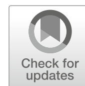
Chapter 11
Plant Knowledges: Indigenous Approaches and Interspecies Listening Toward Decolonizing Ayahuasca Research



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Men and women searching for spirituality must plant humility in their hearts.
– Kátia Luiza (Hushahu) Yawanawa, World Ayahuasca Conference (2016)

Abstract The ayahuasca research community is familiar with the concept of plant intelligences; however, they have yet to be adequately accounted for by commonly used research practices. This chapter is a call to examine the ontological and epistemological assumptions that underlie research practices and how these practices and assumptions may reinforce hierarchies of knowledge and animacy. The first part of this chapter describes some absences created by following a "methods as usual" approach when researching ayahuasca, based on ethnographic fieldwork at the World Ayahuasca Conference in 2016 (AYA2016). This highlights the need for researchers to acknowledge the methodological, disciplinary, and identity-based limitations on our abilities to produce and represent certain knowledges. Secondly, this chapter is a call to seriously and humbly engage with Indigenous sciences and epistemologies. This requires an honest reckoning with how research has contributed to colonial appropriation and marginalization of Indigenous knowledges. Indigenous ways of knowing have precedent for collaborating with teacher plants in producing knowledge and have much to contribute to discourse on multispecies perspectives. Lastly, I discuss possibilities for including multispecies sensibilities and Indigenous standpoints in research practices to create more collaborative and decolonial knowledges.

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Introduction

When I first began research in the Ucayali Region of Peru at the beginning of 2015, I intended to study how botanical knowledge was passed down generationally among Shipibo healers. Shipibo healing practices, along with those of several other Indigenous groups, have garnered global attention for their use of ayahuasca. I was under the impression that healers would learn their practices during an apprenticeship period, usually with older family members. However, when I began interviews I was surprised that, though some of them had apprenticed with an elder, when asked who their teachers were and how they learned, most of them began by describing their plant teachers.

Healers learn from plant teachers during quiet periods of deprivation and relative solitude called *dietas* (diets) (as described by, e.g., Jauregui, Clavo, Jovel, and Pardo-de-Santayana (2011)). The dieta is a sensitive time in which the healer develops a relationship with a specific plant spirit that then assists them in learning and healing. Ayahuasca, a strong psychoactive decoction taken ceremonially, is used to open the dieter to the spirit worlds and aid in communicating with and learning from the spirit of the plant they are dieting. Though not all Amazonian peoples use ayahuasca, nor plant diets, many use these practices either together or separately to learn plant knowledges. In many Indigenous histories, the plants used to make ayahuasca, *caapi* (*Banisteriopsis caapi)* and *chacruna* (*Psychotria viridis*), also had some generative role in the making of humans. These stories are told by both people and plants and help to establish an interspecies cosmovision in which both participate.

It was only after I began dieting plants, and cultivating my own direct relationships with teacher plants, that an understanding started to take root in the interspecies connection space between the plants and myself. In this space, I continually realize that plants have their own knowings and produce their own worlds. However, the more I learn how to learn from plants and am exposed to plant worlds, the less I am certain of anything at all. It seems that this form of plant education is more about unknowing than knowing, which presents a puzzling situation when my role as a researcher is ostensibly to produce some knowledge product. This chapter is meant as a compassionate critique for the field of ayahuasca research, to clear some ground for my future self and fellow researchers who may find themselves in a similar sort of existential crisis because of the cognitive dissonance we experience when our own knowings and unknowings do not seem to have a place in the research paradigms we use to produce consumable knowledge.

In this chapter, I first examine the ontological and epistemic assumptions inherent in various knowledge-making practices and discuss how these determine the relationships between knower and known and the types of knowledges produced. Second, I discuss how hegemonic knowledges exclude Indigenous sciences and epistemologies from equal footing in academic matters. I argue the necessity to interrogate our research paradigms and engage seriously with Indigenous epistemologies to avoid complacency in recreating hegemonic knowledges and structural

power imbalances. I explore what science and knowledge production might look like if we begin with the premise that other-than-humans can know, act, and produce their own worlds. Finally, I discuss how Indigenous standpoints and multispecies perspectives are important for decolonizing research.

To set up this puzzle, I draw on the second World Ayahuasca Conference (AYA2016, hereafter) that took place in October 2016 in Rio Branco, Brazil, where I documented ways that researchers and other presenters produce knowledge and how they spoke about their relationships with plants. The location and format of the conference itself are evidence of the strides the field of ayahuasca research is taking toward the decolonization of knowledge. Rio Branco, in the state of Acre, is situated centrally to many Indigenous territories and is also the birthplace of the Santo Daime, a Brazilian ayahuasca religion. Indigenous representatives comprised a large portion of the presenters at the conference, though non-Indigenous researchers and practitioners comprised the majority.

