayapó, estado do Pará, declaramos, em nome da comunidade de Aùkre, anuência ao projeto de pesquisa **"Monitoramento e Manejo da Fauna na Terra Indígena Kayapó - Sudoeste da Amazônia"**, que será coordenado pelo Professor Dr. Juarez Carlos de Brito Pezzuti e executado por sua equipe de pesquisa.

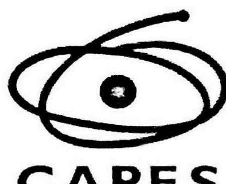
Declaramos também que a comunidade de Aùkre está ciente dos objetivos do referido Projeto, os quais foram apresentados e discutidos previamente com a mesma.

Cacique Krwyt Kayapó

Cacique Ngreikamoro Kayapó

Cacique Kakêt Kayapó

Aldeia A'Ukre, 01 de Maio de 2018



CAPES

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Setor Bancário Norte (SBN), Quadra 2, Bloco L, Lote 06, Edifício Capes, 2º Andar - Bairro Asa Norte, Brasília/DF, CEP 70040-031
Telefone: - www.capes.gov.br

Carta nº 21/2019/CPET/CGPR/DRI-CAPES

Brasília, 29 de janeiro de 2019.

CARTA DE CONCESSÃO

Ilmo(a). Sr(a).
Matthew Aruch

Prezado(a) Senhor(a),

Informamos a aprovação de sua candidatura ao Programa **CAPES/Fulbright U.S.** ***Students - Student and Research/S&R,*** no Brasil, iniciativa conjunta da Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES) e da Comissão Fulbright no Brasil (FULBRIGHT), nos seguintes termos:

- **os benefícios da bolsa serão pagos, diretamente, pela FULBRIGHT com recursos oriundos da CAPES;**
- **o período concedido de bolsa será de 9 meses, com período de vigência da bolsa de 11/02/2019 a 13/11/2019;**
- **a Universidade de São Paulo e a Associação Floresta Protegida serão as instituições principais de afiliação. Será desenvolvida a pesquisa "The Pinkaiti Partnership: Education, Research and Sustainable Development in the Amazon", na área de estudos "Education".**

Os benefícios concedidos estão vinculados ao tempo de efetivo desenvolvimento dos estudos, dentro do período acima estabelecido.

É de responsabilidade do bolsista solicitar, em tempo hábil, junto ao Consulado Brasileiro de sua jurisdição, o visto temporário apropriado para o cumprimento de suas atividades no Brasil. Por se tratar de participante do programa FULBRIGHT, está isento do pagamento das taxas de visto.

Atenciosamente,

Documento assinado eletronicamente por **Jussara Pereira Prado, Coordenador(a)-Geral de**

Programas , Substituto(a), em 06/02/2019, às 17:08, conforme horário oficial de Brasília, com fundamento no art. 25, inciso II, da Portaria nº 01/2016 da Capes.

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Appendix C: Interview Solicitations

A'Ukre - Pinkaiti Researcher Information Request

I hope this message finds you well. My name is Matthew Aruch. I am one of the course instructors for the University of Maryland College Park's Summer Field Course on Conservation and Indigenous Peoples in A'Ukre. I am currently completing the research portion of my PhD in International Education Policy.

For my research, I am investigating the Kayapó field course as a model for understanding how education and research partnerships may bring together multiple actors to facilitate conservation and sustainable development projects. To do so, I am trying to speak with representatives from the NGOs, government organizations, universities, researchers, students and faculty that have collaborated with the A'Ukre community since 1992.

As important participants in the various stages of the partnership, researcher insights and perspectives are essential to understanding the complete picture of the structure, processes and outcomes of partnership dynamics and activities.

If you are interested in sharing your perspectives on research at Pinkaiti with me, please take a moment to complete the following Google Form and I will follow up directly. Participation is voluntary and all information shared will be kept confidential and secure.

I look forward to speaking with you soon. Please reach out if you have any questions or concerns.

Sincerely,
Matthew Aruch
Maruch@umd.edu

1. Name

    ____

2. Are you interested in sharing with me your perspectives on research at Pinkaiti or the A'Ukre field course?

    Mark only one oval.

    ( ) Yes
    ( ) No

3. What is your best email and / or phone contact information?

____

4. Where did you conduct your research?

Check all that apply.

- [ ] Primarily Pinkaiti
- [ ] Primarily A'Ukre
- [ ] Both

Other: [ ] _______________________________

5. With which university or institutional affiliate did you conduct your research?

____

6. What level of degree did you pursue?

Check all that apply.

- [ ] Undergraduate
- [ ] Master's Degree
- [ ] PhD

Other: [ ] _______________________________

7. Have you participated in the Summer Field Course?

Mark only one oval.

