

A young girl stands centrally in the frame, wearing two tiger masks. The mask on her face is bright yellow with black stripes and whiskers. The second mask, which is brown with yellow stripes and a red mouth, is placed on top of the first. She is wearing a light beige long-sleeved shirt with a white bird graphic and pink floral shorts. The background is a vibrant blue with a dense, textured pattern of fine white lines, resembling a close-up of a woven fabric or a digital texture. The overall mood is surreal and artistic.

Micha Rahder

# An Ecology of Knowledges

FEAR, LOVE, AND TECHNOSCIENCE

IN GUATEMALAN FOREST CONSERVATION

AN ECOLOGY OF KNOWLEDGES



**EXPERIMENTAL FUTURES: TECHNOLOGICAL LIVES,  
SCIENTIFIC ARTS, ANTHROPOLOGICAL VOICES**

*A series edited by Michael M. J. Fischer and Joseph Dumit*

MICHA RAHDER

# An Ecology of Knowledges

*Fear, Love, and Technoscience  
in Guatemalan Forest  
Conservation*

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Cover art: Girl in two jaguar masks, taken in a Q'eqchi'  
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*In loving memory of my father, HARRO RAHDER*

When somebody threatens you, in my experience, that's when you're safest. That's the thing. You have to be worried about when people greet you and shake your hand, then when you turn around they kill you. That's the real threat.

Wildlife Conservation Society worker, 2011

Certainty itself appears partial, information intermittent. An answer is another question, a connection a gap, a similarity a difference, and vice versa.

Marilyn Strathern, *Partial Connections*

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## LIST OF ABBREVIATIONS

ACOFOP	Asociación de Comunidades Forestales de Petén [Association of Forest Communities of the Petén]
AFISAP	Asociación Forestal Integral de San Andrés, Petén [Integrated Forestry Association of San Andrés, Petén]
ARCAS	Asociación de Rescate y Conservación de Animales Silvestres [Wildlife Rescue and Conservation Association]
CALAS	Centro de Acción Legal Ambiental y Social [Center for Legal Action in Environment and Social Issues]
CARE	Cooperative for Assistance and Relief Everywhere
CEH	Comisión para el Esclarecimiento Histórico [Commission for Historical Clarification]
CEMEC	Centro de Monitoreo y Evaluación de CONAP [Center for Monitoring and Evaluation of CONAP]
CI	Conservation International
CICIG	Comisión Internacional contra la Impunidad en Guatemala [International Commission against Impunity in Guatemala]
COCODE	Consejo Comunitario de Desarrollo [Community Development Council]
CONAP	Consejo Nacional de Areas Protegidas [National Protected Area Council]
CONRED	Coordinadora Nacional para la Reducción de Desastres [National Coordinator for Disaster Reduction]

DFID	United Kingdom Department for International Development
DIPRONA	División de Protección de la Naturaleza [Nature Protection Division of the Guatemalan National Civil Police]
DOI	U.S. Department of the Interior
FARES	Foundation for Anthropological Research and Environmental Studies
FYDEP	Empresa Nacional de Fomento y Desarrollo Económico de Petén [National Enterprise for the Promotion and Economic Development of Petén]
GIS	geographic information systems/science
GPS	global positioning system
IDAEH	Instituto de Antropología y Historia de Guatemala [Guatemalan Institute of Anthropology and History]
INAB	Instituto Nacional de Bosques [National Forest Institute]
INACIF	Instituto Nacional de Ciencias Forenses [National Institute for Forensic Sciences]
INGUAT	Instituto Guatemalteco de Turismo [Guatemalan Tourism Institute]
INSIVUMEH	Instituto Nacional de Sismología, Vulcanología, Meteorología e Hidrología [National Institute of Seismology, Vulcanology, Meteorology, and Hydrology]
IUCN	International Union for Conservation of Nature
MARN	Ministerio de Ambiente y Recursos Naturales [Ministry of the Environment and Natural Resources]
MBR	Maya Biosphere Reserve
MINUGUA	United Nations Verification Mission in Guatemala
MODIS	moderate-resolution imaging spectroradiometer
NASA	National Aeronautics and Space Administration
NGO	nongovernmental organization
NOAA	National Oceanic and Atmospheric Administration
NTFP	nontimber forest product
OMYC	Organización de Manejo y Conservación de Uaxactún [Management and Conservation Organization of Uaxactún]
PACUNAM	Fundación Patrimonio Cultural y Natural Maya [Foundation for Maya Natural and Cultural Patrimony]

RA	Rainforest Alliance
REDD+	UN Collaborative Programme for Reduced Emissions from Deforestation and Forest Degradation in Developing Countries
SIPECIF	Sistema Nacional de Prevención y Control de Incendios Forestales [National System for Prevention and Control of Forest Fires]
SNEM	Servicio Nacional de Erradicación de Malaria [National Service for the Eradication of Malaria]
SRTM	Shuttle Radar Topography Mission
STS	science and technology studies
TNC	The Nature Conservancy
UCSC	University of California, Santa Cruz
UN	United Nations
UNESCO	United Nations Educational, Scientific, and Cultural Organization
USAID	United States Agency for International Development
WCS	Wildlife Conservation Society

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Mitchell. Without his undying belief in this work, ridiculous jokes, and the recliner he bought for me to write in, this book may never have made it.