Many of the researchers at AYA2016 referenced their own personal relationships with plant spirits or plant beings. However, I observed little academic research that allowed for plant agency or animacy or that accounted for the knowledge that is produced in relationship with these plants. There seems to be a discrepancy between researchers' intersubjective relationships with these plants and the approaches most often used to produce knowledge about them; and I include myself in this critique. Researchers often struggle with their own subjectivities and the subjectivities of their supposed objects of study. This is problematic because, if we limit our knowings to an inanimate and unrelated world, we may lose contact with our own humanity. It is increasingly clear that multispecies assemblages of relations that we are "becoming with" (Haraway, 2008) are precisely what make us human at all. Attending to relations with other species can give us different insights and knowledges than would otherwise be available.

Relating with plants as teachers or healers may be intuitive to some, but to others, the prospect may cause some bodily or intellectual discomfort. Such a perspective clearly challenges some of the naturalized ways that Westerners are accustomed to understanding plants: as inanimate, or at least very low on the animacy hierarchy. Animacy hierarchies constrain and arrange both living and nonliving matter according to some relative ranking of liveliness (Chen, 2012). Disrupting these hierarchies and granting subjectivity to plants may mean unseating oneself from a position of being a privileged knower, and it fundamentally questions human supremacy and Eurocentric hegemonic knowledges. Relating with plants as teachers requires humility, meeting the other subject at one's limits of knowing, and acknowledging that we cannot circumscribe them in our own minds nor with our usual methods.

Absences

Here, I explore what absences are created by leaving out perspectives generated from more intimate, embodied, and personal relationships with plants-as-teachers. I argue that what is at stake is not only who gets to exist in the world, as Donna Haraway (2008) has said, but also whose worlds get to exist, as well as whose knowledges get to count. First, plants are excluded from ontological status as knowing or even animate beings. Second, we limit all that exists to only those things knowable by humans with specific ways of knowing. Lastly, by excluding researchers' personal relationships with plant spirits, we reproduce racialized knowledge hierarchies that continue to place plant spirits in the realm of "Indigenous beliefs" and thereby construct those holding these beliefs as less valid knowers.

Ontological Tensions: Ayahuasca as a Boundary Being

Perhaps at the heart of the challenges posed by ayahuasca to researchers is an ontological tension about the exact nature of ayahuasca. Ayahuasca is ontologically slippery and ambiguous (Tupper & Labate, 2014) and defies simple categorization and objectification for the purposes of study. For context, the variety of themes and discourses that presenters at AYA2016 used to describe ayahuasca are shown in Table 11.1 and range from "creator" or "mother" to a "drug" or "experience." It has varied meanings, names, and stories for different peoples and communities of practice. The uneasiness ayahuasca presents to making clear divisions between being and not-being highlights the need to reconsider who has authority to determine what constitutes life and how these divisions are enforced (Povinelli, 2016).

At this conference, ayahuasca acted similarly to a "boundary object" (Star & Griesemer, 1989) or, as Brian Anderson (2012) suggests, a "boundary experience," for creating shared understandings across different communities of practice. I suggest that viewing ayahuasca as a "boundary being," that is, with its own agency and agenda, is the more appropriate term. Although ayahuasca has different meanings and ontological status for different groups, it serves to connect these disparate communities and creates a "bridge" or "path" (see Table 11.1) for dialogue and translation across social worlds, knowledges, and cultures. Ayahuasca also works to connect plants and humans and facilitates communication and translation across their distinct but partially overlapping worlds (Viveiros de Castro, 2004).

Part of the ontological slipperiness of ayahuasca is that the spirit of ayahuasca, the brew, and the plants used to make ayahuasca are not fully separable. Nor do I believe that it is desirable to construct ayahuasca as coherent or singular, since, as a boundary being, it has meaning and makes meaning in multiple worlds. The ayahuasca experience is well known for challenging Western ontological assumptions, perhaps by providing a new method with which to observe the world(s) (e.g., Tupper & Labate, 2014) and communicate with other-than-human beings. When

Table 11.1 General themes used to speak about ayahuasca by presenters at the second World Ayahuasca Conference, in 2016. Select quotes are shown to demonstrate the variation in language used for each theme. Many quotes were recorded based on live interpretations to English from Portuguese or Spanish

Ontology: What is ayahuasca?	
Commodity	"Ayahuasca is not in the forest, it is in the Internet"; "a source of money"; "it is commercial"; "a big business"
Chemical complex	"A preparation of DMT"; "ayahuasca = harmaline + DMT"; "complex of chemical compounds"
Drug/ Experience	"Short- and long-term effects"; "a drug"; "affects humans"; "a complete sensory experience"; "intoxicating"; "a hazard to human mental health"; "recreational use"; "a hallucinogen"; "a substance that promotes finding oneself"
Story	"Long important story"; "beautiful story"; "very difficult and delicate story"; "prophesy given millions of years ago"
Plant species	"A species in the forest"; "ayahuasca harvested in the wild"; "good to plant the plants"; "medicine that comes from the forest"
Indigenous	"Carries with it the culture of Indigenous people"; "Indigenous heritage"; "traditional medicine"; "science of Indigenous culture"
Sacred	"Sacred"; "sacrament"; "god"; "gift from the gods"; "holy"; "sacred brew"; "our sacred drink"; "holy thing that brings us connection"; "sacred source of strength and knowledge"; "instrument for religion"; "sacred medicine for humanity"
Path/bridge	"Path of light we seek for healing"; "path for dialogues between different kinds of knowledge"; "intercultural bridge"; "open to spirit world"; "with ayahuasca we enter the spiritual world and connect with beings"
Therapy/tool	"Psychotherapeutic tool"; "therapeutic medicine"; "therapy"; "millennial tool"
Medicine/ healing	"The healing of humanity"; "medicine"; "plant medicine"; "medicine for healing"
Entity	"Medicines are alive, not just substances"; "they have spirits"; "it is a living thing"; "she is an entity, an identity"; "has its own agency"; "sentient being in the plant itself"; "plant intelligence"; "all plants have importance and purpose"; "plants are reaching out and awakening us"; "she has freedom"
Teacher	"One of the teachers of the world"; "a book for learning"; "to learn different types of knowledge"; "professor"; "our teacher"; "the greatest master/teacher/ professor"; "learning comes from the plant"
Mother/mother earth	"Mother ayahuasca"; "our mother and teacher"; "mother earth speaking"; "she is simply the earth goddess doing what she needs to do"
Life/creator	"Medicine is life"; "essence of creation"; "*oni* means generator"

