

Introduction | Special Section Plantarium: Human–Vegetal Ecologies

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Plants are everywhere, but people tend to take little notice of them. While environmental reports warn about the largest loss in plant biodiversity to date, including often undocumented or overlooked extinction of many plant species, houseplants experience a revival in urban cultures. Huge and glossy leaves of *Monstera deliciosa* and fiddle-leaf figs (*Ficus lyrata*), funky pancake plant (*Pilea peperomioides*), and spoon-leaved peperomia (*Peperomia*), along with cacti and airplants (*Tillandsia*) fill millennial urbanites' shoe-box-size apartments and their Instagram feeds. According to the US National Gardening Association, houseplant sales have doubled between 2016 and 2019, growing a thriving industry worth \$1.7 billion (cited in Boyle, 2019). The so-called "plantfluencers," with hundreds of thousands of followers on social media and signed book deals, shape this recent horticultural fascination by creating "trending" plants (Green, 2018). There are different interpretations of this generation's turn to plants: it may be a way to reconnect with nature; a response to growing anxieties about climate change; or part of the blooming "wellness" industry. Some see caring for green companions as a substitute for delayed parenthood, plants becoming the new pets for city

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dwellers (Boyle, 2019). In times of environmental and economic insecurities and precarious labor conditions, when few can afford a large garden, many look for comfort and community in planting and watering their potted houseplants, sharing cuttings, or tending to community gardens or urban farms.

These intimate human–vegetal ecologies, however, are entangled with a long history of colonial scientific expeditions, imperialism, economic extraction, capitalist accumulation, globalization, and cultural appropriation that form the invisible roots which ground and anchor popular decorative houseplants in our spaces. As a result of these historical processes, oftentimes what comes to be considered a decorative plant in one geographical context bears different cultural meanings and functions in its local context. In this sense, the spatial notions of proximity and distance are collapsed in individual stories of plant circulation, at the same time espousing seedy temporalities of global plant travels. How much do consumers actually know about the potted plants that decorate windowsills and bookshelves, populate their houses and flats, and frequently given as host gifts? How have these exotic and now domesticated and familiar plant species ended up in people’s homes and offices?

Let’s consider one of today’s most prominent plant celebrities: *Monstera deliciosa*. The characteristic fenestrated leaves of this tropical epiphyte became a design inspiration and home decor staple. Its Latin genus name refers to the monstrous size these conspicuous climbers can reach, while the species owes the specific epithet “delicious” to its edible fruits considered a delicacy in Mexico and Panama. The Spanish and Portuguese vernacular names (*costilla de Adán* and *costela-de-adão*, respectively) compare the perforated leaves to the ribs of Adam, a religious reference reminiscent of the European conquest of Latin America. Colonial extraction of natural resources in the New World included collecting, taxonomizing, naming, describing, and illustrating local flora. These activities made botanical science into one of the central pillars for the economy and politics of the empire through establishing global networks of scientists, collectors, merchants, and institutions. The first specimen of *Monstera deliciosa* was collected in 1832 in Mexico by Hungarian-born German botanist Wilhelm Friedrich Karwinski von Karwin, who sent a sample to the Munich botanical garden where it attracted no attention (Madison, 1977, p. 96). A decade later, two other plant collectors introduced *Monstera deliciosa* to Europe independently: Danish botanist Frederik Michael Liebmann brought live material from Mexico to the University of Copenhagen, while Polish botanist Józef Warszewicz collected cuttings in the Belgian colony in Guatemala and delivered them to the Berlin botanical station. According to Michael Madison (1977), most of the *Monstera deliciosa* cultivation

originates from these two introductions, which contributed to the huge horticultural triumph of this species starting in the mid-nineteenth century and lasting until today.

Although dumbcane (*Dieffenbachia*) may not be as popular as monstera with its dramatic leaves and big presence, it remains, nonetheless, a popular ornamental plant due to its attractive foliage—dark-green and dotted with white spots and flecks—and resistance to shade. Native to tropical climate, from Mexico to the West Indies, it was known to Indigenous inhabitants of upper Amazon and the Caribbean as a medicine and a poison. But once dumbcane's toxic qualities were discovered by Europeans, it led to multiple abuses. Dumbcane was used by slave owners and traffickers to punish Jamaican enslaved people by rubbing their mouths with cut stems, causing swelling and corrosive burns in the mouth, larynx, esophagus, and stomach of a victim (Arditti & Rodriguez, 1982, p. 294). Later, upon discovering that the plant caused sterility in animals—a quality long known to Indigenous Peoples in areas where dumbcane was native—a Nazi doctor, Adolf Pokorny (later tried in Nuremberg), suggested that it be used in sterilization experiments conducted on concentration camp prisoners (Arditti & Rodriguez, 1982, p. 296).