( ) Yes
( ) No

8. What year(s) did you participate in research activities or the field course? Please select all that apply.

Check all that apply.

- [ ] 1992
- [ ] 1993
- [ ] 1994
- [ ] 1995
- [ ] 1996
- [ ] 1997
- [ ] 1998
- [ ] 1999
- [ ] 2000
- [ ] 2001
- [ ] 2002
- [ ] 2003
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- [ ] 2009
- [ ] 2010
- [ ] 2011
- [ ] 2012
- [ ] 2013
- [ ] 2014
- [ ] 2015
- [ ] 2016
- [ ] 2017
- [ ] 2018

9. Do you have any questions or would you like to share any additional information?

Schedule a conversation time here: http://goo.gl/dupK4v

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Google Forms

Appendix D: Sample Protocols

Kayapó Interview Protocol Question Bank Version 2 7/14/2019

Introduction of project and project team.

1) Do you have any questions for me before we start?

General questions/ Partnership Initiation:

1) What is your name, your age and your experience working with the kuben in research or the field course?
2) Do you remember when Barbara arrived in the aldeia to start Pinkaiti?
3) Did you know any of the researchers? In what ways?
4) What did other people tell you about the research era?

Research Era:

1) Which researchers did you work with? Who else was at Pinkaiti with you?
2) What was a typical day of work like for you?
3) How were you chosen to work?
4) Do you have any stories about working with the researchers? Ghost stories, funny stories?
5) What were some of the challenges of working with the researchers?
6) Was there any different of working with the male and the female kuben researchers?
7) Do you remember any of the researchers who worked in the aldeia? List names of researchers.
8) Where there any conflicts during the research? How were these resolved?
9) Did any researchers come back to present to the community?
10) Why did the research era end? Why did it get weak?
11) Do you remember the big CI meetings in the early 2000s?

Field course era:

1) Do you remember the early meetings on how the field course got started?
2) What kind of work have you done in the field course? Do you work in Pinkaiti or in the aldeia?
3) How many times have you worked?
4) How were you chosen to work?
5) When you work with the students, do they ask you questions? What questions do they ask?
6) Do you ask them questions? What questions do you ask?
7) Have you learned anything about kuben culture from the course?
8) Can you talk about intergenerational learning? What kinds of things do you learn from going to Pinkaiti or the gardens, etc. with the older people?
9) What are the benefits of the course for the community? – money, relationships, activities, etc.?
10) When you earn money, do you ask for cash or pedidos?

11) What are some of the challenges of working with the kuben?
12) What are some critiques of the field course?
13) Do you have a kuben family?
14) How do you know these people are family?
15) **Why do you think the kuben want to come to A'Ukre to participate in the course? ***This question was added later.*
16) Do other relatives ask you about the field course and what the kuben are doing in A'Ukre in the street, on the radio, other aldeias? What do you tell them?
17) The fair is another activity of the course. Can you tell me about your experience with the fair? What you make, what you trade, etc.?
18) Have you sold anything to [course cooks]? What have you sold?
19) Do you have any other ideas for the course?
20) Do you have any ideas for future projects?
21) **Generally speaking, how do you start new projects in the aldeia? What is the process?**
22) **Have you been to Pinkaiti for reasons other than the course?***Added after village festival*

FUNAI and NGOs

1) What is your experience with FUNAI relative to working with the kuben for research and the field course?
2) What is your experience and relationship with AFP?
3) How are goods/ payments handled by AFP
4) Will anything change about the course when A'Ukre starts Pylori?

Wrap Up

1) Now that A'Ukre is moving to Djorodjo, is there any message you would like to leave to the future about your work in the present or past?
2) Anything to say specifically about working with the kuben?
3) Anything else to say?

Questions from the team?

Questions from the interviewee?

NGO Interview Question Bank/ Protocol

About you and NGO experience

1. Tell me a little bit about yourself and your roles and responsibilities with [NGO]?
    a. How long have you been there?
    b. What you do there?
    c. How did you come to be involved in working with the Kayapo?
2. What role(s) if any do you have with respect to the field course (or research)?
3. What is your opinion of the field course? First thoughts that come to mind.
4. How does Pinkaiti (research or field course) fit into the mission and objectives of [NGO]?
5. Have there been any changes in preparation over the years? How have things improved (or not)?
6. What challenges do you / the NGO face with respect to the field course?
    a. How do you or the NGO address these challenges?
7. Other critiques, challenges or tensions within the field course?

