

Stories from the Botanical Underground

Medicinal Plants as More-than-Human Knowledge Keepers

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Plants are intelligent keepers and communicators of more-than-human knowledge. Their stories relate the agency of place and plants, showing us how to live where we are, what it means to contribute to the continuance of life, and how to collaborate with nonhuman others in resilient place-making. Botanical storytelling reaffirms people-plant relations, reimagines human relationships with the land, and intervenes in prevailing social and environmental narratives. *Stories from the Botanical Underground*, presented at the 2023 American Association of Geographers conference, relates the ecological-social lives of betony (*Pedicularis*), globemallow (*Sphaeralcea*), and vervain (*Verbena*) and the knowledge they hold for navigating socio-environmental challenges. This collection of stories intends to de-center human impositions of colonial power upon botanical landscapes and re-center the teachings of place and plants on a damaged planet. In this research, medicinal plants themselves are recognized as primary contributors of knowledge. As the disruptions and uncertainty of climate change escalate, plant-knowledge grounds humanity in the interconnectivity of ancient biological communities and opens new possibilities for living well in a fluctuating more-than-human world. *Stories from the Botanical Underground* is a set of perspectives, experiences, and imaginations that aims to reestablish our multi-species connectivity and conjure new ways of feeling, knowing, and being.

Medicinal Plants as Knowledge Keepers for Living Through Environmental Change

The more-than-human underground is pulsating with intertwined symbiotic systems of biological life, plant root intelligence, and ancestral reverberations. Plants are often overlooked as sources of place-based knowledge, both above ground and below the surface.

Living simultaneously in worlds of subsurface darkness and cosmic light, plants transfer knowledge across time and place thresholds. They communicate in myriad ways including through their models of being and their interactions in plain sight and beyond view, often escaping the reaches of the human imagination. Medicinal plants, in particular, offer the intimacy of embodied sensory knowledge. As we consume them, ecosystem functions and timeless plant ways of being are re-enacted inside our bodies through physiological actions of nourishment and healing. These enactments of continuance connect people to ancestors and futures through plant-people relationship. Exploring primordial stories of plants opens new possibilities for rethinking the origins and relations of other species including humans. Recontextualizing origins may also facilitate re-imagining future possibilities born from an ancient inheritance of liveliness and interconnectivity.

Rippling through the rhizosphere are the mutualistic interactions among diverse beings, transferring vital forces and ways of knowing across the landscape. Here is an obscured and thriving zone of multi-species encounters where microorganisms intermingle with plant roots to express their sym-poietic life-sustaining agency. The lives of endophytic fungi and bacteria nested inside of plants, haustorial (parasitic connections) penetration across root structures, biotic soil crust communities, and plant meristems (centers of cell division and intrinsic information) call into question fundamental assumptions including how knowledge is produced, who can produce it, and how it moves across species. The plant stories included in *Stories from the Botanical Underground* move through nonlinear botanical time to the formations of early Earth's proto-soils and into possibilities for futures of symbiotic wellbeing, despite the chronic inflammations of Anthropocene living (i.e. living at the crux of decades of extractive land and water use, escalating destabilizations of climate change, and active colonial powers). The multi-species entanglements in ancestral Earth's botanical underground continue in a state of ongoing mutualisms unfolding timelessly in Chthulucene realities (Haraway, 2016). This series offers a site for thinking through possibilities of making relations with plants and the nonhuman world, fostering multispecies symbiotic wellbeing, and cultivating perseverance through Anthropocenic calamities. It illustrates how knowledge is co-produced and shared in a more-than-human world and the ways in which plants teach collaboration, equilibrium, and rootedness for living through climate change realities. Auguring into the depths of life, these plant vignettes explore the unseen botanical ways of being within the subsurface.

The stories of betony, globemallow, and vervain illustrate ways in which humans might enjoin plant worlds, understand plant communications, and incorporate botanical knowledge. They serve to disrupt the narrative that humans are the primary sources of knowledge and the associated research practices of excluding other species and places in the production of knowledge. They dissolve colonial binaries of nature/culture, primitive/modern, rational/magical, and universe/pluriverse (Sundberg, 2014) and dismantle the meta-narrative that systematizes nature, separates humans from it, and displaces Indigenous knowledge systems (Johnson & Murton, 2007). These stories are woven from threads of a pluriversal world in which Earth, human, and multi-species narratives are unified and clarify a vision for seeking life together through changing realities. Betony, globemallow, and vervain intervene in prevailing scientific narratives of planetary life hopelessly spiraling into discord. These and other plants offer an invitation into new imaginaries brought forth

by a botanical timescale that has been in existence long before colonization, capitalism, and climate catastrophes, when multi-species life-building enveloped the planet.