Any names that I have forgotten here should be read back into these acknowledgments, much as any errors in the following text are purely my own and should not be attributed to those named here.

## What on Earth Is a Nooscape?

Hiking through Laguna del Tigre National Park, my friend Luis—a Guatemalan veterinarian employed by the Wildlife Conservation Society (wcs)—stopped to point out tracks in the mud. First, a tapir track in dried earth, fading with time. Then, a large feline print in fresh mud, recent. Luis crouched to point out the differences between jaguar and mountain lion tracks—round toes indicated jaguar: endangered, rare, and exciting. Then, a human boot print; its analysis yielded less certainty than the jaguar's. Luis wondered aloud: was this trail walked by a park patrol recently, or did the print signal some intrusion of illegal presence or activity? I was left with an ominous sense of unknowing, unsure how to reconcile the feral excitement of the predator with the shadowy possibility of the poacher, the land usurper, or the drug trafficker.

Laguna del Tigre National Park is part of Guatemala's Maya Biosphere Reserve (MBR), the largest protected area in Central America. The MBR stretches over 21,600 square kilometers of thick, tangled tropical lowland forests, boggy wetlands, and—increasingly—cleared agricultural or ranching landscapes. The reserve overlays the top half of the Petén department, which represents a third of Guatemala's land and shares extensive borders with Mexico and Belize. A patchwork of national parks like Laguna del Tigre, a buffer zone, and a large multiple-use zone divided into concessions, the reserve was intended to balance biodiversity conservation with local livelihoods (see plate 1). While some parts of the reserve have successfully maintained forest cover, other areas are overrun by agricultural expansion and by the cattle ranching, oil extraction, and criminal interests that are muddled with the small-scale action of peasant migrants.

Many MBR conservation institutions avoid Laguna del Tigre, preferring to work in other, better-conserved parks, or with the community-run forest concessions that offer integrated conservation and development opportunities.

Yet abandoning the park poses risks to the future of the entire reserve. With continued frontier migration, oil exploitation, and illegal movement of drugs and humans across the border into Mexico, Laguna del Tigre is one of the MBR's most threatened—and now threatening—areas. In 2017 alone, more than 54,750 acres of forest (larger than the area of Seattle, WA) were burned inside the park. A few of these fires were permitted agricultural burns within semilegalized settlements; some were the unregulated fires of agricultural migrants without settlement agreements; and most were attributed to wealthy ranchers and drug traffickers, for whom clearing wide swaths of forest is a land-grabbing technique. These impacts on the park were invisible during our hike, except through the haunting possibility, offered by the boot print, that this part of the forest might soon be swept up in the violent dynamics of landscape change.

Like a boot print in the forest, flames index human presence, but differences between humans can make these signs as illegible as their interpretation is urgent. Distinguishing between the traces left by agricultural migrants, park protectors, or drug traffickers is a vital but impossible task. The tapir and jaguar tracks tell another, partially connected, story. Here, the tools of tracking that distinguish between species are a good enough way of knowing (at least until it becomes necessary to tell individuals apart, as when a wild cat develops a taste for domestic cattle). Where a boot print can equally index the failure or success of park management, a jaguar print along the same path points to the necessity of continued intervention—which requires knowing the difference between humans. Understanding what is happening on the landscape becomes an urgent act, creating the sites, scales, and possibilities for the never-ending project of forest conservation.

To know that a human, a tapir, and a jaguar walked this path required Luis and me to walk along it as well, leaving new traces as we traced the paths of others. If reported to wcs, our steps might count on future maps of institutional presence, translated into an authoritative measure of state control of the landscape. Reporting the jaguar and tapir prints might translate into evidence of the value of conservation efforts in spaces that carry risk of kidnapping or death. The traces of our walk might therefore attract or deter others from walking the same path, depending on whether those traces are marked by boot prints, scent, sound, patrol reporting form, word of mouth, or GPS points on a map. Each of these traces might shape the future of interventions in this place and across the wider MBR. Throughout the reserve, conservationists labor through the promises and perils of a landscape home to jaguars and

drug traffickers, rare birds and returned refugees. Entangled with irreconcilable difference, violence, rich forest ecologies, inequality, struggle, and hope, conservationists are left with a powerful desire: for clarity, certainty, knowledge of the landscape that might provide a way to change it.