About your interactions and perception of the community:

1. What is [NGO's] relationship with the A'Ukre community with respect to Pinkaiti (research or field course).
2. Recognizing that the community is made up of individuals with different opinions, generally speaking, what do you think were the objectives or goals of the A'Ukre community to set up Pinkaiti and in inviting students/ researchers to work with them there?
3. Do you think the community met its objectives? Were there any unanticipated outcomes for the community? Such as…
    a. Equity
    b. Gender
4. Drawbacks
5. What challenges did you face in working with the Kayapo?
6. Did you notice any tensions between the community with respect to Pinkaiti activities (research or field course)?
    a. In A'Ukre
    b. In Pinkaiti
7. Critiques, challenges tensions from the perspective of the community?

Universities

1. What do you know about the Universities working with the Kayapo?
    a. Can you list them or their representatives?
2. How would you describe your relationship and interactions with the university instructors on the field course?
    a. What about the NGO's relationship with university more broadly?

3. How would you describe your interactions with the university students (research or field course)?
4. In your opinion, what were the objectives of the universities for the (research or field course)?
5. In your opinion, what do you think are the outcomes (positive or negative) for the students who participate in (research or field course)?
6. What challenges do you face in coordinating (research or field course) with the universities?
7. How are these challenges overcome?
8. Are there any tensions between AFP and the universities in the preparation or implementation of (research or field course)?
9. Were there any tensions between the community and you and the university

Government Agencies

1. What is the role of the government with respect to Pinkaiti (research or field course)?
2. What is the relationship between [NGO] and FUNAI with respect to Pinkaiti (research or field course)?
3. In your opinion, how do you think FUNAI views Pinkaiti activities (research of field course)?
    a. Why do you think FUNAI continues to authorize Pinkaiti activities?
4. Where there any tensions/ conflicts between the government agencies and Pinkaiti activities (research or field course)? Between government and the community? Between government and the NGOs?

General Questions

1. The partnership with A'Ukre has been going on more for than 25 years. What do you think are some of the features that make this a sustainable project?
2. What adjustments or improvements would you make to the project?
    a. From your perspective, what are some critiques?
3. What do you believe are some threats to the sustainability of the project?
4. If you had the opportunity to participate, would you? What would you want to do there?
5. Do you have any questions for me?
6. Anything else you want to share?
7. Is there anyone else you think I should speak with?
8. Do you have documents or materials that might be relevant to the research that you would be willing to share?

University Researcher Question Bank/ Protocol (Research only)

About you and your experience:

1. Tell me a little bit about yourself and how you came to do research with the Kayapó.
    a. When were you there?
    b. What did you do there? What was your research about?
    c. What institutional affiliations did you have?
2. What are some of the first memories/ reflections that come to mind when you look back on your experiences doing research and working in Pinkaiti with the Kayapó?
3. What were your initial objectives? Were they purely academic?
4. Did you achieve your objectives? What other unanticipated outcomes did you experience?
5. How did you prepare for field work in the lead up to your project?
6. What was a typical day like for you in your research?
7. What challenges did you face as a researcher?
    a. How did you address these challenges?

About your interactions and perception of the community:

1. Who were your Kayapó field associates? What was your relationship like with your field associates?
2. Are there any particular interactions with your field associates that come to mind?
    a. Learning or teaching
    b. Cultural exchanges
    c. Tensions or conflicts
3. Do you know how your field associates were chosen?
4. Do you know if there was any preparation on the part of the community to prepare for researcher arrival? To prepare the field associates?
5. Recognizing that the community is made up of individuals with different opinions, generally speaking, what do you think were the objectives or goals of the A'Ukre community to set up Pinkaiti and in inviting students/ researchers to work with them there?
6. Do you think the community met its objectives? Were there any unanticipated outcomes for the community?
7. You spent most of your time in Pinkaiti. What was your relationship like with the A'Ukre community? Did you have any interactions there?
8. What challenges did you face in working with the Kayapo? Were there any tensions in working with your research associates or the community?
9. Did the dynamics of working with the research associates or the community change over the time you were working in Pinkaiti? If so how?

NGOs

10. Did you have any interactions or associations with the NGO working with A'Ukre at the time- Conservation International, the Protected Forest Association, etc.? Can you talk about those interactions?

    a. If not the NGO itself, what about NGO personnel?
11. In your opinion, what were the objectives of the NGO(s) at the time with respect to the work and research going on in Pinkaiti and A'Ukre?
12. What were the ongoing activities of the NGOs at the time with respect to the work and research going on in Pinkaiti and A'Ukre?
13. Were there any tensions between the NGO(s) and the community? Tensions between the NGO(s) and the researchers?

