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Braiding frameworks for collaborative stewardship scholarship

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Human-environment relationships are most frequently viewed from evolutionary perspectives, despite the vast body of literature which highlights how many Indigenous peoples engage with and understand place, plants, and animals as kinship relations. My goals in this essay are twofold: first, to suggest we adopt the phrase stewardship to recognize and uphold notions of respect, reciprocity, and relationships that are common within many Indigenous worldviews, and secondly, to advocate for the use of pluralistic approaches to our collaborative scholarship. I offer examples from my own experiences in reconstructing stewardship histories across people, plants, and places in the Pacific Northwest.

KEYWORDS

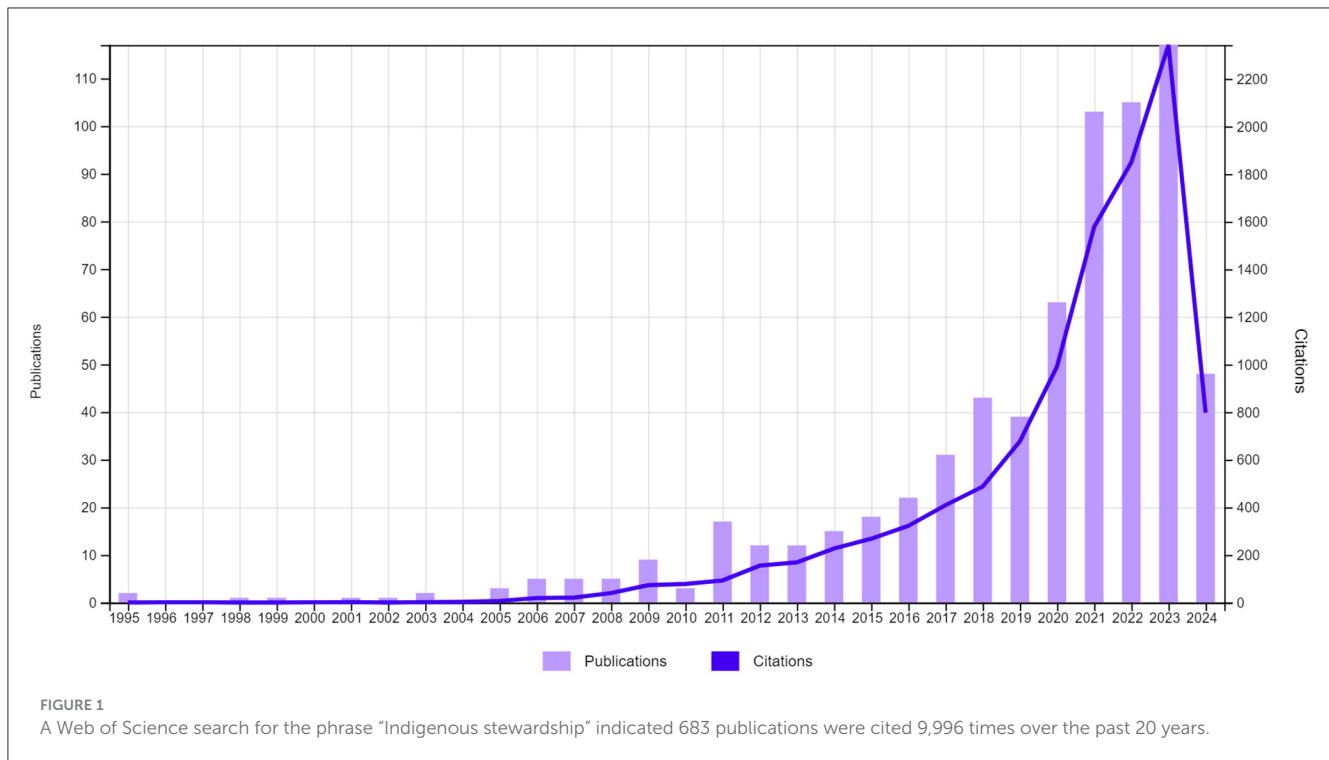
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1 Introduction

I've never met an ecologist who came to the field for the love of data or for the wonder of a *p*-value. These are just ways we have of crossing the species boundary, of slipping off our human skin and wearing fins or feathers or foliage, trying to know others as fully as we can (Kimmerer, 2013, p. 252).

