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INTEGRATING ONTOLOGY INTO ETHNOBOTANICAL RESEARCH

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Ontology/Ontologies: Defining the Theme

The title of this special section of the *Journal of Ethnobiology*, which grew out of a conference of the same name held at the University of Oxford in 2014, is intentionally provocative, immediately inspiring a number of questions: What might it mean to look at human-plant relations “ontologically”? What, indeed, is an “ontology,” and how does it relate to plants? Can the field of ethnobiology fruitfully engage with theoretical movements in the social sciences and humanities that advocate an ontological approach to human-nonhuman relations? In the epoch of the Anthropocene—and in light of the realization that the activity of human beings alters not only local ecosystems and the constitution of the atmosphere, but also the geological and tectonic foundations of the planet—how might human-plant relations be re-conceptualized and theorized? Further still, how can the relation between theory and practice be reformulated in light of these challenges? In this special section, we grapple with these difficult questions while remaining grounded in the interdisciplinary research concerning people and plants presented by our contributors. This preface serves to introduce the core concepts and questions discussed in the following articles, while providing some tools (including key bibliographic references) to aid in understanding.

The last decade in the social sciences might be termed the Age of Ontology. The fervent adoption of this philosophical concept across a range of disciplines including anthropology, archaeology, information science, and science and technology studies (STS) has been heralded as signaling a paradigm shift (Carrithers et al. 2010; Henare et al. 2007). Ontology, of course, is a foundational area of enquiry in philosophy, where it refers to the study of the nature of being and reality. In the process of its experimental transposition into other disciplines, the meaning of the term has become increasingly kaleidoscopic to the extent that it defies generalization or definition (see Ellen, this issue). This intellectual moment has retroactively been given the epithet “the Ontological Turn,” a term that refers to a fragmented collection of philosophies with no cohesive vision but united by certain family resemblances (Pedersen 2012; Viveiros de Castro 2015). These approaches tend to

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share in common the rejection or critical re-evaluation of certain concepts associated with the post-Enlightenment tradition of thought including, notably, nature, culture, human, and nonhuman (Descola 2013; Ingold and Pálsson 2013; Latour 1993).

How, then, do these deconstructivist tendencies relate to ethnobiology and the study of ecological knowledge and practice? Ontological approaches share an intellectual genealogy with post-humanist philosophies (Haraway 2008), and both are concerned with re-conceptualizing the relationships between humans and non-humans. Inspired by thinkers such as Gregory Bateson (1972), Deleuze and Guattari (1980), and Bruno Latour (1993), post-humanist scholars have argued for the radical upheaval of the conventional notion of “the human” (e.g., Bennett 2010). Staunchly against human exceptionalism, these thinkers emphasize the agency of nonhuman life forms and cross-species relations in shaping the very fabric of existence (e.g., Kohn 2013). If used critically, it is posited, the intellectual tools afforded by these philosophies can enhance an ability to understand the constitution of varied ontological systems, such as animist cosmologies in which plants and animals are endowed with forms of personhood or human-like subjectivity. Indeed, the Ontological Turn itself was initiated by a number of innovative ethnographies of Amazonian cosmologies conducted by anthropologists during the 1980s and 1990s (Descola 1994; Viveiros de Castro 1998; see also Costa and Fausto 2010).

In this special section, we ask the question, can ethnobotanical and ontological approaches be reconciled? Might we begin to talk about “botanical ontologies,” and if so, to what might this curious term refer? This question remains purposefully open-ended; in our view, the term is most useful when treated as a heuristic concept to provoke debate across disciplinary boundaries. Still, there are numerous possibilities. First, in accordance with the remit of ethnobotany, we may ask how humans in different cultural and cosmological contexts perceive, conceptualize, and value plant-life (Ellen 2006). Taking the notion of ontology further, we might consider how radically divergent human-plant life-worlds are constructed in an ontological “pluriverse” (Escobar 2011). Further still, and in the post-humanist vein, we may begin to ask what kind of “ontologies” plants themselves occupy, and how they might perceive—even *conceive*—of their worlds and of human beings. Such questions are gaining credence, for instance, with emerging scientific research on plant intelligence and communication (Bonfant and Genre 2015; Gagliano 2015; Johnson and Gilbert 2015).