Another horticultural favorite, succulents—arguably one of the most “hipster” plants—have recently found themselves at the center of a smuggling controversy. The definition of a succulent includes plants that possess at least one succulent tissue—that is, a living tissue that has the ability to store water, giving the plant the ability to survive in arid climates. There are over ten thousand species of succulents, widely varying in size, shape, and flowers. Among them, *Dudleya farinosa* became particularly popular among indoor-plant enthusiasts who value its bizarre growth form with adorable thick, pale-green leaves. Its popularity also attracted plant poachers who snatch it from the coasts of California and ship the plants overseas. Journalists and locals mourn the loss of wild-growing coastal plant life, harvested by poachers to saturate the high demand of global markets as the craze for these tiny and drought-friendly plants grows, particularly in South Korea and China. And yet their concern may be not only over the loss of biodiversity. Anxieties over Asian markets' insatiable demand for succulents may also be reflecting something about the US determination to retain its status as an economic megapower, which is now seriously threatened by China's growing markets.

These individual plant stories reveal deep political entanglements between the history of botany, capitalist markets, and multiple uses of plants in veterinary and

medical sciences. In a conversation featured in this issue, Canadian environmental and literary scholar Catriona Sandilands highlights the critical importance of context—tracing the concrete, situated stories of particular people’s relations with particular species of plants in specific places and historical moments.

From this perspective, plants are, to use Serpil Oppermann’s (2018) formulation, “densely storied matter” (p. 411). Burgeoning new research on the vegetal helps understand the intertwined histories of humans and plants. Humans depend on the vegetal world in a fundamental way: for food, animal feed, medicines, clothing, fuel, and shelter, intoxication and stimulation, as well as mediating deep cultural and social meanings flourishing in arts and aesthetics. Plants for their part use humans as pollinators to colonize new territories. Plants grow deeply into human histories. Stories of knowledge and resistance—retained in women’s, Indigenous, and other vernacular knowledges about herbs, healing plants, and natural methods to induce miscarriage. Stories about violence, domination, and conquest—inseparable from the history of cultivation and trade in rice, sugar cane, spices, cotton, rubber, and so on. Plants played a fundamental role in colonization of Americas and slavery, and “colonial botany—the study, naming, cultivating, and marketing of plants in colonial contexts—was born of and supported European voyages, conquests, global trade, and scientific exploration” (Schiebinger & Swan, 2005, p. 2). By the eighteenth century, plants had the status of “green gold” (Schiebinger, 2004, p. 7), a currency as crucial for political and economic expansion of western European states as gold or silver, revealing the “volatile nexus of botanical science, commerce, and state politics” (Schiebinger & Swan, 2005, p. 2). In the twentieth century, the Green Revolution seemingly reversed these colonial routes through implementing research and technology transfer aimed at increased agricultural production in the so-called developing world through promoting high-yielding crop varieties, agro-chemicals, mechanization, and Western methods of cultivation at the expense of traditional ways of farming and biodiversity (Kloppenborg, 1988).

This rich history of human–plant relationships may prove crucial to understanding and reflecting on our contemporary historical and political moment. For example, Anna Tsing (2012) suggests we call our present epoch the “Plantationocene” (p. 148). Serving as the engine of European expansion, plantations produced immense wealth and replaced more sustainable relationships between humans and plants with enslaved, or otherwise coerced, labor. Donna Haraway echoes this statement in saying that the order of a plantation configures the most symptomatic elements that, for over the last five hundred years, have been shaping our planetary system, among them “radical simplification; substitution of peoples, crops, microbes, and life forms; forced labor; and, crucially, the

disordering of times of generation across species, including human beings” (Haraway & Tsing, 2019). The dramatic environmental change we are currently experiencing is an effect of structurally unjust social relations epitomized by exploitative economy of the plantation.