*To know a place in order to change it.*

This desire drives much conservationist action across the MBR, a landscape beset by many forms of violence, uncertainty, and precarity. In this book, I trace an ecology of knowledges in the reserve. The *knowledge ecology* framework reflects this core conservationist desire, drawing attention to the mutually transformative effects of knowledge-making practices and material more-than-human landscapes. Like the twisted loops of knowing, unknowing, and material change created by Luis's and my reading and leaving of traces along a forest path, the book traces how environmentalist knowing is always about intervening, in multiple ways. I offer two introductory chapters to develop this idea in depth, oriented to somewhat different audiences—the remainder of this brief introduction outlines the theoretical framework of a knowledge ecology and the related concept of a *nooscape*, while the next chapter provides a richer historical and descriptive introduction to the many worlds of the MBR.

## Knowledge Ecology and Nooscape

My approach to knowledge ecology builds on long histories of exchange between anthropology and the ecological sciences, as well as on recent work in science and technology studies (STS), political ecology, and the environmental humanities. This approach focuses on two key properties of knowledges: materiality and relation. First, knowledge remains rooted in the material world: I examine how knowledges emerge from situated encounters and relations, and how they fold back into real material impacts on more-than-human landscapes like the MBR. Second, this approach emphasizes relations between a multiplicity of knowledges, examining the coentanglements of distinct and incommensurable epistemologies and worlds.<sup>1</sup>

Knowledge ecology is a form of analysis, the epistemic framework I use to describe and incorporate a multiplicity of epistemic frameworks, like a snake eating its own tail. But ecology is a type of inquiry; it is not an object, place, or space. Like all methods, knowledge ecology enacts its object of study. As global ecology enacts and describes the biosphere, or ecosystem ecology enacts

and describes ecosystems, knowledge ecology enacts and describes what I call a nooscape—patterns of collective thought and action that emerge from and fold back into the material-ecological worlds of northern Guatemala.

The word “nooscape” draws together two very different streams of thought. The first is the idea of the *noosphere*, first proposed by Jesuit priest, geologist, and philosopher Pierre Teilhard de Chardin (1956) and developed further by Vladimir Vernadsky (1945), the Soviet geochemist best known for popularizing the idea of the biosphere. While their two versions of noosphere differed somewhat, the general idea was the same: an emergent global mind.<sup>2</sup> Just as the biosphere is rooted in and emergent from the geosphere, so too is the noosphere rooted in and emergent from the biosphere. Emergence does not mean escape—the biosphere is intimately intertwined with the geosphere through biogeochemical processes, not an independent layer like icing over top of a cake. Similarly, there is no noosphere without interconnection and relation to the whole of the biosphere, and therefore also to the geosphere within that. The noosphere is very literally the mind of the earth. Early versions of this concept described the noosphere as a directed global form of human exceptionalism, but recent reworkings push against both the imagined coherence and anthropocentrism of these framings (Turner 2005; Margulis and Sagan 1995). Margulis and Sagan describe the noosphere as “the aggregate net of throbbing life, from flashing fireflies to human e-mail. . . . Polymorphous, paranoiac, confused, yet intensely imaginative, [it is] the thinking layer of Earth that is largely the unexpected product of animal consciousness” (1995, 138).

I build on these latter conceptions of noosphere, which root more-than-human collective thought in the materiality of earthly life. But this is a book about northern Guatemala, not the whole earth, and the noosphere is locked into the global. Beyond that, the concept remains too holistic for my purposes, too rigidly tied to systems theories of closed loops, nested hierarchies, and discrete levels.<sup>3</sup> Bridging the noosphere with an analysis of partial connections (Strathern 2004), I introduce the alternative of the nooscape. Nooscapings are situated flashes of ecological-knowledge-worlds-in-the-making, emergent phenomena based on relative and situated scalar processes of partial connection rather than nested part-whole relationships.<sup>4</sup> I join the *noos-* prefix, the ecologically emergent mind, with the suffix *-scape*, particularly following Arjun Appadurai’s use of the latter in his work on globalization to indicate “fluid, irregular shapes” (1990, 297). Appadurai writes, “I use . . . [the] suffix *scape* to indicate first of all that these are not objectively given relations which look the same from every angle of vision, but rather that they are deeply perspectival

constructs, inflected very much by the historical, linguistic and political situatedness of different sorts of actors” (1990, 296). Unlike the holistic noosphere, nooscapes do not assume the existence of hierarchically organized spatial or temporal scales (though scalar relations can emerge within them). They are defined in situated practice and lively intra-action, and approach knowledge as an emergent property of contingent but not fully indeterminate more-than-human encounters and relations.