researchers develop relationships with ayahuasca, they may be faced with ontological tension around the existence of spirits. As Rachel Harris (2017) describes it, her feeling of tension was exacerbated to the status of an ontological crisis when faced with her interview data showing that 75% of the 81 North Americans she interviewed also reported having a relationship with the spirit of ayahuasca.

An ontological tension (or crisis) can also arise when the ontological understandings of the researcher and the subjects of the study are antagonistic, or conflict with

the ontological underpinnings of the research approach itself. In this case, the researcher may be faced with either reevaluating their research paradigm or (re) producing fundamental gaps between their or their informants' actual understanding of the situation and the knowledge they are able to produce. Most often, research produces knowledges that are congruent with what was already assumed to knowably exist (Kuhn, 1962). One's perspective, relationships, and ability to perceive all contribute to our ontological understandings (what we understand to exist) and thereby the worlds we inhabit.

Epistemological Tensions: Ways of Knowing Ayahuasca

Our worlds and our ways of knowing dialectically inform each other. Epistemological assumptions about how we understand the world and communicate knowledge (Crotty, 2003) include theoretical frameworks about what forms of knowledge can be obtained and how we decide what is true and what is false. Ontological understandings and epistemological assumptions together constrain the questions we ask, the methods used, and the interpretation of information. These results in turn influence our understandings of what exists and what we can describe, hence the dialectic, illustrated by the famous quote by the Nobel laureate physicist, Werner Heisenberg (1958), "We have to remember that what we observe is not nature herself, but nature exposed to our method of questioning." In this section, I examine practices and assumptions used to learn about ayahuasca and the types of knowledge that are then able to be produced, with attention to the role of plants in these different approaches to knowledge production. The resulting analysis locates the most common types of research on ayahuasca, based in part on the presentations at AYA2016, with respect to three main epistemological and theoretical frameworks (Table 11.2).

Limitations of Objectivism In the objectivist epistemological framework, there is a fundamental divide between the knower and the known, assuming a singular unified reality exists independently of a knowing subject. Objectivity is one of many potential epistemic virtues (Daston & Galison, 2007) and emphasizes that knowledge should not be influenced by subjective interpretation. A positivist theoretical framework relies on quantification and experimentation to test falsifiable hypotheses. Objectivism and positivism describe the classical approach to science (Gray, 2014) that traditionally excludes nature (and therefore plants) from the social domain. Medical and pharmacological studies (e.g., de Araujo et al., 2012; Riba et al., 2003) generally rely on positivism as an approach that generates high predictability and control. Many ethnobotanical studies also use positivist-based methods, such as creating quantifiable indices of cultural importance, though these are sometimes combined with interpretivist and ethnographic methods (e.g., Tudela-Talavera, La Torre-Cuadros, & Native Community of Vencedor, 2016).

However, science studies scholars have long critiqued objectivity, pointing out that all knowledges are socially situated, and therefore only partial (Haraway, 1991),

Table 11.2 A simplified representation of common epistemological and methodological frameworks used to understand ayahuasca; this table does not encompass all possible approaches. This categorization scheme is not meant to reinforce divisions among disciplines and theoretical frameworks but is still useful for organizing purposes