Today, as species of plants and communities of people are being forced out of their homes and habitats by droughts, floods, forest fires, polluted waters, and toxic wastes, plant life lies central to questions brought by rapid environmental change and shapes agenda issues such as migration (due to climate change), belonging (to a place that may be endangered), and loss (of species and habitats). For example, gender studies scholar and plant biologist Banu Subramaniam (2001) shows how fears over immigration and globalization seep into invasive biology discourses around “invasive” and “alien” species of plants that, it is said, spread uncontrollably, pushing out the “natives.” In a different context, Polish multimedia artist Karolina Grzywnowicz (2016) studies weeds as historical and political documents as they grow in villages abandoned because of forced migration and ethnic displacements in southern Poland. These so-called ruderal species are the first to colonize areas disturbed by wildfires or human activity, thriving in capitalist ruins and helping us live on a damaged planet (Tsing, 2015; Tsing, et al., 2017).

Through attending to vegetal matter, this special section of *Catalyst: Feminism, Theory, Technoculture*, “Plantarium: Human–Vegetal Ecologies,” articulates questions around plant–human encounters in their “storied” historical, scientific, biotechnological, political, discursive, biological, and ecological contexts. For us, as guest editors of this section, and for the editors of *Catalyst*, the task to approach the botanical realm from the perspectives of feminist technoscience seemed timely and important, first of all, because the study, collection, and use of plants is a particularly gendered affair—by the eighteenth century, botany was one of the few scientific disciplines open to women with many prominent female botanical collectors, illustrators, and experts (Shteir, 1996); and second, because, from Linnaeus’s taxonomy and invention of botanical nomenclature, to today’s bioengineered plants, genetically modified trees, and seed databases, plants open up space to critically reflect on the ways in which knowledge is produced, classified, and organized in science.

Following in this epistemological vein, we must also recognize the sites of plant knowledge production outside of Western science, as created by Indigenous Peoples, enslaved and colonized people, and in popular botanical, medicinal, and pharmaceutical knowledge (Riddle, 1997; Kimmerer, 2013; Foster, 2017). From yet

another perspective, contemporary research in plant science that concerns vegetal cognition, sentience, and communication (see, e.g., Mancuso & Viola, 2015; Simard, 2018) invites critical perspectives that challenge the historically inherited Western hierarchy of the human, the animal, and the vegetal life (Marder, 2013).

We also wanted to capture a particular moment in which the humanities' and arts' renewed interest in plant life gives rise to a new and fertile field of study known as critical plant studies. Crisscrossing feminist and queer scholarship, art and literature, anticolonial and critical race theories, information studies, history of science and science and technology studies, critical plant studies forges new research paths for thinking (with) plants as a way of repositioning the human in the surrounding natural-cultural environment and human-vegetal knowledge.

Drawing on history of science (Merchant, 1990; Shteir, 1996; Carney, 2001; Schiebinger, 2017), feminist science and technology studies (Hustak & Myers, 2012; Subramaniam, 2014), and plant science (Gagliano, 2018; Simard, 2018), critical theories of plants problematize plant-human relationships in the context of power relations running along the lines of race, ethnicity, class, gender, sexuality, nationality, and more. Emerging fields of research such as plant philosophy (Marder, 2013), queer ecologies (Sandilands, 2016; Mortimer-Sandilands & Erickson, 2010), phytopoetics (Jacobs, this volume), multispecies ethnographies (Haraway, 2007; Tsing, 2012), environmental humanities (Rose et al., 2012), food studies (Shiva, 2000), studies on the Anthropocene (or the "Planthropocene" [Myers, 2016]), among others, look into plant life to further explore constellations of knowledge, matter, and power in which both plants and humans are entangled.

At the same time, we see all around us multiple and creative practices emerging from urban activism, grassroots community building, Indigenous and communal knowledges, and artistic experimentations that reclaim the power to produce knowledge about plants and redefine intimate human-plant relations, in an effort to heal the wounds inflicted by regimes of colonialism, imperialism, homo- and transphobia, misogyny, and racism. The individual contributions to this special section take up this challenge, each in a different fashion, illuminating the importance of intersectional and situated analysis for feminist plant studies. In other words, this collection offers innovative feminist, queer, and decolonial methodologies for theorizing the vegetal turn in the humanities and arts.