My focus on the embedded materiality of knowledges also builds on recent conversations that link questions of knowing (epistemology) with questions of what is real (ontology). I draw heavily on Karen Barad’s (2007) agential realism, particularly her theory of intra-action, which entangles knowing and being together through mutually constitutive encounters and relations (she uses the conjoined term *ontoepistemology* to describe these entanglements). She writes, “the point is not merely that knowledge practices have material consequences but that *practices of knowing are specific material engagements that participate in (re)configuring the world*. . . . Making knowledge is not simply about making facts but about making worlds” (Barad 2007, 91, emphasis in original). Following this insight, I describe how different practices, especially knowledge-making practices, enact multiple ontological realities of the MBR (Mol 2002; Law and Mol 2008), and I use the words “enactment” or “world” to signal these multiples in order to remain focused on their situated creation through particular epistemic practices and embedded ecological relations.<sup>5</sup> My ethnographic ecology of knowledges traces how multiple enactments of the MBR emerge from intra-actions between individual human minds and bodies, institutions, documents, technologies, nonhuman critters, and others. The emergent knowledges and worlds then fold back into other relations across the nooscape, shifting and changing processes like land cover change, drug war violence, neoliberal transparency measures, sustainable timber harvesting practices, and so on.

Multiple enactments of the MBR come together in conservation practice in situated moments of partial connection, producing a nooscape that is more than one but less than many (Strathern 2004; Haraway 1991).<sup>6</sup> The approach to relations and multiplicity that I build within the knowledge ecology framework differs from many ethnographic studies of knowledge, particularly scientific knowledge, which describe the creation of singularity or cohesion out of fields of difference and contradiction. There are many versions of this many-into-one analysis, from classic actor-network theory, in which heterogeneous networks stabilize into something recognizable as fact or truth

(Latour and Woolgar 1986), to Annemarie Mol's (2002) work on multiplicity in medical practice, in which worlds are coordinated to appear ontologically singular despite fundamentally incommensurable enactments of body or disease. This kind of stabilization or singularity is simply not the lived reality for people working or living in the MBR. Enacted MBR worlds do not stay neatly bounded and separate from each other, nor do their exclusions remain manageable in the realm of the unreal. One cannot so easily dismiss the real possibility (or possible reality) of a drug trafficker in the forest, the way one might an aberrant lab result in a hospital. If enactments of multiple natures occur through what Barad (2007) refers to as "agential cuts," my work attends to the ways that these cuts continue to bleed.

### **Haunted Conservation**

The multiplicity of worlds in the MBR does not remain invisible and cannot be coordinated away to the weakened position of perspective. The contradictions between incommensurable enactments are too filled with the potential for violence, the shifting between frames too saturated with embodied affect, such that a singular reality rarely coheres. There is little, if any, agreement about what the landscape is or should be, even within conservationist institutions, projects, individuals, or sites. Rather than presume any enacted reality's ability to deny or exclude its alternatives, then, each enactment in fact relies on its alternatives, on the always incompleteness of their denial and suppression, for the production of certainty, power, profit, or violence—and sometimes too, for love, hope, and the possibility of ongoing life. This produces a sense of haunted conservation practice, where "haunting" refers to the presence of worlds otherwise, multiple MBRs enacted through multiple epistemic encounters.<sup>7</sup>

Following an introduction to the MBR's many worlds, this book is divided into three sections emphasizing different aspects of the nooscape. The first, "Double Visions," explores the symbiotic relations between technoscience and paranoia as two dominant epistemic frames in conservationist knowledge production (chapter 2), understandings of the state (chapter 3), and in the formation of controversies (chapter 4). The second section, "Patchiness and Fragmentation," examines the spatial and temporal heterogeneity of the nooscape, using the examples of population (chapter 5) and fire (chapter 6) to explore the uneven distribution of knowledges and their effects. Finally, the

third section, “Composing and Composting Knowledges,” explores how multiple knowledges and worlds are turned back into material interventions and impacts on the MBR landscape, including unexpected and unintended effects. This section includes conservation-influenced identity and livelihood shifts in one reserve village (chapter 7), experimental interventions in wild animal populations (chapter 8), and how imagined futures of the reserve reshape its present (chapter 9). Winding around this structure are short narrative vines, tendrils of connection that grow between and through chapters (indicated by insertions that will direct you elsewhere, like the one beside these lines). In wrapping around the chapters, these vines form spirals of meaning as they appear repeatedly at different points in the text, emphasizing the nonlinear relations between different sites and scales of the nooscape.

Finally, the afterword revisits the idea of the nooscape, particularly the effects of my own embeddedness in MBR knowledge worlds. Throughout this book, I describe the creation of partial, often problematic knowledges in one moment, and in another cite their measures and products as evidence in my own argument. Similarly, my substantial presence throughout the text reflects the shift from a reflexive ethnography to a diffractive one: “[diffractive methodology] is a commitment to understanding which differences matter, how they matter, and for whom” (Barad 2007, 90). Diffractive analysis attends to the patterns that result from relations of difference, including between myself and conservationists, between knowledge-in-the-making and knowledge-as-fact, and between the many other humans and nonhumans intra-acting in the reserve. Diffractive analysis is embedded in agential realism, acknowledging that “we don’t obtain knowledge by standing outside the world; we know because we are *of* the world. We are part of the world in its differential becoming” (Barad 2007, 185). As this work has grown from my encounters with multiple worlds of the MBR between 2007 and 2017, it also folds back into material impacts—even though these are buffered by relatively large geographic, linguistic, and sociopolitical distances. In other words, my knowledge claims are not immune from my own analysis of knowledge- and world-making in the reserve. To remove my presence from the text would be ethically and politically at odds with my argument about the impacts of knowledge projects on the landscape.