Government

5. Did you have any interactions with any Brazilian government agencies – ex. FUNAI, IBAMA?
    a. Permissions/ Access
6. What did you see as the role of the government agencies with respect to work/ research in Pinkaiti and A'Ukre?
7. Where there any tensions/ conflicts between the government agencies and the researchers? Between government and the community? Between government and the NGOs?

Wrap up/ General questions

9. The Pinkaiti project has been going on more for than 25 years. What do you think are some of the features that make this a sustainable project?
10. What adjustments or improvements would you make to the project?
    a. From your perspective, what are some critiques?
11. What do you believe are some threats to the sustainability of the project?
12. Is there anyone else you think I should speak with?
13. Do you have documents or materials that might be relevant to the research that you would be willing to share?
14. Do you have any questions for me?

University Student Question Bank/ Protocol (Field course only)

About you and your experience

1. Tell me a little bit about yourself and how you came to participate in the field course.
    a. When were you there?
    b. What did you do there?
    c. What institutional affiliations did you have? What did you study?
    d. Who were your instructors at home, in the field?
2. What are some of the first memories/ reflections that come to mind when you look back on your experiences with the field course?
3. What were your initial objectives? Were they purely academic?
4. Did you achieve your objectives? What other unanticipated outcomes did you experience?
    a. Benefits or otherwise
5. How did you prepare yourself for field work in the lead up to the projects?
6. What was a typical day like for you in the field course?
7. How would you describe your relationship and interactions with instructors?
8. Can you talk a little bit about the similarities, the differences and the connections between the A'Ukre and Pinkaiti portions of the field course?
    a. Course content and activities
    b. Course instructors
    c. Interactions with Kayapo
    d. Tensions
9. Over the years, how did the dynamics change? Did things flow more smoothly?
10. Can you talk about any differences in Brazilian vs. North American university student experiences?
11. What kinds of challenges did you face as participant?
    a. How did you address these challenges?
12. Can you discuss any critiques or tensions within the field course?

A'Ukre community interactions

1. Who were your Kayapó field instructors? How would you describe the relationship with your field associates?
    a. In A'Ukre in Pinkaiti
2. Are there any particular interactions with field associates that come to mind?
    a. Learning or teaching
    b. Cultural exchanges
    c. Gender
    d. Tensions or conflicts
3. Recognizing that the community is made up of individuals with different opinions, generally speaking, what do you think were the objectives or goals of the A'Ukre community to set up Pinkaiti and in inviting students/ researchers to work with them there?

4. Do you think the community met its objectives? Were there any unanticipated outcomes for the community?
5. Drawbacks
6. What challenges did you face in working with the Kayapo?
7. Did you notice any tensions between the community and the field course?
    a. In A'Ukre
    b. In Pinkaiti
8. Critiques, challenges tensions from the perspective of the community?

NGO interactions

1. What do you know about the NGOs working with the Kayapo?
    a. Can you list them or their representatives?
2. Did you have any interactions or associations with the NGO working with A'Ukre at the time- Conservation International, the Protected Forest Association, ICFC, Wild Foundation, etc.? Can you talk about those interactions?
    a. If not the NGO itself, what about NGO personnel?
3. In your opinion, what were the objectives of the NGO(s) at the time with respect to the work going on in Pinkaiti and A'Ukre?
4. What were the ongoing activities of the NGOs at the time with respect to the work and research going on in Pinkaiti and A'Ukre?
5. Were there any tensions between the NGO(s) and the community? Tensions between the NGO(s) and you and your field course group (instructors or students)?

Government Agency Interactions

8. Can you name any government agencies that we work with on the project?
9. Did you have any interactions with any Brazilian government agencies – ex. FUNAI, IBAMA? Permissions/ Access
10. What did you see as the role of the government agencies with respect to work/ research in Pinkaiti and A'Ukre?
11. Where there any tensions/ conflicts between the government agencies and the course? Between government and the community? Between government and the NGOs?

General Questions

15. The partnership with A'Ukre has been going on more for than 25 years. What do you think are some of the features that make this a sustainable project?
16. What adjustments or improvements would you make to the project?
    a. From your perspective, what are some critiques?
17. What do you believe are some threats to the sustainability of the project?
18. If you had the opportunity to go back, would you? What would you want to do there?
19. Do you have any questions for me?
20. Anything else you want to share?
21. Is there anyone else you think I should speak with?
22. Do you have documents or materials that might be relevant to the research that you would be willing to share?

FUNAI Question Bank/ Protocol

About you and FUNAI experience

1. Tell me a little bit about yourself and your roles and responsibilities with FUNAI?
    a. How long have you been there?
    b. What you do there?
    c. How did you come to be involved in working with the Kayapo?
2. What role(s) if any do you have with respect to the field course (or research)?
3. What is your opinion of the field course? First thoughts that come to mind.
4. How does the field course fit into the mission and objectives of FUNAI?
5. Have there been any changes in preparation over the years? How have things improved (or not)?
6. What challenges do you / FUNAI face with respect to the field course?
    a. How do you or the FUNAI address these challenges?
7. Other critiques, challenges or tensions within the field course?