Epistemologies: How to know ayahuasca?		
Theoretical framework	Types of studies	Approach to knowing ayahuasca
***1. Objectivist epistemology:* meaningful reality exists outside of the knowing subject**		
Positivism: Looks for causal relationships through hypothesis testing. Assumes that valid data should be objective, reproducible, and measurable. A deductive and empirical approach 1.	*Ecological and botanical*	Measure plant behaviors, interactions, responses, or physical/chemical properties
	Biomedical, pharmacological, psychological	Measure physical or behavioral responses in humans consuming ayahuasca or its constituents
***2. Subjectivist epistemology:* meaning is derived from subjective experiences**		
Positivism: Looks for causal effects and tests hypotheses. Often relies on indices to produce quantifiable data	*Psychotherapeutic and psychological*	Measure psychological effects of consuming ayahuasca on human participants
Interpretivism: Seeks to understand and interpret others' experiences. Focuses on subjective meaning and details		Describe how human participants interpret their experiences with ayahuasca
Relationalism: Understanding is achieved intersubjectively or dialogically between researcher and participant		Understand through interactive dialogue about participants' experiences
***3. Constructionist epistemology:* meaning is constructed interactively through social practices**		
Positivism: Assumes that valid data should be objective, reproducible, and measurable	*Ethnobotanical*	Evaluate traditional botanical knowledge and uses for validity and convergence
Interpretivism: Seeks to understand others' ways of making meaning. Focuses on social phenomena and cultural meanings	*Ethnobotanical and Ethnographic*	Describe cultural knowledges, beliefs, practices, and governance around the use of ayahuasca
Relationalism: Understanding is achieved intersubjectively. Centered on relationship building	*Ethnographic*	Attend to intersubjective relationships as a way of understanding the other
	Participatory research	Dialogue with community. Build cross-cultural understanding
***4. Indigenous epistemologies:* heterogeneous and self-defined ways of making meaning**		
Relationalism: Understanding is achieved relationally	*Shamanic and animistic*	Engage and communicate directly with plants and/or spirits

and arise out of political and social practices (Latour, 1988). Indeed, according to Sandra Harding (1992), sciences that claim universality and neutrality will produce more distorted knowledges compared to sciences that contextualize their historical and positional standpoints. Despite these critiques, positivist frameworks emphasizing neutrality are still often privileged in academia by funders, publishers, employers, and institutions. The objectivist epistemology, however, is not able to account for the subjectivity of its objects of study and therefore is not designed to produce knowledge about plant subjectivities nor human subjective experiences. Nonetheless, objectivist approaches in botany have been used to show how plants communicate through chemical signaling and thereby establish plant agency. As Dennis McKenna said at AYA2016, the existence of plant intelligences is "not that controversial anymore."

Limitations of Subjectivism A subjectivist epistemology focuses on how individuals make meaning and locates meaningful reality in the subjective experience. For this reason, subjectivism is the most common epistemology used in psychological and psychotherapeutic studies, such as Benny Shanon's (2002) work, *The Antipodes of the Mind*, which seeks to describe and categorize the range of experiences of those who take ayahuasca. According to Shanon, "What is special about Ayahuasca is the extraordinary subjective experiences this brew generates in the mind" (p. 31). Though Shanon describes several types of supernatural beings, the ontological questions that arise from these encounters, he admits, are beyond the scope of the subjectivist epistemology.

Subjectivist studies sometimes reproduce positivist methodologies, for example, by using experimental designs with control groups and converting qualitative data into quantifiable indices (e.g., Barbosa, Cazorla, Giglio, & Strassman, 2009). Positivist frameworks are often uncritically accepted as disciplinary standards in psychology (Breen & Darlaston-Jones, 2008). However, studies using interpretive or relational frameworks that seek more descriptive and qualitative accounts are also prevalent and are sometimes also combined with positivist approaches.

Limitations of Constructionism Presently, I am using a constructionist epistemology, in which meaning is constructed out of practices. This goes along with the ontological understanding that there is no singular objective reality and no one can be truly objective. Therefore, knowledge is understood to be the result of current convention (Roosth & Silbey, 2008). This allows one to use an interpretivist framework to examine the conditions that give rise to differing knowledge claims and to treat knowledge claims equally, whether regarded as true or false. I locate ethnographic studies somewhere between an interpretivist approach, in which the ethnographer seeks to describe the meanings made by their informants, and a relationalist approach, in which meaning is co-constructed between both the ethnographer and the informants (Table 11.2).

Ethnographic studies do have room to view plant teachers and spirits as ontologically valid, as they are seeking to describe the worlds of their informants (e.g., Brabec de Mori, 2012), but they are often interpreted as mere cultural constructs. There is traditionally little ethnographic engagement directly with other-than-human

beings, particularly the immaterial kind. Instead, they are described secondhand, through other people who do engage with these beings (Fotiou, 2010).

Researchers *can* engage directly with plant beings and spirits by using autoethnographic methods to analyze their own experiences with respect to the research context (Ellis, Adams, & Bochner, 2010). For example, ethnobotanists like Terence McKenna (1993) and Wade Davis (1996), among others, use autoethnographic writing to tell the stories of their relationships with plants. However, these techniques are not always successful at accounting for plant agency, and there is the danger that including personal stories can come across as gratuitous or sensationalized. More experimental writing practices, as part of the self-reflexive process, can also be used to reflect on social relationships with other-than-human beings and spiritual encounters (e.g., Fotiou, 2010; Harris, 2017). Richard Doyle (2012) uses such methods to recount his experiences with plant intelligences and healing:

> I share my own experience as an invitation to experiment with post normal contemplative science not because I know it to be true—its truth would be the outcome of the process that sorts through my account as well as others like it—but because of an unavoidable perception of its efficacy.... I make no claims for the universality of my experience and insist, rather, on its particularity. (Doyle, 2012, p. 31)