The more-than-human knowledges conveyed within these stories arise from the places where they are enacted. In this sense, place may be considered as teacher (Larsen & Johnson, 2016). As a settler in Indigenous Tiwa lands working through a process of decolonization, plants and place have served as profoundly important guides in reshaping my perspectives and actions in accordance with those of the living landscape. This research rests on a foundational premise that place as a living organism has stories to tell; stories of subsurface knowledge that are expressed through plants. This knowledge is produced through interactions of the “bio” and “geo” (Whatmore, 2006) with plants as actors telling tales of relationships among living beings and place (Salmon, 2010). Furthermore, place teaches coexistence and what our responsibilities are to others as part of the web of life (Larsen & Johnson, 2016). Plants convey these messages, in part, through their collaborative underground relationships with mycorrhizal networks, endophytic organisms, hemi-parasitic host interactions, and their above ground pollinators and other living beings. Edible and medicinal plant use is a way for people to participate in the living world (Salmon, 2010), employing gathering techniques that are simultaneously acts of tending to place and contributing to life (Anderson, 2005; Salmon, 2010; Tsing, 2010). Moving away from the notion of plants and their habitats as resources or places upon which we impose our will, there is an urgent need to expose the potential consequences of continued ecological disruption by delving into underground entanglements of more-than-human activity. Herein lies an opportunity to advance more equitable ways of living in a multi-species world by uniting multiple epistemologies including Indigenous, western scientific, and nonhuman knowledges. In doing so, it becomes clear that everything is alive and exists in relation. Thinking with plants not only expands research potential but conjures profound gratitude for the vibrance of living in relation with all beings.

The Intersection of Herbal Practice, Storytelling, and Knowledge Production

Herbal practice is a set of botanically-based methods for healing of individuals, community, and land and may also be seen as an empowering and healing research method. The goal of the herbalist is to act as a liaison between their human community and the more-than-human world and this can be done through botanical medicine, storytelling, or other means. Similarly, geographers engage in writing Earth stories, translating related knowledge (Boyd, 2023), and “knowing otherwise” (Hawkins, 2014). Story features strongly across human geography subfields as forms of knowledge production with the capacity to evoke alternative worlds, spark imaginative possibilities, and elicit change (Cameron, 2012). Haraway (1994, p. 62) proposed the concept of “materialized reconfiguration,” in which stories foster the unmaking and making of worlds and reorient what counts as knowledge. As noted by Cajete (1994), story underlies human teaching and learning and thus has enormous potential as a research tool. Within a more-than-human context, stories have the capacity to bring ourselves and others into relation with plants. Sharing stories of plants and our relationships with them opens possibilities for understanding more-than-human ecological-social lives and plant knowledge for healing and living through environmental change.

Vasudevan et al. (2022) argue that storytelling theorizes a pluriversal reconceptualization of the planetary crisis and reimagines the ecological role of humans as part of a multi-species network. As a way of making sense of the world, it enables meaning-making from lived and embodied experiences, of “felt” knowledge (Million, 2014, p. 31) that are reproduced in order to be felt again and made meaningful in new and unique ways by others (Boyd, 2023). This process is a practice of relationality with the more-than-human world and a foundational force for imagining the world otherwise (Vasudevan et al., 2022). Storytelling brings into focus the relationality of the body and land, altering the temporal and spatial scales through which we might perceive socio-ecological crisis of environmental change (Vasudevan et al., 2022). Rejecting notions of the body as a discrete entity, the body may be perceived as linking oneself temporally to the past, present, and future, and likewise connecting one to land, water, and life (Vasudevan et al., 2022). These associations also entangle social and ecological challenges and bring people into relation with plants. In this ontological view, bodies may be seen as sites of stories (Anzaldúa, 2015), “corporeal cosmic memory” of ancestral knowledges (Cabnal, 2010, p. 22), and possibilities born from healing, resistance, and multi-species sympoetic living throughout time and space. Thus, the body may become a storage site of plant knowledges and an incubator of plant-people relationships, which may be activated through herbal practice and brought into focus through storytelling as academic research.

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