About your interactions and perception of the community:

8. What is FUNAI's relationship with the A'Ukre community with respect to the field course?
9. Recognizing that the community is made up of individuals with different opinions, generally speaking, what do you think were the objectives or goals of the A'Ukre community to set up Pinkaiti and in inviting students/ researchers to work with them there?
10. Do you think the community meets its objectives?
11. In your opinion, what do you think are the outcomes for the community (positive or negative)?
12. Drawbacks of the field course for the community?
13. What challenges did you face in working with the Kayapo?
14. Have you heard of any tensions or issues between the community and the field course?
    a. In A'Ukre
    b. In Pinkaiti
15. Critiques, challenges tensions from the perspective of the community?

Universities

14. What do you know about the Universities working with the Kayapo?
    a. Can you list them or their representatives?
15. How would you describe your relationship and interactions with the university instructors on the field course?
    a. Is there a relationship with course instructors?
16. In your opinion, what were the objectives of the universities for the field course?
17. In your opinion, what do you think are the outcomes (positive or negative) for the students who participate in the field course?

18. What challenges do you face in coordinating the field course with the universities?
19. How are these challenges overcome?
20. Are there any tensions between FUNAI and the universities in the preparation or implementation?
21. Were there any tensions between the community and you and the university

NGOs

12. What is the role of the ONGs like AFP with respect to the field course?
13. What is the relationship between AFP and FUNAI with respect to the field course?
14. In your opinion, how do you think the field course fits within the mission and objectives of AFP?
15. Where there any tensions/ conflicts between the government agencies and the course? Between government and the community? Between government and the NGOs?

General Questions

23. The partnership with A'Ukre has been going on more for than 25 years. What do you think are some of the features that make this a sustainable project?
24. What do you believe are some threats to the sustainability of the project?
25. What adjustments or improvements would you make to the project?
    a. From your perspective, what are some critiques?
26. If you had the opportunity to participate, would you? What would you want to do there?
27. Anything else you want to share?
28. Do you have any questions for me?
29. Is there anyone else you think I should speak with?
30. Do you have documents or materials that might be relevant to the research that you would be willing to share?