There are, however, challenges in attempting such thought-leaps. For instance, much ontological discourse remains somewhat abstracted from the political nature of ecological relations, as in, for instance, conservation-based conflicts and debates about climate change. Furthermore, ontology, as the study of being, is related in complex ways to epistemology, or the study of knowledge (Carrithers et al. 2010; Kohn 2002:107). The relationship between the two requires further theorization for application in ethnobiology, with its conventional focus on knowledge systems and cognition. While ethnobiologists continue to discuss traditional and local ecological knowledge (TEK and LEK respectively), ontologically-minded thinkers have remained critical of the analytical privileging of epistemology (Henare et al. 2007; Viveiros de Castro 2015). However, knowledge remains a crucial element in practical, intellectual, and political engagements with the living world (Hunn

2006, 2014). How, then, might ontology and epistemology relate to one another in the domain of ethnobotany? Next, how can ethnobiological approaches, which demonstrate the pan-cultural propensity of human beings to perceive and categorize the living world (Atran 1990; Atran and Medin 2008; Berlin 1992), be reconciled with multinaturalist philosophies that emphasize the radical plurality of natures (Descola 2013; Latour 2013; Rival 2012)? Finally, in a methodological sense, can the ethnobotanist, manacled to the taxon *Homo sapiens*, truly conduct a “multi-species ethnography” (Kohn 2013) of plant-life, and, if so, how? These are difficult, and perhaps, ultimately, unanswerable questions. Nevertheless, they necessitate our consideration, and this special section can be thought of as a step in this direction.

Aims of the Special Section

The aim of the original conference, and by extension this special section, was to look at new ways of investigating, conceptualizing, and explaining people-plant relationships. New research in the biological and social sciences has advanced our understanding of these relationships, from ecological research on how plants communicate with one another via mycorrhizal networks, to molecular research on how mother plants can “transmit” environmental knowledge to offspring, to historical research on how human observation of plants has led to new technological innovations (Chen et al. 2014; Gorzelak et al. 2015; Mazzolai et al. 2014). Research with a “deep time” aspect (through paleoecology, archaeobotany, etc.) focuses on how people and plants interact and change over time, reminding us that the story of plant and human interaction is one of co-evolution, give-and-take, and above all, perhaps, fascination (Harris 1989; Hjelle et al. 2012; Laland and Boogert 2010; O’Brien et al. 2012; Redman and Kinzig 2003; Willis and Berks 2006).

Yet how can we further our understanding of people-plant relationships beyond any given disciplinary approach? What happens when we cross disciplinary boundaries? Using the concept of ontology as a heuristic lens, we suggest that new possibilities open up to identify, describe, and further our understanding of people-plant relationships. To this end, the aims of this special section are threefold:

1. *To demonstrate how ecological knowledge is a dynamic process.* Over the past decade, a great deal of attention has been given to “traditional” or “indigenous” knowledge (Almekinders and Hardon 2006; Millennium Ecosystem Assessment 2005). For example, UNESCO programs have sought to preserve traditional knowledge; FAO-led agricultural improvement projects have sought to include indigenous knowledge in plant breeding programs, and local conservation agendas in the United Kingdom have emphasized “traditional knowledge” in the conservation of grasslands. Yet what is “traditional” and how is it related to or distinct from creativity and innovation? Whether in the uplands of Indonesian Borneo (Schreer, this volume) or on a Portuguese farm (Powell, this volume), local ecological knowledge is

constantly changing; it is based on observation and interaction with the materiality of the local landscape, environment, and other organisms; it is shaped by what is transmitted from one generation to the next; and it is constantly adapting to changes in climate and resource availability. As the papers in this section emphasize, “botanical ontologies” are rarely static or unchanging. This highlights the importance of not preserving “knowledge” *per se*, but rather understanding the socio-cultural and biological mechanisms and practices that give rise to these ways of knowing and experiencing the world.