Above all, this argument works to open space for reflection on the contradictory harms and benefits wrought by environmental projects on contested landscapes like the MBR, in order to push these projects in more just and equitable directions. As a result of the contingent, partial, and contested nature of the MBR’s many enacted worlds, conservationist actions end up reactive,

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*Learning*

*How to See*

10



contradictory, and deeply incoherent. Ultimately, however, the apparent incoherency and ad hoc nature of conservation in the MBR is in fact coherent when acknowledging the haunting presence of multiple worlds, particularly those that threaten violence. Conservation actions are oriented not toward an abstract evaluation of best practice on a singular knowable landscape, but toward a carefully calibrated tightrope act balanced between efficacy and danger. This is not exceptional—most conservation projects around the world take place on landscapes crowded with too many possible worlds to ever settle on a best practice or ultimate solution. The stories that follow throughout this book do not represent an isolated case, but rather one instructive for thinking through the complex dynamics of environmental knowledge and action in contexts of instability, inequality, and violence around the world.

Protected areas and conservationist projects in such troubled places are often critiqued as “greenwashed” extensions of (neo)colonialism, state territorial control, ethnic exclusion, or militarized security discourses (Chapin 2004; Bray and Anderson 2005; Berger 1992; Sundberg 1998, 2003; Bryant 2002; Ybarra 2012; Lunstrum 2014; Duffy 2014). Ethnographies of conservation often reveal deep inequalities between transnational environmental organizations and local people (West 2006; Lowe 2006; Doane 2012). These problems and inequalities appear here too, as differential access to networks of power, knowledge, and capital. But they appear differently, based on the difference of my ethnographic location—instead of situating myself primarily among MBR residents, I spent my time in conservationist institutions, with state and nongovernmental organization (NGO) employees. What emerges from this vantage is different from traditional environmental anthropology: with a few exceptions, reserve residents appear mostly in moments of encounter with conservation institutions and their personnel—filtered, in some way, through institutional lenses. I describe a conservationist nooscape, not a local one, the situated knowledges of conservationists taking precedence over MBR residents’ relations to the landscape. The latter appear in patches and always in partial connection to institutional worlds.

This may make some readers uncomfortable. My goal is not to disregard local perspectives or needs, but rather to push back against common critiques of conservation by addressing the ways that people working in conservation institutions (many of whom are themselves local) attempt to understand and reconcile multiple human needs with multiple environmental priorities. As repeatedly becomes clear in the chapters that follow, many conservationists struggle deeply with exactly the same questions and issues that academics

mobilize in their critiques. To acknowledge this struggle is not to absolve conservationists of harms done by their programs, practices, or institutions. But recognizing the struggle opens up possibilities for reflection on the part of academic researchers—What are we contributing, if launching criticisms that conservationists themselves are already well aware of? What kinds of worlds do our own knowledges compose and compost into? I do not let conservationists off the hook for policies or practices that further perpetuate violence and inequality. At the same time, I resist the temptation to write off nature conservation as a totalizing project, attending instead to the ways that people working in the reserve enact a contingent and shifting set of discourses and practices, attempting, against incredible odds, to shape a landscape that might be hospitable to both humans and the many nonhumans that make up its tropical lowland forests.



## LEARNING HOW TO SEE

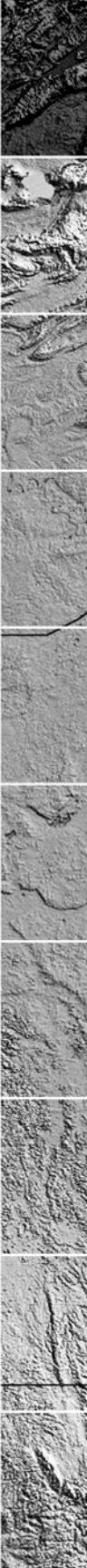
Late one night in Uuxactún, I wander the small yard between wcs buildings with Juan Castellanos, wcs's field technician in the village. Juan teaches me to hunt for tiny jumping spiders—*saltarinas*—by shining my headlamp across the yard and watching for flashes of electric blue as the light reflects off their eyes. We find spiders less than half a centimeter wide, from over ten meters away. We crouch to watch one dance haltingly from side to side, silvery gray with a dark geometric pattern etched on its back. Transfixed by its staccato skipping, a slower movement in the corner of my vision makes me jump back—a tarantula crawled beside our tiny dancer, unnoticed with her secretive eyes, though hundreds of times larger.