One example of such artistic experimentation is "plant-centered design" by Špela

Petrič, a Slovenian new media artist and former scientific researcher whose work extensively engages plant life. The cover image of this issue features a cyclamen (*Cyclamen persicum*) from her “Plant Sex Consultancy” series (2014), in which the artist along with Pei-Ying Lin, Dimitris Stamatis, and Jasmina Weiss designed and produced devices suited for specific plants to enhance their natural reproductive strategies. This kind of technological intervention serves on the one hand, as a medical prosthesis developed in response to the drastic decline in insect pollinators, while on the other, functions as a “floral sex toy” for potted plants to overcome their isolation and apparent immobility.

We open this collection with Joela Jacob’s “Phytopoetics: Upending the Passive Paradigm with Vegetal Violence and Eroticism.” This wonderfully intertextual essay offers a foray into “vegetal eroticism” in plant reproduction linking botany to early sexology. Illustrated with examples from German art nouveau imagery and narratives that attributed erotic qualities to plants, Jacobs offers a concept of phytopoetics to capture the political, cultural, and poetic agency of the plant. Jacobs convincingly shows how human notions about sex and violence—about making life and ending it—are projected onto the vegetal realm, showing that phytopoetics “engages with some of the most central anxieties of modern society, since the sustained survival of the human species depends on plants.”

Feminist technoscience scholar Nina Lykke, in her article “Co-Becoming with Diatoms: Between Posthuman Mourning and Wonder in Algae Research” reopens the questions of temporal schemes of life, death, and survival in the Anthropocene. Lykke offers a deeply personal portrayal of her queer grief that is entangled with the nonhuman life—plants, rocks, and sea waters—but above all, with diatoms, single-celled aquatic algae that possess characteristics of both a plant and an animal. Escaping taxonomic categories, diatoms question discrete and anthropocentric notions of human selfhood, life and death, harm and survival. By means of becoming-with-algae, Lykke offers a meditation on posthuman mourning in face of personal losses and mass species extinctions, and calls for an expansion of the limits of our empathy.

In a conversation with Catriona Sandilands, we discuss the genealogy and affordances of the vegetal turn in the humanities and arts. The interview foregrounds feminist engagement with racialized and gendered violence of botanical colonialisms, while proposing a methodology for feminist science and technology studies interested in plant matters. “Thinking the Feminist Vegetal Turn in the Shadow of Douglas-firs” gives a general idea about the emergence of critical plant studies as a diverse field, but also brings together literary, historical,

and material examples of human–vegetal ecologies.

The Critical Perspectives section, curated by feminist science studies and legal scholar Laura Foster, brings together six scholars exploring the deep interconnections between plants, science, and race in settler colonial settings. While Krisha J. Hernández proposes to engage with the more-than-human terminology as a way to co-create Indigenous futurities, Sarah Ives warns against the slippage between more-than-human and less-than-human modalities that shape the multispecies worlds. In a similar vein, Elaine Gan shows how race is co-produced in crop science’s classification of rice varieties and in plantation regimes that subordinate human laborers’ bodies. Lastly, Diana Gibson invites us to learn from *Kanna* plants alongside the Indigenous ways of knowing and being of the Khoi and San peoples, while William Ellis portrays milkwood trees (*Sideroxylon inerne*) in South Africa as witnesses to colonial violences of slave trade, executions, and mass logging for building settler infrastructures.

The theme of botanical colonialism continues in Xan Sarah Chacko’s contribution to this collection, recording the recent institutional rebranding of botanical gardens as the hub for global biodiversity conservation through investing in seed banking in the face of environmental crisis. Drawing on Michelle Murphy’s (2017) notion of “economization of life,” “Digging up Colonial Roots: The Less-Known Origins of the Millennium Seed Bank Partnership” problematizes the forgetting of Kew Gardens’ colonial legacy and the Gardens’ central role in the imperial economy, which persists in the seed bank partnership project as it is imagined as a repository for securing botanical futures. As Londa Schiebinger (2004) reminds us, “the sixteen hundred botanical gardens that Europeans had founded worldwide by the end of the eighteenth century were not merely idyllic bits of green intended to delight city dwellers, but experimental stations for agriculture as a way station for plant acclimatization for domestic and global trade, rare medicaments, and cash crops” (p. 11). Together, these Critical Perspectives on Plants, Race, and Colonialism forge new pathways for feminist, decolonial, and Indigenous technoscience.