Appendix E: Pinkaiti Trail Map

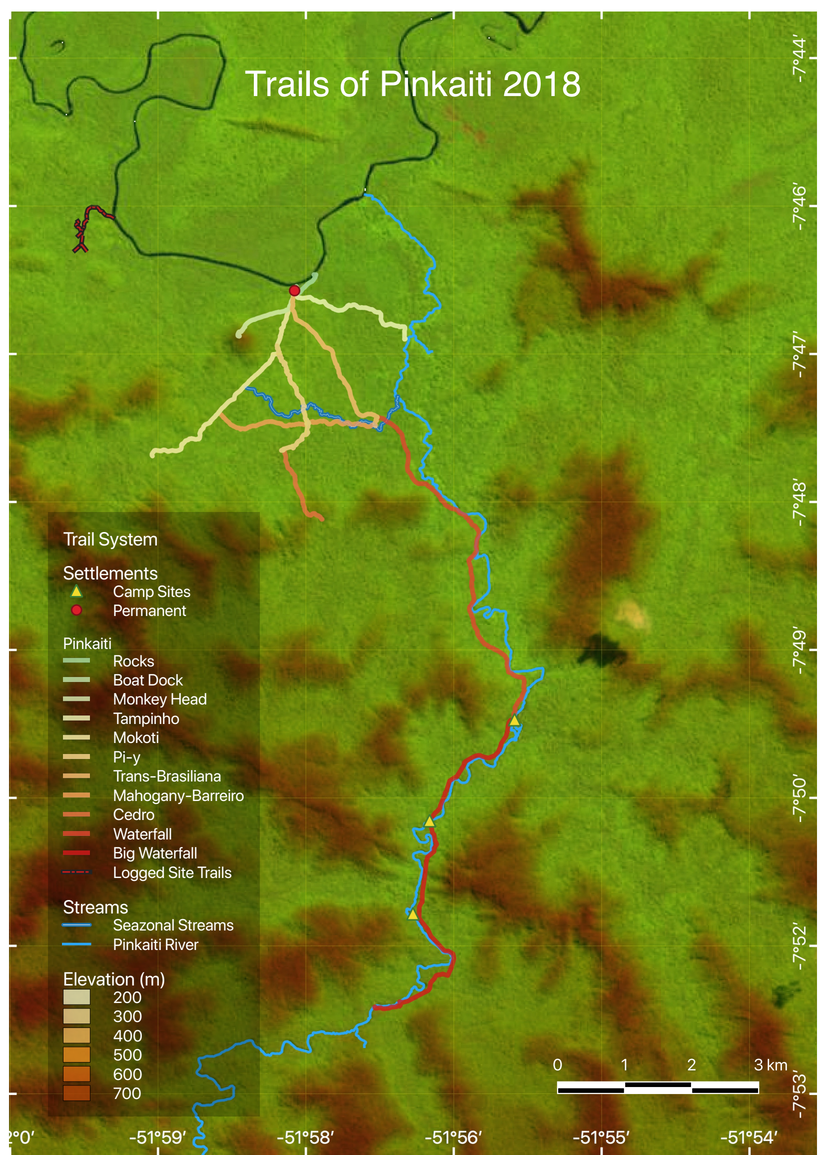


Image courtesy of J. Solórzano-Filho, 2021

Appendix F: Sample Field Course Itinerary and Trail Map

A'Ukre based Activities

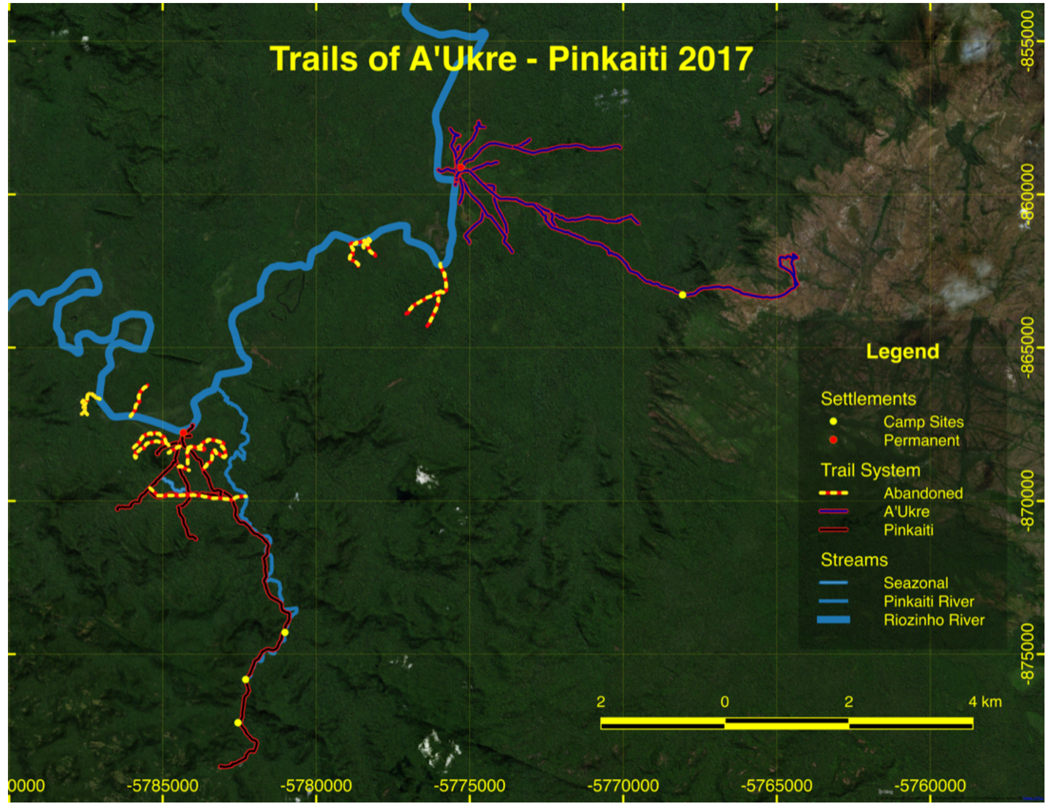
Day	***Morning Activities***	***Afternoon***	***Evening***
1	Whole group meeting/ Body Painting/ Pinkaiti group departure	Orientation and mapping activity	
2	Garden visit	Media center visit	
3	Trek to the Savannah	Trek to the savannah	Dancing in the village square
4	Return from the Savannah	Visit the school and teachers/ Soccer	Watch a film in the village square
5	Practice painting with genipapo	Village Festival	
6	Fishing Excursion	Meeting with village leadership/ volleyball	Elder story
7	Açai collection	Meeting with nurse and pharmacist	
	GROUPS SWITCH morning Day 8		
8	Arrival	Kayapó stories	
9	Garden visit	Media center visit	Watch a film in the village square
10	Trek to the Savannah	Trek to the savannah	
11	Return from the Savannah	Visit the school and teachers	
12	Practice painting with *genipapo*	Village Festival	
13	Fishing Excursion	Meeting with village leadership	
14	Açai collection	Meeting with nurse and pharmacist	
15	GROUP ARRIVAL	Trading Fair	Evening celebration
16	DEPARTURE TO TUCUMA		