The spiders remind me of a lesson I learn again and again: sometimes bigger, scarier, more powerful things are harder to see. It all depends on how you go looking. My mind turns to CEMEC's map of environmental crimes, scattered with dots color-coded by category: illegal logging, fraudulent sale of state-owned protected land, land usurpation, kidnapping. The map shows isolated events sprinkled across the reserve like flashes of saltarina eyes. These crimes were identified by reports made to the Ministerio Público (attorney general's office). Looming just out of view: activities unseen by patrollers; crimes encountered but not reported; lack of follow-up or prosecution of reported cases; connections of money and power that link isolated dots to each other, to drug traffickers, to criminal organizations, to wealthy politicians. I would later sit with a group of conservationists as they looked over the map and considered these possibilities, trying their best to reconcile visible and invisible.

Later that night in Uaxactún, a few of Juan's friends from the village join us in the yard, and we play in the dark with a vivid curiosity. We examine new growth on a young coconut palm, and find a smooth sac of spider eggs tucked up beneath the lightest green leaf. We guess at the animal that left tooth marks in a fallen avocado. We watch streams of ants swarm across a concrete patch, and one man comments on the patterns they make: "I've seen bats hunting together, and they fly in exactly the same way." I remember images of similar patterns in the fungal-informed ecological theory of Alan Rayner's (1997) *Degrees of Freedom*, which traces energetic patterns common to streams of water, ants, fungi, and others. I say, "Yes, the patterns stay the same across many species. Herding buffalo, too, run that way." The men laugh as I struggle to describe buffalo in Spanish, then we let the conversation lapse, watching the ants, standing together in the thick of night.

The patterns of ants are like bats, like streams, like buffalo. The same patterns inspire human imitation in the name of forest protection: Plan Hormiga (Ant Plan) was devised by WCS to spread patrols through the forest as crawling sets of eyes, rather than leaving them predictably clustered in control posts, camps, or around archaeological sites. Plan Hormiga now crawls along the eastern border of Laguna del Tigre—the pristine/damaged forest edge known as "the shield." Plan Hormiga was the result of an exploratory trip into deep jungle, with expectations of untouched wilderness betrayed by evidence of illicit occupation and a threatening encounter with armed *huecheros* (archaeological looters). In this story, the WCS explorers got away by smooth-talking the *huecheros* and promising not to report them, insisting they were only interested in looking for fire damage. Later, they heard that these *huecheros* were themselves shot dead by competitors.

Some ants are harmless to humans (like my favorites, the fungus-farming leaf cutters) and others' bites will hurt like a bullet wound. I learn to tell the difference, to spot the most dangerous ones. Some people encountered in the forest are harmless, and others ready to shoot. It is not always so easy to tell the difference by just looking.



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# The Many Worlds of the Maya

## Biosphere Reserve

The attempt to banish the specter creates the possibility and the likelihood of a haunting. In the very moment of exorcism, the specter is named and invoked, the ghost is called to inhabit the space of its desired absence. The more one attempts to render it invisible, the more spectacular its invisibility becomes.

J.-K. Gibson-Graham, *The End of Capitalism*

“I was there when they drew the line on the map,” Sheri told me, “when they were drawing up the boundaries of the reserve. It was in this room with a bunch of biologists. I had this friend, this biologist, and he said, ‘Let’s draw the line right here, across the seventeenth parallel. That’ll look so good on maps. The politicians will all like that. It’ll fly well. It looks so good.’ And they didn’t know, or didn’t care, that there were already these people inside—Uaxactún, Carmelita, Paso Caballos—all these loggers and hunters and looters, you know. Living off the forest.” We were sitting at the top of Tikal National Park’s Temple V, watching early morning mist clear from the tops of the forest crown and gazing out toward the peaks of other ancient temples stretched out in front of us. Sheri was acting as a tour guide, but between her professional explanations of Classic Maya architecture and recitation of forest facts, she talked about the upcoming 2011 presidential election, Guatemala’s problems with machismo and anti-indigenous sentiment, the money-grabbing motives

of NGOs, and the environmental destructiveness of local people. When she talked about the history of the MBR, she spoke with bitterness, sadness, and anger. This was a landscape she loved and wanted to see protected, but in her eyes, conservation in the reserve was a failure.

I disagreed with much of what Sheri said. She was resolutely against any human inhabitation of the forest, even as she romanticized ancient Maya traces. She placed responsibility for ecological destruction and violence on locals, ignoring both structural pressures and powerful wealthy actors. She did not differentiate between NGOs that swept in for one-off projects and those that built long-term local collaborations and commitments. Yet at the heart of her perspective was the same problem I had identified: the 1990 MBR map drew a line to declare the existence of a new northern Guatemalan landscape, one composed of pristine nature and sustainable development opportunities for local residents. But the map failed to erase the landscapes that had come before.