2. *To highlight the contribution of the concept of bio-cultural diversity to resource management.* Recent research has emphasized that biological and cultural diversity are interlinked and mutually defining (Descola 2013; Lepofsky 2009; Maffi and Woodley 2010; Nabhan 2009; Zent 2009). Human beings have radically shaped the morphological and chemical components of crops in symbiotic relationships, just as they have modified what were once seen as “wild” or “natural” landscapes for thousands of years (Balée 2013; Laland et al. 2014; Ménard et al. 2013). Biodiversity is thus intimately linked to socio-cultural practices and perceptions about the “value” of plants. Sustainably managing these finite resources needs to take this into account.
3. *To encourage interaction between theory and practice.* Theory may develop out of ethnographic observations or through lab experiments, yet it does not consistently inform practice. Research on different ways of knowing about and being or “becoming” (Ingold and Pálsson 2013) with plants can be useful when considering efforts to stem the loss of local ecological knowledges (and perhaps “ontologies”) throughout the world. More work needs to be done in channeling the keen observations from ethnobotanical and other social science research into conservation and other practice-based programs (Babai and Molnár 2014; Berkes et al. 2000; Charnley et al. 2007; Cubit 1996; Middleton 2013; Newing 2013; Sillitoe 2006; Turner et al. 2011).

Papers in the Special Issue

The papers included in this special issue reflect a broad spectrum of spatial and temporal diversity of human-plant engagements. In Europe, Howard Thomas et al. trace the archaeological, historical, and literary trajectory of darnel (*Lolium temulentum*), showing how the plant has intoxicated humans both literally and metaphorically as a symbol of “malign subversion.” Focusing on contemporary European engagements with plants, Joseph Powell explores the interrelatedness of maize (*Zea mays*) varieties, farmers, and other human and nonhuman actors in Portuguese participatory-plant-breeding projects. Kay Lewis-Jones examines how European plant scientists in the Millennium Seed Bank, United Kingdom value and make sense of their interactions with the particular seeds with which they work. Moving northward, Natalia Magnani explores how a Skolt Sami community in northern Scandinavia is recovering the use of certain wild plants and fungi through cultural revitalization festivals. In South America, Theresa Miller explores the changing engagements between the indigenous Canela of Brazil and their

cultivated crops, as the people learn new ways of caring for their plant “children.” In Southeast Asia, Viola Schreer examines how the Ngaju Dayak of Indonesian Borneo develop the skills and practices necessary to harvest and utilize rattan palms (Calamoideae). Roy Ellen’s introductory piece draws from a variety of geographical and historical contexts, including his research on the Nuaulu and various palm species on the island of Seram in eastern Indonesia.

The papers reflect the interdisciplinary approach to people-plant engagements highlighted in the conference. The authors in this special section look at people and plants in a variety of ways: Powell uses Latourian Actor-Network-Theory; Thomas et al., literary analysis; Schreer, practice-based approaches to environmental knowledge transmission. Miller focuses on the materials involved in knowledge-making; Magnani on community-wide cultural programs and individual narratives of knowledge revitalization; Lewis-Jones on a value-based approach; and Ellen makes a theoretical contribution to the epistemological (and ontological) approaches to people-plant engagements in ethnobotany as a whole. In these ways, all of the papers contribute to practicing and theorizing ethnobotany, as they draw from on-the-ground experiences to broaden theoretical insights into people-plant encounters. In turn, the theoretical insights explored in these papers contribute to the practical aspects of ethnobotany as well, especially in terms of environmental conservation and management. In different ways, all the papers in the special section touch on conservation issues, whether by contributing a fuller understanding of seed banking practices (Lewis-Jones), of traditional indigenous environmental knowledges in their myriad and shifting forms (Ellen; Magnani; Miller; Schreer), of the relationship between conservation and modern-day farming practices (Powell), or of the intersection of history, literature, and the conservation (or abandonment) of particular plants (Thomas et al.).