Using participant observation as a method—for example, consuming ayahuasca and participating in rituals—is not, by itself, an autoethnographic method for understanding ayahuasca, unless the researcher explicitly includes their own experiences as part of their analysis. Likewise, autoethnography goes beyond the sharing of personal anecdotes and asides, which are perceived as extraneous to knowledge making, and not included in published studies. However, these sharings are important. In the absence of disclosure of the researcher's own process encountering (or not encountering) spirits and plant beings, ethnographic description often relegates these spirits and plant beings to the realm of supernatural Indigenous beliefs. This constructs a philosophical divide between the researcher and the Indigenous "other" that then serves to justify the proposal that researchers, as privileged knowers, may study, categorize, and represent the other (Stengers, 2011), thus reproducing hierarchies of knowledge and knowing.

Moving Beyond Research as Usual

As I have illustrated, the most common research approaches used to produce knowledge about ayahuasca have limited engagement with plant intelligences, if plants are granted any agency, animacy, or intelligence at all. Therefore, knowledge about plants is often limited to what is physically measurable or what is learned in interpretivist studies of (mostly) secondhand accounts of human experiences with plants. These knowledges are perfectly valuable for certain research objectives but do not approach the knowledge or worlds that are produced by plants directly.

Further, when unexamined, certain approaches can reproduce problematic knowledge hierarchies.

At AYA2016, I found that less established researchers, particularly in fields with objectivist approaches, were less likely to mention plants as beings at all. It may be that their ontological paradigms do not incorporate plant beings, or perhaps it can be perceived as professionally risky to deviate from norms of discipline or mention plant spirits or plant agency, unless speaking about someone else's beliefs. Because of the marginalized nature of psychedelic research in general, and the contested legitimacy of the topic of research, ayahuasca researchers in certain fields may be less likely to deviate from methodological norms toward more epistemically vulnerable approaches.

However, nearly across the board, researchers agreed that it is not enough to see these plants as simply their chemical components. At the conference, plants were widely recognized by researchers as having their own agency and knowledges and as being intertwined with Indigenous traditions. Yet, there are few precedents for cross-cultural, interspecies, intercosmic collaboration in producing knowledge and little framework for engaging with plant agencies or plant worlds. Even researchers, like myself, who call for something different and reference the inspirited nature of these plants, are still mired in disciplinary methods that reproduce old paradigms and old hierarchies.

Challenging Scientism: Indigenous and Interspecies Approaches

Here, I explore how both interspecies and Indigenous perspectives are marginalized and how attending to these perspectives can move us toward decolonizing knowledge production. Indigenous sciences and epistemologies have crucial insight to contribute to multispecies scholarship (TallBear, 2011), and interspecies relating can contribute to how we understand ayahuasca and plant knowledges in general. As a White, North American, non-Indigenous researcher myself, I feel it is important to reconnect myself within a web of interspecies relating while still reckoning with how my use of Indigenous methods, and working in Indigenous communities at all, can be done in culturally appropriate and morally engaged ways. It brings up important and difficult questions about whether and how non-Indigenous researchers can engage with Indigenous ways of knowing in ways that do not further colonize them by their inclusion in the academy.

Scientism and the Great Divide

Scientism is the belief that science is better than all other ways of knowing and that "reality" or "truth" is limited to what is verifiable by that one way of knowing. This epistemic supremacy becomes hegemonic when it is naturalized and uncritically accepted even by those whose knowledges it subjugates. Colonial power relations contributed to creating a hegemony out of Eurocentric knowledge systems, based in the mechanistic, positivist science that has marginalized other knowledges and worlds for the last two centuries or so (Escobar, 2007; Mignolo, 2000). In *The Death of Nature*, Carolyn Merchant (1980) describes how the rise of the mechanistic worldview in Europe served to essentially exorcize the knowable, natural world of any life or intelligence beyond the human. Mechanistic science defined nature as its object of inquiry and thereby categorized any phenomena not answerable to scientific questioning, such as spirits and plant beings, as supernatural (outside of nature).

Defining science as beyond the influence of the social or political domains also created what Bruno Latour (2012) calls the "great divide," in which human culture was constructed as fundamentally separate from nonhuman nature (the realm of science), thereby excluding nonhumans from social and political spheres. This created an ontological tension for humans whose worlds included social relations with other-than-humans. These "animists" were constructed as premodern others who could then also be objectified for the purpose of scientific inquiry (Povinelli, 2016; Stengers, 2011). Therefore, separation between humans and nonhumans, which gave rise to human exceptionalism, shares its epistemic roots with the division that subjugated Indigenous knowledges and excluded Indigenous peoples from participation in politics and science (de la Cadena, 2010).

Indigenous knowledges are important for critically interrogating hegemonic knowledge systems (Dei, 2000). Approaching ayahuasca research from both Indigenous perspectives and plant perspectives can provide an orientation for revealing our human-centric and scientistic assumptions that are otherwise made invisible. Through interspecies thinking that privileges Indigenous epistemologies, there is an opportunity to restore the animacy and worldmaking activities of other-than-humans, elevate Indigenous ways of knowing these other-than-humans, and thereby disrupt hegemonic knowledges.