Guatemala's national imagination of the Petén has shifted wildly over the past fifty years, from a backwoods jungle, to a colonization frontier, to an epicenter of horrific civil war atrocities, and then to the site of a global environmental crisis that necessitated the intervention of multiple international agencies (Schwartz 1990; Meyerson 1998; Primack et al. 1998; Nations 2006). Home to fewer than 30,000 people until 1970, the Petén's population is now estimated at around 750,000 and growing. As a result of this spectacular population growth, more than half of the Petén's forests were cut down by the mid-1980s, leading to the declaration of the MBR in 1990.

By 2001, the population inside the MBR was over 80,000, already triple that of the entire Petén department only four decades before (Ramos, Solís, and Zetina 2001). A 2011 estimate raised this number to 118,000 (WCS 2011), which includes both legal settlements—like Uaxactún and Carmelita, Petenero communities predating mass migration that now manage forest concessions—and illegal settlements holding out in tense relation with conservationists and park patrols. Militarized evictions of illegal settlements have increased in recent years, but other communities like Paso Caballos bely this oversimplified legal/illegal dichotomy: the Q'eqchi' migrant village has a signed agreement with the National Protected Area Council (CONAP) allowing them to stay within a national park. MBR communities are primarily Ladino (the Spanish-speaking ethnic majority in Guatemala), but about 20 percent of the population are Q'eqchi' Maya who migrated to the Petén following centuries of land dispossession (Grandia 2012), followed by

a small minority of Itza' Maya, indigenous to the region (Ramos, Solís, and Zetina 2001).

The region's tremendous population growth was caused by a confluence of factors that continue to shape the landscape today. The first was a state-led program to colonize the region, known as the National Enterprise for the Promotion and Economic Development of the Petén (FYDEP). In the late 1960s, in order to relieve political pressure caused by vast land inequality without addressing the roots of that inequality, the U.S.-backed military government began a program of road building and colonization into the Petén's lowland forests. While political rhetoric focused on opening the Petén as an outlet for poor, landless peasants, the financial rewards of this campaign flowed to the oligarchy and military generals via lumber, cattle, oil, and mining development (Berger 1992; Colchester 1993). By the late 1970s, FYDEP colonization operated on a massive scale, with over U.S. \$5.6 million donated by the U.S. Agency for International Development (USAID) to support rural resettlement programs (Wittman and Tanaka 2006). Despite U.S. support, these colonization projects were underplanned, underfunded, and beset with infrastructural problems: not enough and substandard housing, no health facilities, poor soils and tough-to-clear jungles, and isolation from national markets. The Petén was used as a release valve for social and land pressure in other departments, but its continued isolation and agricultural undesirability quickly marked it as a place for the most desperate of the landless poor. As migrants flooded the region in excess of the state's ability to manage them, the government soon reversed its rhetoric and declared them land invaders (Berger 1992, 131).

## La Violencia

*Carlos suggested I take a hard look at the Wildlife Conservation Society's work on evicting illegal cattle ranchers, in alliance with CONAP and the military. "It's hard. It's really hard. I mean, if you're going to kick out some huge cattle finca [large landholding], inevitably there's some poor campesino there tending the cattle, and what can you do?" He continued with a dark joke referring to recent narco violence: "You're out there, breaking fences, burning houses . . . at least we don't chop off their heads."*



Layered over this rural development program was the violence of the civil war (1960–96). During the height of state violence in the 1970s and early 1980s, the jungles of the Petén provided a relatively safe path of flight for hundreds of thousands of internally displaced people whose highland villages were razed in scorched-earth campaigns. But the safety of the forest did not last for long, and the Petén became an epicenter of military massacres in the early 1980s (Egan 1999).<sup>1</sup> The lines between agricultural migrant and people fleeing the war were rarely clear, and the push of military violence and the pull of available land intersected in complex ways with ethnic divisions in Guatemala. From their beginnings, political debates surrounding state colonization programs focused heavily on racial and ethnic identities among migrants. In 1967, the head of Fydep, Oliverio Casasola, stated that what the Petén needed was Ladino businessmen, not indigenous peasants: “No matter how much sympathy we have for the Indian problem, it is not this human contingent which the Petén process needs” (quoted in Berger 1992, 148). State brutality during the war heavily targeted indigenous Maya, amplifying racialized divisions between migrants. These war-hardened divisions haunt conservation discourses and practices: Q’eqchi’ migrants are sometimes assumed to be more harmful to Petén landscapes than Ladinos due to their misplaced indigeneity, the idea that their farming systems are “naturally” adapted to different environments (Nations 2001, 2006).