Pinkaiti based Activities

Day	***Morning Activities***	***Afternoon***	***Evening***
1	Whole group meeting/ Body Painting/ Pinkaiti group departure	Pinkaiti Research Station Orientation	Introductions
2	Presentation on regional economic cycles/ visit to Brazil nut grove	Reflections	Films: Pi-y The tribe that hides from men
3	Presentation Mahogany ecology and regional mahogany extraction/ Trek to mahogany grove and mud pit	Identify tracks from mud pit. Camera trap placement near camp Reflections	Films: Cumaru The Kayapó: Out of the Forest

4	Hike to waterfall	Hike to waterfall/ set up camp	Night hike
5	Discussion on trekking and protein collection during festivals	Relax and Kayapó stories	Optional night hike/ star gazing
6	Return to Pinkaiti camp	Afternoon relax/ collect and view camera traps.	Kayapó and Kuben stories and legends
7	Sunrise hike up Monkey mountain	Boat excursion & fishing	Watch a new / repeat film
	GROUP departure to A'Ukre / SWITCH morning Day 8		
8	Boat Travel to / From Pinkaiti New Group arrives	Pinkaiti Research Station Orientation	Introductions
9	Presentation on regional economic cycles/ visit to Brazil nut grove	Reflections	Films: Pi-y The tribe that hides from men
10	Presentation Mahogany ecology and regional mahogany extraction/ Trek to mahogany grove and mud pit	Identify tracks from mud pit. Camera trap placement near camp Reflections	Films: Cumaru The Kayapó: Out of the Forest
11	Hike to waterfall	Hike to waterfall/ set up camp	Night hike
12	Discussion on trekking and protein collection during festivals	Relax and Kayapó stories	Optional night hike/ star gazing
13	Return to Pinkaiti camp	Afternoon relax/ collect and view camera traps.	Kayapó and Kuben stories and legends
14	Sunrise hike up Monkey mountain	Boat excursion & fishing	Watch a new / repeat film
15	Return to A'Ukre	Trading Fair	Evening celebration
16	DEPARTURE TO TUCUMA		

Map of Field course Trails in A'Ukre and Pinkaiti



Source: J. Solórzano-Filho, 2021

Appendix G: Example A'Ukre Kayapo Participation and Produce Sales in the Field Course

Course participation

Date	Individual	Location	Activity	Amount (R)	pedidos or dinheiro
7/21 - 7/28	1	A'Ukre	Guide	700	dinheiro
7/21 - 8/4	2	A'Ukre	Coordinator	1400	pedidos
7/28 - 8/4	3	A'Ukre	guide	700	pedidos
7/21 - 7/28	4	Pinkaiti	Guide	700	dinheiro
7/30	5	A'Ukre	fishing	50	pedidos
7/23	6	A'Ukre	roça	50	dinheiro
	7	Pinkaiti	rentals	1000	dinheiro
7/21 - 7/28	8	Pinkaiti	Guide	700	pedidos
7/26	9	A'Ukre	Caciques	50	pedidos
7/28 - 8/4	9	Pinkaiti	Guide	700	pedidos
7/21 - 7/28	10	A'Ukre	Guide	700	dinheiro
7/21 - 7/28	10	Pinkaiti	Guide	700	pedidos
7/26	Kokojagoti	A'Ukre	media center	TBD	
8/2	Kokojagoti	A'Ukre	media center	TBD	
7/29	11	A'Ukre	roça	50	dinheiro
7/23	12	A'Ukre	miçanga	50	dinheiro
7/26	13	A'Ukre	Caciques	50	pedidos
7/31 - 8/1	13	A'Ukre	cachoeira	150	dinheiro
7/21 - 8/4	14	Pinkaiti	motorista	400	pedidos
7/21 - 7/28	15	Pinkaiti	Guide	700	pedidos
7/27	16	A'Ukre	Fishing	50	pedidos
7/22	17	A'Ukre	body painting	50	Dinheiro
8/3	17	A'Ukre	body painting	50	Dinheiro
8/3	18	A'Ukre	body painting	50	Dinheiro
7/25	19	A'Ukre	educação	50	Pedidos
7/28 - 8/4	19	Pinkaiti	Guide	700	Pedidos
7/27	20	A'Ukre	Fishing	50	Dinheiro
7/27	20	A'Ukre	Saúde	50	Dinheiro
8/2	20	A'Ukre	Saúde	50	Dinheiro
7/28	21	A'Ukre	Cumaru	TBD	Dinheiro