Indigenous Approaches to Knowing and Epistemic Injustice

> It is not necessary to explain everything about our knowledge. That can be our own internal knowledge. There are many names for the plant—it is a multicultural matter. Each Indigenous people has their own names and stories. Researchers sometimes generalize all of this diverse knowledge.
>
> – Joaquin Mana (Huni Kuin), World Ayahuasca Conference (2016)

Indigenous sciences are quite heterogeneous; yet perhaps their greatest commonality, and what really allows them to be grouped together in this way, is their exclusion from mainstream knowledge systems and denial of validity based on their identity or practices. This is what Miranda Fricker (2007) calls "epistemic injustice." Indigenous knowledges are expected to be "authentic," often defined by a distance from Western science and worldviews, but are then studied and verified using scientific frameworks. This is highlighted by the somewhat sarcastic quote from Benki Piyako, an Asháninka presenter at AYA2016: "Perhaps through science we will say once and for all whether ayahuasca is sacred or is intoxicating." Power imbalances between researchers and Indigenous communities are reinscribed when one form of knowledge is used to validate another.

Shamanic approaches use certain ways of relating with other-than-human beings, including communicating with plant beings and spirits. Knowledge comes from collaborative, intimate interactions and dialogue with plants as teachers that often arise in intuitions, dreams, and visions. For Shipibo healers, singing, dieting, and consuming ayahuasca are methods for accessing or channeling the knowledge and songs of a plant spirit (Brabec de Mori, 2012). They are then able to use these plant knowledges for healing or other purposes. Note that learning plant knowledges is importantly distinct from learning *about* plants.

Indigenous approaches to knowing can engage with other-than-human subjects more directly than the usual research approaches I discussed earlier. Shipibo healers, for instance, have a long precedence for producing knowledge in collaboration with plants. However, the engagement between Indigenous ways of knowing and non-Indigenous researchers has a record of unequal power relations, exclusion, and appropriation. Indigenous knowledges have historically been denied legitimacy, and Indigenous people have been denied status as valid knowers.

Working With(in) Indigenous Worldviews

How can non-Indigenous researchers engage Indigenous ways of knowing in a manner that is not furthering the colonial project of cultural appropriation nor ignoring or excluding these ways of knowing from what are considered valid knowledge-making practices? I turn to theories and methods developed by Indigenous researchers and scholars who explore what it means to work within Indigenous worldviews to produce knowledge as academic researchers. These perspectives are invaluable to the conversation on the decolonization and democratization of knowledge, as current research conventions are still not ontologically and epistemologically appropriate to accommodate Indigenous worldviews (Botha, 2011). Instead, Indigenous scholarship and knowledge are often subsumed into Western worldviews. We need embodied insights on how to bring together different knowledges and knowledge communities without subsuming one into the other but allowing them to be sovereign, collaborative, and non-hierarchically organized. Anishinaabe scholar Sonya Atalay (2012) offers us the concept of "braiding

knowledge" (p. 207) to create better and more complete kinds of science that are more inclusive and multifaceted.

Centering Indigenous ontologies and epistemologies allows for the transformation of research practices and can work toward filling gaps in dominant discourses while also opening up entirely new spaces for inquiry. Martin and Mirraboopa (2003) emphasize that learning and abiding by Indigenous methods for knowing and relating are paramount to conducting culturally respectful research. Within their framework, ways of knowing inform ways of being or relating, including relating with other-than-humans. For TallBear (2014), relationship building also becomes the primary research approach and works toward "softening" the divisions between knower and known that are so problematic in Western research.

Participatory research (e.g., Fals-Borda, 1982; Fortmann, 2008) encompasses several process-oriented relational approaches (e.g., community-based participatory research, learning communities, participatory action research) that rely on dialogue and co-learning between the researcher and the community. With these approaches, community members are active partners in the research, from setting research goals to interpretation, and the knowledge produced is often meant to be put into practice, rather than to be described (Davidson-Hunt & O'Flaherty, 2007). Though not without limitations and potential pitfalls, these approaches are becoming recommended practice for any type of research done in Indigenous communities, as a step toward decolonizing the research process (e.g., National Congress of American Indians Policy Research Center [NCAI] & Montana State University Center for Native Health Partnerships [MSU], 2012). Relational frameworks also morally engage researchers to privilege the lives and futures of the community by allying themselves with Indigenous struggles.

Although I am not aware of much community-based participatory ayahuasca research in partnership with Indigenous communities, several researchers at AYA2016 encouraged these approaches, prioritizing intercultural dialogue over predetermined research goals. Beatriz Labate, an anthropologist who was one of the organizers of AYA2016, and was also the organizer of the Plant Medicine Track at the Psychedelic Science Conference in 2017 (from which this book originated), has been an important player in bringing more diverse voices and perspectives to the table, particularly those from Indigenous practitioners and researchers, as well as from women. Her work has also foregrounded dialogue about cultural considerations with the expansion of the use of ayahuasca (e.g., Labate, 2017; Labate & Cavnar, 2011). The strength and presence of the Indigenous panels at AYA2016 indicate that the field is moving toward including multiple knowledges and ways of knowing, though inequalities are still apparent. These are nonetheless important steps, as leaving absences around the existence of multiple knowledges, even when contested, implies complicity in creating marginalization (Dei, 2000). The next steps are to work out ways to produce knowledges more collectively and collaboratively, led by and in alliance with Indigenous interests.