Through stories of plant–human encounters, this collection of articles and provocations poses questions around practices of knowledge production that weave the vegetal life into scientific, biotechnological, and medical discourses, histories, and practices. Our proposed title “Plantarium” posed some technical difficulties: text editing software would persistently change it to “planetarium” in an act of disciplining this weedy term. Nevertheless, we welcome this confusion as foreshadowing our multidimensional perspective on uneasy plant–human

relations rooted in concrete stories that reveal local botanical knowledges, while reflecting the “planetary consciousness” (McClintock, 1995) driving the commodification of vegetal matter in colonial expansion and domination. As plants determine in concrete, empirical ways human livelihoods, diet, health, landscape, urban design, and economies, and grow into our histories of belonging, domination, and conquest, they allow a multispecies understanding of human knowledge as co-produced by plants.

What we understand as “plantarium” also shares kinship with herbarium, a collection of pressed plants. This practice of selecting and arranging specimens into two-dimensional archives is ubiquitous for botanical taxonomy. Our selection of plant-inspired essays, conversations, and provocations offers a critical feminist commentary on this very cornerstone of scientific endeavor, while attending to complex entanglements of race, ethnicity, class, sexuality, nationality, and colonialism. Through questioning and crossing the taxonomic boundaries and normative classifications, this botanical thought troubles classical notions of identity, subjectivity, life, environment, nature, and culture, and sprouts into territories of politically valent social struggles. Whereas herbariums necessarily feature the materiality of the individual plants themselves as singular specimens represent types, this collection presents both empirical and theoretically anchored essays that foreground vegetal ecologies as material-semiotic relations. We hope that “Plantarium” will germinate new pathways for feminist, decolonial, and Indigenous ways of thinking (with) plants.

Acknowledgements

The idea for this special section stems from a workshop called “[Plantarium: Re-Imagining Green Futurities](#),” organized by Marianna Szczygielska and Olga Cielemeńska, held at the University of Linköping in Sweden, 1-2 June 2017. Arriving at the interface of art, science, and philosophy, invited speakers—Catriona Sandilands and Michael Marder—and participants activated multidimensional approaches to human–plant relations that pay close attention to hierarchical materializations of power entrenched in botanical technologies and imaginaries, generating an invaluable inspiration to continue those conversations in this special section. We are immensely grateful to all of them as well as to The Seed Box, a Mistra-Formas Environmental Humanities Collaboratory and GEXcel International Collegium for Advanced Transdisciplinary Gender Studies, who supported the event with funding, and our colleagues from TEMA Genus at Linköping University. We would like to warmly thank the editorial team of the *Catalyst*, especially Banu Subramaniam and Michelle Murphy, for giving us the

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References

- Arditti, J., & Rodriguez, E. (1982). *Dieffenbachia*: Uses, abuses and toxic constituents: A review. *Journal of Ethnopharmacology*, 5(3), 293-302.
- Boyle, M. (2019, April 11). The one thing millennials haven't killed is houseplants. *BNN Bloomberg*. Retrieved from <https://www.bnnbloomberg.ca/the-one-thing-millennials-haven-t-killed-is-houseplants-1.1242863>
- Carney, J. A. (2001). *Black rice: The African origins of rice cultivation in the Americas*. Cambridge, MA: Harvard University Press.
- Foster, L. A. (2017). *Reinventing hoodia: Peoples, plants, and patents in South Africa*. Seattle, WA: University of Washington Press.
- Gagliano, M. (2018). *Thus spoke the plant: A remarkable journey of groundbreaking scientific discoveries and personal encounters with plants*. Berkeley, CA: North Atlantic Books.
- Green, P. (2018, November 8). Meet the plantfluencers. *The New York Times*. Retrieved from <https://www.nytimes.com/2018/11/08/style/o8SILL.html>
- Grzywnowicz, K. (2016). *Weeds*. Retrieved from http://chwasty.com/o-projekcie/?ln=en_EN
- Haraway, D. (2007). *When species meet*, Minneapolis, MI: University of Minnesota Press.
- Haraway, D., & Tsing, A. (2019, June 18). Reflections on the Plantationocene: A conversation with Donna Haraway and Anna Tsing. Interviewed by G. Mitman. *Edge Effects*. Retrieved from <http://edgeeffects.net/haraway-tsing-plantationocene/>
- Hustak, C., & Myers, N. (2012). Involuntary momentum: Affective ecologies and the sciences of plant/insect encounters. *differences*, 23(3), 74-118.
- Kimmerer, R. W. (2013). *Braiding sweetgrass: Indigenous wisdom, scientific knowledge, and the teachings of plants*. Minneapolis, MN: Milkweed Editions.
- Kloppenborg, J. R. (Ed.). (1988). *Seeds and sovereignty: The use and control of plant genetic resources*. Durham, NC: Duke University Press.
- Madison, M. (1977). A revision of *Monstera* (Araceae). *Contributions from the Gray*

Herbarium of Harvard University, no. 207, 3-100.