7/29 - 8/4	21	A'Ukre	guide	650	Dinheiro
7/28	22	A'Ukre	Acai	50	Pedidos
7/26	23	A'Ukre	Caciques	50	Pedidos
8/3	24	A'Ukre	body painting	50	Dinheiro
7/23	25	A'Ukre	roça	50	Pedidos
7/21 - 7/28	26	Pinkaiti	Guide	750	Dinheiro
7/22	27	A'Ukre	canvas painting	50	Dinheiro
7/28 - 8/4	28	Pinkaiti	Guide	700	Pedidos
8/4	29	A'Ukre	canvas painting	50	Dinheiro
7/22	30	A'Ukre	body painting	50	Dinheiro
7/24 - 7/25	31	A'Ukre	cerrado	150	Pedidos
7/21 - 7/28	32	Pinkaiti	Guide	700	Dinheiro
7/24 - 7/25	33	A'Ukre	cerrado	150	Pedidos
7/28	33	A'Ukre	guide	50	Pedidos
8/2	34	A'Ukre	miçanga	50	Dinheiro
7/23	34	A'Ukre	miçanga	50	Dinheiro
7/31 - 8/1	35	A'Ukre	cachoeira	150	Pedidos
7/29	35	A'Ukre	roça	50	Dinheiro
7/30 - 8/4	36	A'Ukre	guide	650	Dinheiro
7/28 - 8/4	37	Pinkaiti	Guide	700	Pedidos
7/22	38	A'Ukre	body painting	50	Dinheiro
7/28	38	A'Ukre	Açaí	50	Dinheiro
7/27	39	A'Ukre	Saúde	50	Dinheiro
8/1	39	A'Ukre	Saúde	50	Dinheiro
7/28 - 8/4	40	Pinkaiti	Guide	700	Pedidos
7/22	41	A'Ukre	canvas painting	50	Dinheiro
8/2	42	A'Ukre	miçanga	50	Dinheiro
7/28 - 8/4	43	Pinkaiti	Guide	700	Pedidos
8/4	44	A'Ukre	canvas painting	50	Dinheiro
Total				16850R	

Sales

Person	Item	Amount (kg)	Price per	Total	Location	Dinheiro/ Pedido
1	Coco	19	3.34	63.46	A'Ukre	Dinheiro
2	batata	5.15	5.99	30.8485	A'Ukre	Dinheiro
2	Paca	5	16	80	A'Ukre	Dinheiro
3	peixe	3	11	33	A'Ukre	Dinheiro
4	peixe	19	11	209	A'Ukre	Dinheiro
5	mandioca	2	2.39	4.78	Pinkaiti	Dinheiro
6	banana	22	4.99	109.78	Pinkaiti	Pedidos
7	paca	2.3	16	36.8	A'Ukre	Dinheiro
8	mamão	25	3.99	99.75	A'Ukre	Dinheiro
8	Banana	7	4.99	34.93	Pinkaiti	Dinheiro
9	Peixe	2	11	22	A'Ukre	Dinheiro
10	Farinha	11	4.39	48.29	A'Ukre	Dinheiro
11	Peixe	6	11	66	A'Ukre	Dinheiro
12	banana roxeada	2	3.39	6.78	A'Ukre	Dinheiro
13	Farinha	4	4.39	17.56	A'Ukre	Dinheiro
14	Banana	14	4.99	69.86	A'Ukre	Pedidos
15	farinha	7.3	4.39	32.047	Pinkaiti	Dinheiro
15	mandioca	7	2.39	16.73	A'Ukre	Dinheiro
15	peixe	4	11	44	A'Ukre	Dinheiro
15	banana	5	4.99	24.95	A'Ukre	Dinheiro
15	peixe	5	11	55	A'Ukre	Dinheiro
16	Banana	18	4.99	89.82	Pinkaiti	Dinheiro
17	mandioca	10	2.39	23.9	Pinkaiti	Dinheiro
18	Banana	7.5	4.99	37.425	A'Ukre	Pedidos
18	açaí	3.6	13	46.8	A'Ukre	Dinheiro
19	mamão	3.5	3.99	13.965	A'Ukre	Dinheiro
20	mandioca	16	2.39	38.24	A'Ukre	Pedidos
21	Mandioca	21	2.39	50.19	A'Ukre	Dinheiro
22	banana	8	4.99	39.92	Pinkaiti	Pedidos
23	Farinha	32	4.39	140.48	Pinkaiti	Dinheiro
24	Peixe	6	11	66	A'Ukre	Dinheiro

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