Stemming from ideas explored in the original conference, the papers come away with recognition that people and plants who spend time developing long-term engagements with each other are changed and modified by these relationships, their ways of being broadening and opening through these encounters. This includes encounters between the Ngaju Dayak and rattan (Schreer), Canela gardeners and beans (Miller), the Skolt Sami and inner pine bark (Magnani), Portuguese farmers and maize (Powell), European medieval farmers and darnel (Thomas et al.), the Nuaulu and various palm species (Ellen), and plant scientists and seeds (Lewis-Jones).

Looking Forward

As we write this introduction, the ontological tide may already have turned. Scholars who initially advocated its adoption find themselves distancing themselves from the concept, regarding it as being increasingly (ab)used (Halbmayer 2012; Holbraad et al. 2014; Keane 2013; Pedersen 2012; Viveiros de Castro 2015). For this reason, more than ever, we wish to disassociate ourselves from a turn for turn’s sake (Ingold 2015) and embrace theory where it is useful in practice (and, of course, vice versa). We believe that the articles in this special section do just that, and remind us, as they may readers of the *Journal of Ethnobiology*, that

a concern for plant-people relations has ever been at the heart of ethnobotany. We end our introduction inviting readers to delve into the array of articles on offer, looking ahead to the future, and assessing what we can learn from the recent past.

First, we must look at what is missing from the issue. Eagle-eyed readers may critique a lack of deep-time perspectives: although Thomas et al. show us a longer *durée* look at the agency of one plant, *Lolium temulentum*, we lack archaeological or evolutionary approaches to considering plants and people ontologically. Is this because this is impossible? Certainly not, and ever more nuanced archaeobotanical and historical studies (Beinart and Wotshela 2011; Livarda 2013; van der Veen 2014; also Head and Atchison 2008 for a review) provide thoughtful insight into the changing relations between plants and people throughout (pre)history. Readers may also wish to see a deeper engagement with questions about the politics of ontology (Blaser 2009; Holbraad et al. 2014), particularly regarding the availability of and access to plant genetic resources. News that the ICARDA seed bank of Aleppo has made the first request for withdrawal of seed samples from the Svalbard Global Seed Vault after joining millions of refugees in fleeing war-torn Syria (Andersen 2015) also reminds us that plants are subject to global politics and that political actions may have long term ramifications on plant-human relations. Lewis-Jones' paper in this special section, which contextualizes the relationship between seed banks, conservation, and identity, becomes all the more relevant in this light.

Second, we hope to see more conferences fostering further dialogue and interdisciplinary explorations into plant-people relationships. We have been delighted by the warm reception *Botanical Ontologies* has received from our funders and the *Journal of Ethnobiology*, and we hope this continues. We hope that further meetings will bring more people interested in such topics together, particularly incorporating the established trend in human geography towards vibrant, emotive landscapes and flora (Ryan 2012, 2013). As for predicting worldwide or disciplinary trends, we are loath to turn clairvoyant, but we hope to see within anthropological approaches a wider geographical diversity in explicitly promoting ontological concerns with plants. Within landscape studies and archaeology, we welcome the trend that sees landscapes as "symmetrically" and indivisibly composed of many actors, whether plant, human, animal, or geological (Olsen 2007; Witmore 2007), as "networks" (Latour 1993:104), or as "meshworks" (Ingold 2007). Indeed, conservation of such landscapes can perhaps be best achieved where an ontological mindset that does not distinguish between the botanical and anthropological, material and intangible, prevails (Schofield 2009). Within plant sciences, we hope to see more active research on how plants engage with humans at the molecular and chemical level. Ecologists, plant scientists, and chemists have delved into the minutiae of how plants and other organisms (e.g., animals, fungi, etc.) interact but have yet to thoroughly examine how they interact with humans. Such investigations might lead to new insights regarding how humans and plants coexist and interact and would provide the "plant's perspective" that much ethnobotanical research has actively sought but currently lacks. Finally, above all else, interdisciplinary co-operation and dialogue between all those interested in plants, people, and the relationships between them must be embraced, not just talked about. We invite you to begin, or refresh existing collaboration, by reading this special section of the *Journal of Ethnobiology*.

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