Mancuso, S., & Viola, A. (2015). *Brilliant green: The surprising history and science of plant intelligence* (J. Benham, Trans.). Washington, DC: Island Press.

Marder, M. (2013). *Plant-thinking: A philosophy of vegetal life*. New York, NY: Columbia University Press.

McClintock, A. (1995). *Imperial leather: Race, gender, and sexuality in the colonial contest*. London: Routledge.

Merchant, C. (1990). *The death of nature: women, ecology, and the scientific revolution*. San Francisco, CA: Harper & Row.

Mortimer-Sandilands, C., & Erickson, B. (Eds.). (2010). *Queer ecologies: Sex, nature, politics, desire*. Bloomington, IN: Indiana University Press.

Murphy, M. (2017). *The economization of life*. Durham, NC: Duke University Press.

Myers, N. (2016, February 10). *From edenic apocalypse to gardens against Eden: Plants and people in and after the Anthropocene* [Talk presented at the University of California, Berkeley, Department of Geography, Department Weekly Colloquium]. Retrieved from <https://www.youtube.com/watch?v=e3CzENrnB58>

Oppermann, S. (2018). Storied matter. In R. Braidotti & M. Hlavajova (Eds.), *Posthuman glossary* (pp. 411-414). London: Bloomsbury.

Petrič, Š., Lin, P. Y., Stamatis D., & Weiss, J. (2014). *Plant Sex Consultancy*. Retrieved from <http://psx-consultancy.com/>

Riddle, J. (1997). *Eve's herbs: A history of contraception and abortion in the West*. Cambridge, MA: Harvard University Press.

Rose, D. B., van Dooren, T., Chrulaw, M., Cooke, S., Kearnes, M., & O'Gorman, E. (2012). Thinking through the environment: Unsettling the humanities. *Environmental Humanities*, 1(1), 1-5.

Sandilands, C. (2016). Queer ecology. In J. Adamson, W. Gleason, & D. Pellow (Eds.), *Keywords for environmental studies* (pp. 169-171). New York, NY: New York University Press. Retrieved from <https://keywords.nyupress.org/environmental-studies/essay/queer-ecology>

Schiebinger, L. (2004). *Plants and empire: Colonial bioprospecting in the Atlantic world*. Cambridge, MA: Harvard University Press.

Schiebinger, L. (2017). *Secret cures of slaves: People, plants, and medicine in the eighteenth-century Atlantic world*. Stanford, CA: Stanford University Press.

Schiebinger, L., & Swan, C. (Eds.). (2005). *Colonial botany: Science, commerce, and politics in the early modern world*. Philadelphia, PA: University of Pennsylvania Press.

Shiva, V. (2000). *Stolen harvest: The hijacking of the global food supply*. London: Zed Books.

Shteir, A. B. (1996). *Cultivating women, cultivating science: Flora's daughters and botany in England, 1760-1860*. Baltimore, MD: Johns Hopkins University Press.

Simard, S. W. (2018). Mycorrhizal networks facilitate tree communication, learning, and memory. In F. Baluška, M. Gagliano, & G. Weitzany (Eds.), *Memory and learning in plants*. (pp. 191-213). Cham: Springer.

Subramaniam, B. (2001). The aliens have landed! Reflections on the rhetoric of biological invasions. *Meridians*, 2(1), 26-40.

Subramaniam, B. (2014). *Ghost stories for Darwin: The science of variation and the politics of diversity*. Urbana, IL: University of Illinois Press.

Tsing, A. (2012). Unruly edges: Mushrooms as companion species. *Environmental Humanities*, 1, 141-154.

Tsing, A. (2015). *The Mushroom at the end of the world: On the possibility of life in capitalist ruins*. Princeton: Princeton University Press.

Tsing, A., Swanson, H., Gan, E., & Bubandt, N. (Eds.). (2017). *Arts of living on a damaged planet: Ghosts and monsters of the Anthropocene*. Minneapolis, MN: University of Minnesota Press.

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