People fleeing violence competed for land with those pulled by the promises of colonization programs, both groups displacing the forests that predated their arrival. Competition between migrants and refugees has continued into the present over the attention and resources of conservation and development NGOs (Egan 1999; Bailliet 2000; Carr 2006). Many people that moved to the region through Fydep programs later fled across the border into Mexico, returning in the 1990s to a landscape newly overlaid with conservation concerns (Egan 1999). Their former settlements were now inside protected areas, or resettled by later migrants, who were encouraged to suspect the returning refugees as guerrilla sympathizers who might bring renewed military attention (Egan 1999). The experiences of refugees in Mexico with NGOs, UN agencies, and Mexican government support programs gave them access to health, education, and other key services, arming them with new knowledge and skills. They learned to organize within their communities and access institutional resources, all while buffered by distance from some of the brutal psychosocial effects of the conflict. When they returned, then, refugees who settled in the Petén were often able to garner greater attention and support from NGOs than

other migrants (Carr 2006) and were more resistant to the last vestiges of the war: “One can look at return communities as small islands of resistance in the sea of militarization which was rural Guatemala. Within the Ixcán and west Petén, the return communities were relatively large, well organized, and based on relatively democratic principles. Return communities refused to participate in Civil Patrols, something most other rural communities did not dare to do” (Egan 1999, 9). Those who never left Guatemala were almost certainly witness to, victims of, or forced participants in state violence (via Civil Patrols), and the channeling of development funding to those who fled led to resentment and conflict between communities in the late 1990s and early 2000s.

Layered histories of violence and death, as well as of thickly flourishing forest life, erupt into the present. The Petén’s landscapes have been the milieu for violence, but so too have they been subjected to it, through catastrophic loss of lively ecologies. Forests and wetlands have become resource frontiers, converted to fields, ranches, and plantations. This is a frontier in the sense described by Anna Tsing (2003): neither place nor process, but a brutal imaginative project built on paradox and contradiction. Cycles of violence here extend beyond the human: thin soils pounded to bare rock beneath the hooves of cattle, cattle lost to the attacks of jaguars, jaguars’ habitat converted to ranchlands. For many, agriculturalists still deserve the blame for forest loss in the reserve, as they often do around the world (Tsing 2003; Forsyth 2002; Sundberg 1998; Kull 2000; Lambin et al. 2001). But agricultural migrants and refugees are only the first wave of the deforestation frontier. Those who follow behind are those who drive it: cattle ranchers, oil companies, and ecocidal palm oil plantations snatch up small subsistence farms, pressing the poorest further into the forest.

Increasingly, these land grabs are the work of corrupt politicians and organized crime syndicates, especially drug traffickers. Known as narco-ranchers (*narcoganaderos*), the latter clear huge swaths of forest, then use cattle as thin cover for their territorial claims. Drug trafficker presence has grown throughout the reserve over the past decade, contributing to widespread fear and paranoia as hidden connections periodically erupt into spectacular violence—like the 2016 murder of community conservation leader Walter Manfredo Méndez Barrios, or the 2011 beheading of twenty-seven farm workers just outside MBR borders. Most of the time, it is impossible to know for sure who is a narco, and who a campesino (peasant/agriculturalist). Even when rumors make these differences known, it is difficult to pursue action against criminal land grabs when the police, public prosecutor’s office, and judges are frequently bribed or threatened into compliance. In the face of a

feeble justice system, drug trafficker presence solidifies troubling new alliances between conservationists and the military, who still have not been held meaningfully accountable for the genocide of indigenous peoples committed during the war (Nelson 2009, 2015).

The army has been instrumental in evicting individuals, cattle, and even whole communities from the reserve. Then-president Álvaro Colom declared a new “green battalion” dedicated to the MBR’s western national parks in 2010, and by 2014 military presence in the reserve had more than doubled from 2008 (CONAP and WCS 2015). Military personnel account for 42 percent of patrols walked in the reserve, more than any other institution, including CONAP. They are present in control posts that check movement through parks, especially clustered around oil extraction sites. The border with Mexico, across which drugs and humans are now trafficked by the same violent networks, is increasingly militarized on both sides. Militarized evictions have led recently to forest regrowth in a few small patches of the reserve, celebrated under the neutral-technical term “recuperating areas.” While over two decades have passed since the 1996 peace accords declared an end to the war, continued impunity for state-orchestrated genocide haunts this new military presence on the landscape. As a result, even successful evictions can become a larger failure: backlash against military action has bolstered international support for settlements in the MBR’s parks, undermining their status as conservationist spaces (e.g., Grandin 2017; Escalón 2017).

Silences of

Memory

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## Institutional Confusions

*Joking around with a group of NGO field technicians, Chepe demonstrates how his CONAP uniform is designed so that he can choose whether to show or hide the CONAP insignia. The logo is printed along the top of the breast pocket; the flap to close the pocket can either be tucked inside, showing the image, or buttoned over top to hide it. “Ustedes son engañosos!” (You all are deceitful!), somebody comments, laughing. “Was it a mistake, or done on purpose?” asks another. “On purpose, I think,” responds Chepe. He laughs and folds the cover flap carefully over the logo, leaving it anonymous, the way he likes it.*