Incorporating Multispecies Approaches

Despite the challenges of engaging with plant intelligences, it takes only a small amount of ecological knowledge to demonstrate that plants *are* agents and *do* make their own meanings of the world. Plants desire, seek nourishment, and have their own forms of language (Marder, 2013). Perhaps because plants rely on other species for reproduction—the birds and the bees so to speak—and on fungi for nutrient acquisition, plant communication is especially interspecies. Plants communicate with and respond to their environments by creating new chemical expressions. For example, when plants are exposed to grazing or insect predation, they may respond by producing different secondary compounds like tannins (phytophenols), which defend against herbivory (Bryant et al., 1991), or odors that act as signals that are interpreted by insects (Landolt & Phillips, 1997) or other plants (Dicke & Bruin, 2001).

These same secondary compounds are responsible for the toxic, medicinal, and psychoactive effects of plant medicines (Callicott, 2013). Ayahuasca's constituent plants, *B. caapi* and *P. viridis*, for instance, produce molecules that act on animal neuroreceptors. These compounds allow humans to relate with them in direct and embodied ways and are responsible for much of the "psychedelic" experience. Christina Callicott (2013) even theorizes *icaros* (songs associated with ayahuasca) as skillful sonic interpretations of plant phytochemical semiotics (signaling). Richard Doyle (2012) also uses the concept of phytosemiotics as a way of understanding plant intelligence and communication. However, neuroactive chemicals are not necessarily the only way by which humans exchange information with plants when drinking ayahuasca, and I caution against reductionist approaches to plant spirits and trans-species communication with plants.

By centering Indigenous ontologies and epistemologies, we can explore how our research methods change when plant intelligence and animacy are considered a priori knowledge that does not need to be proven, contested, or even understood. To take plant agencies and plant spirits seriously, as I think this conversation demands, again, requires humility, acknowledging that we cannot know these plant beings completely and that part of the other exists beyond knowability. Whether we are using science or other knowledge-making practices, we can only view a facet of an animate other's existence. This acknowledgment alone piques curiosity, invites relating, and grants agency to the other being. What will it reveal to our methods of questioning? How does it wish to be known? How does it know?

This also challenges the usual research frameworks. How can one account for the subjectivity of the supposed object of study, when one is supposed to be the knower, and the other the known, and when the two do not speak the same language? For decades, anthropologists and ethnographers have been working through the role of their research practices in constructing otherness and marginalizing the subjectivities of those whom they seek to study. Multispecies approaches to knowing challenge researchers to extend questions of agency, subjectivity, and relationality to other-than-human beings.

Multispecies studies describe how other-than-human beings participate in social, economic, ecological, and political activities (Kirksey & Helmreich, 2010) and recognize the animacy and worldmaking capabilities of other-than-humans. Eduardo Kohn (2013), for example, uses principles of semiotics to demonstrate how animals, like dogs, monkeys, and walking-stick insects, make and interpret their own significations. He also demonstrates compellingly, through thinking with Indigenous worldviews, how even animal masters—spirit beings who live in the forest and are responsible for certain animals—create signs interpretable by humans and therefore have their own ontological existence. Scholars, including Anna Tsing (2015) and Robin Wall Kimmerer (2015), use economic and ecological narratives to describe interspecies relationships and the entanglements of livelihoods among fungi, plants, and humans. Kimmerer, a Native American (Potawatomi) plant ecologist, reframes ecological experiments as a way of posing questions to plants and listening for their answers. Kimmerer's approach has helped me to recognize that objectification is not always a requisite for scientific inquiry.

One of the reasons why Kim TallBear (2011) argues that interspecies perspectives need Indigenous standpoints is that multispecies ethnographies tend to limit themselves in the types of relations they consider—generally, to material, organismal beings. Indigenous ontologies can extend the web of relationality to both material, non-organismal beings (e.g., rocks, mountains, stars) and immaterial or spirit beings. For example, Karen Martin's aboriginal research framework includes relating with other-than-human entities:

> Methods such as storying and exchanging talk are most often used amongst People but methods for interacting with other Entities (e.g. Animals, Weather, Skies) are equally necessary. This requires fieldwork that immerses the researcher in the contexts of the Entities and to watch, listen, wait, learn and repeat these processes as methods for data collection. (Martin & Mirraboopa, 2003, p. 213)

The process described here is similar to the animist methodological approach outlined by Barrett (2011), which also stresses the importance of embodied, "porous," sensual, multispecies listening. This requires a certain intimacy with other-than-human beings, as a site for the social production of knowledge, and reworking of boundaries (Raffles, 2002). Intimacy is non-hierarchical and emphasizes the importance of specificity of the encounter, of time and space and bodies. However, intimacy has often been portrayed as local and contextual and as lacking the mobility and universality of more quantitative ways of knowing.