Although the Anthropocene is no longer an official geologic epoch (Witze, 2024) archaeologists are among the most vocal advocates of *Homo sapiens* as the primary drivers of landscape change through the creation and maintenance of ecosystems (Erlandson and Braje, 2013; Stephens et al., 2019). Even Childe (1951, p. 46–47) recognized the relationships between people and place and the vast knowledge required to create environments in the transition to food production. And while much has been written on the ways past societies manage or manipulate spaces, places, plants, and animals (e.g., Rindos, 1984; Smith, 2001; Lertzman, 2009; Zeder, 2015), the term stewardship has only recently entered our lexicon as a framework for investigating and describing management practices as they are defined by Indigenous and local communities.

Indigenous stewardship, emphasizing care, responsibility, and respect of environments and resources, first entered the environmental, ecological, archaeological, and anthropological discourse during the mid 1990's. Over the last 20 years, there has been an exponential increase in its use (Figure 1). Although the term is used globally, it's been adopted across many North American tribal resource management departments to describe intentional actions or engagement with organisms, environments, and cultural heritage to achieve specific, long-term goals (Johnson et al., 2015; Atlas et al., 2021; Hoagland and Albert, 2023; Werdel et al., 2024). Within archaeology, most scholars see stewardship as the application of cumulative traditional ecological knowledges to



maintain or enhance the abundance, diversity, and/or availability of natural resources or ecosystems, reflective of long-term human-environment relationships shared and enacted across generations (Fowler and Lepofsky, 2011; Lightfoot et al., 2021; Sanchez et al., 2023; Cuthrell, 2024). Such definitions hint at the values found within many Indigenous ontologies and epistemologies, reflecting notions of kinship, respect, reciprocity, and relationality (Wilson, 2008; Krawec, 2022; Topa and Narvaez, 2022), where knowledge is produced through experience rather than experiments (Cajete, 2000).

I am a settler-scholar who has variously worked for and with several western North American Native American tribal natural and cultural resource departments on reconstructing landscape stewardship systems and plant management practices. My thinking has been deeply affected by the perspectives of the people I am privileged to work with. I can't help but notice that my colleagues refer to plants and animals as relatives. I am told that people have deep responsibilities to these other-than-human kin and to the world as a whole, I see it in the way these communities approach wildlife and fisheries conservation and restoration, but also in cultural resources, language programs, and even school systems. Though I was trained to think through and understand past worlds via evolutionary anthropological frameworks and social archaeological theories, I've spent much of the past several years reading and learning from North and South American Indigenous scholars who have generously shared their relational and agential histories, philosophies, and ways of knowing. This is my own attempt to ensure our archaeological projects and interpretations align with and center my collaborators needs.

In this short piece, I reflect on the ways I've found common ground with the worldviews of my colleagues and suggest that as archaeologists, we can incorporate the perspectives and writings

of our Indigenous colleagues to both generate new insights into past stewardship histories and do so from culturally respectful ways. I echo Armstrong and Anderson (2020), Mcalvay et al. (2021), and Wolverton et al. (2023) in calling for an environmental archaeology of stewardship and care that supports Indigenous and local communities. Archaeology offers a deep-time perspective on the human and non-human or natural processes and interactions which shape environments and ecologies. As Lelièvre et al. (2020, p. 174) note, our work can and should honor the sovereignty of Indigenous peoples, their worldviews and epistemologies, and the lands to which they are so intimately connected. Stewardship recognizes the rights of Indigenous sovereign nations to care for their plant and animal kin within their own cultural and knowledge traditions. An archaeology of stewardship can identify these past stewardship practices while supporting the sovereign rights of Indigenous and tribal nations working to revitalize these traditions (Cuthrell, 2024). Below I consider several frameworks for incorporating and working across Indigenous knowledges and environmental archaeological perspectives.