Working toward research that engages the many ways that psychoactive plants relate with humans—as teachers, healers, and kin—in addition to their well-worn role as objects of study, can provide different and productive valences to the encounters between plants and researchers. As of now, there are few examples of this type of work, and it is even difficult to imagine research that truly engages with agencies of plants or other species in general. However, my view is that this is a worthwhile aim, even if (and perhaps especially because) we cannot quite see ahead to what it will eventually look like to have a true multispecies collaboration. In the unknown mystery of the encounter lies the creative and transformative potential.

Decolonizing Ayahuasca Research

Unsettling animacy and knowledge hierarchies requires radical decolonization of the ways that we understand the world. Decolonization of research requires drawing explicit connections between power and knowledge relations to address the underlying roots of these asymmetries (Agrawal, 1995) and critically interrogating research practices and intellectual property. According to Restrepo and Escobar (2005), decolonization of knowledge needs to occur at multiple layers of power relations: epistemic transformation aimed at making other knowledges and worlds visible; social and political transformation, which locates the role of the academy in global colonial power relations; and institutional transformation, which seeks to decolonize expertise by moving through or past borders of discipline and academy.

It is important for all researchers to think through the norms and practices that unevenly determine what knowledges are produced and circulated and how these contribute to reproducing hegemonic knowledges. Ayahuasca research, because of the ontological tensions generated by relating with plants, and its inherent cross-cultural engagements, is a fertile ground for decolonizing work, and the colonial relations around the use of ayahuasca in general require deep examination. I suggest that, through foregrounding Indigenous standpoints and inviting interspecies relating, researchers can make steps toward decolonizing their knowledge-making practices. However, there is danger that adopting Indigenous practices may further a sense of colonial entitlement or fuel settler adoption fantasies (Tuck & Yang, 2012), so I advise continual self-reflection and deep inquiry into the literature on decolonization that I only touch on superficially here.

I would like to follow Shawn Wilson's (2008) reframing of research as a type of academic ritual or ceremony that also involves intercultural and interspecies communication. Research, like ritual, is a repeatable and mimetic process, whose structure is taught to initiates. Viewing academic practices as rituals can be useful in situating them in their own cultural context, rather than universalizing them. It is important to understand the rituals we are performing, and to enact them consciously and delicately, in a way that allows for exposure of the hierarchies and social structures that we may reproduce. This includes the relationship between researcher and researched as subject and object relationship. I suggest that, by performing ayahuasca research as a ritual boundary engagement with Indigenous ontologies and epistemologies, and with plant worlds and knowledges, there is a potential for beginning an emancipatory move from a research system that is linked to a long and violent history of colonialism. By focusing on creating direct engagement with plant beings as part of our research endeavors, we also bring ourselves into relationship in a felt way within a multispecies ecology of other selves (Kohn, 2013) that have been denied subjectivity since the beginning of the scientific project.

Conclusion

I have argued that research-as-usual creates absences that exclude plant knowledges and marginalize Indigenous ways of knowing. Privileging Indigenous sciences and multispecies perspectives creates the potential for intercultural and interspecies collaboration. To make baby steps toward decolonizing ayahuasca research, it is important to examine how research practices contribute to hierarchies of knowing. This chapter introduces plant intelligences and ayahuasca research into an ongoing conversation that links multispecies perspectives with decolonization of knowledge, but is really only a point of departure for this important topic.

I find myself at the crossroads of the challenges I have highlighted: to write this chapter in a way that does not reproduce hierarchical knowledge systems, while still seeking ground in the academy. I try to honor the knowledges and ways of knowing that I have been learning from my teachers, both humans and plants, while also translating these knowledges into academic dialogues. However, I feel I have inadequately portrayed the wonder, beauty, and enchantment of the worlds and knowledges to which I point, and I recognize the danger that my writing will further colonize and objectify the very ones I seek to honor.

While writing this chapter, I had the opportunity during an ayahuasca ceremony to propose some of the ideas I have written about here to some of the plant beings with whom I have been developing relationships. However, I realized in the moment of the asking, that I should have begun this dialogue long ago, or perhaps it was simply part of the same conversation we have been having all along. Nonetheless, what I gathered is that these ideas excite them. When I then queried that place where I meet the plant worlds, what collaboration in making knowledge would look like for them, the answer I clearly perceived, after only a moment, was “we build life.” This of course cannot be denied and, again, made me feel very small and humble at how little I actually know about the ways and motivations of these plant beings, how insignificant my question seemed in comparison with their great works.

Despite human limitations to understanding, it is critical to learn to consult with and listen to intelligences beyond the human. Interspecies collaboration is going to be necessary as human futures become increasingly linked to those of other species (not that they ever were separate). I call ayahuasca a boundary being because of its ability to facilitate listening and dialogue across species and worlds. To be in proper reciprocity, one cannot use this being for human spiritual needs while ignoring the spirit of ayahuasca itself. Attending to plant beings, in my own experience, means loosening my grasp on what constitutes knowledge, sensitizing myself to interspecies listening, and resituating myself in relationship with plants-as-knowers.

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