2 Pluralistic approaches in archaeology

Many scholars in fields beyond archaeology have proposed ways of dissolving boundaries between Indigenous knowledges and western science (i.e., "the West and the rest"). Etuaptmumk or Two-Eyed Seeing is a Mi'kmaw framework developed by Mi'kmaq Elders Albert and Murdena Marshall to bring together Indigenous and mainstream or western ways of knowing (Bartlett et al., 2012). Common across fisheries, educational, and medicinal fields, Two-Eyed Seeing refers to learning and looking from two

perspectives or metaphorical eyes to generate wholistic inferences about the world. This framework seeks to move beyond integrating Indigenous knowledges into Western science to establishing frameworks and practices centered on building relationships, trust, and knowledge coproduction (Reid et al., 2020). Within archaeology, this perspective has resonated across collaborative projects foregrounding stewardship of cultural heritage and fisheries in northeastern and northwestern North America (e.g., Lelièvre et al., 2020; Ball, 2021; Newsom et al., 2023).

Within anthropology, I am also inspired by Kanngieser and Todd (2020) concept of kin studies as a way of working across anthropological multispecies theories and Indigenous perspectives. These authors draw from multispecies scholars while also centering Indigenous voices and perspectives in their descriptions and work. Kanngieser and Todd (2020, p. 391), building on Watts (2013), argue that case studies, as in-depth analyses of specific situations, objectify and separate the observer from the observed. They argue that case studies focus on primarily singular, isolated examples, which are consumed and reproduced thoughtlessly by scientists and policy makers and therefore perpetuate extractive relationships of knowing. Kin studies require deep connections between local histories, storytellers, people, and places while also operating across multiple scales. As I'm most familiar with the people-plant relationships of western North America, I can't help but think of the conversations and stories where plants and animals are kin—persons who are intimately tied to humans (Aripa et al., 1999; Frey, 2001). I think of the huckleberry (*Vaccinium* sp.) fields and hazelnut (*Corylus* sp.) groves that regenerate after fires (Duchesne and Wetzel, 2004; Lecompte, 2015; Marks-Block et al., 2021), the ways aquatic species were sustainably harvested with an eye to the future (Sanchez, 2020; Morin et al., 2021; Efford et al., 2023; Sanchez et al., 2023) and the anthropogenic ecosystems created adjacent to past residential sites (Armstrong et al., 2022) and marvel at how people, plants, places, and animals were co-constituted through symbiotic relationships across millennia. How might kin studies reorient the questions that we ask of the past, but also our commitments to ethical and meaningful archaeological praxis?

I've personally found Atalay's (2012, 2020) and Kimmerer's (2013) braiding analogies to be the most useful frameworks in my own scholarship. Atalay's vision of community-based archaeology conducted with by and for Indigenous and local peoples continues to resonate across the field (Cook, 2020; Marek-Martinez, 2021; Marek-Martinez and Gonzalez, 2023; Montgomery and Fryer, 2023). For Atalay, community-based projects generate knowledge about past environments, landscapes, and human decisions by co-producing research objectives and questions that share or turn over power to communities in the field and analysis. These projects can only thrive when partners work together to collectively generate and combine or weave multivocal perspectives into rich, cohesive, and multifaceted pictures of the past that reflect community values and needs.

As a paleoethnobotanist interested in reconstructing stewardship practices, I'm particularly drawn to Kimmerer's (2013) conceptualizations of braiding knowledges (Figure 2). Kimmerer's writings encourage us to extend personhood to plants and animals. Through the analogy of braiding sweetgrass, she suggests we weave together Indigenous science and traditional ecological knowledges, western science, and the plant's own knowledge. It is only through all three, Kimmerer argues, that

we can conduct ethical and meaningful research that supports contemporary and past communities, in a manner which pays homage to the relational worldviews and kinship networks of our Indigenous colleagues.

Many western North American myths and origin stories also emphasize kinship within daily life, as well as the importance of other-than-human beings as actors within human lives (e.g., Aripa et al., 1999; Frey, 2001). As an example, Coeur d'Alene storyteller Aripa et al. (1999, p. 41) illustrate this point by expanding on Inland Northwest Indigenous concepts of kinship and personhood:

“Within this web of kinship relationships, the members share in an equality with one another... While a plant can be overtly distinguished from an animal and from a human by its particular physical form and attributes, each has ultimate equality with the others. Kinship, rather than class distinction, predominates. No one kinsperson should be subordinate to another. There are no hierarchical relationships... All phenomena—plant, animal, rock, and human—are inherently equal with the others.”

Do plants have their own forms of knowledge? Plants have their own agendas and agency, reacting to and engaging with various forces and objects within a wider, interconnected world (Van Der Veen, 2014). Plants exhibit a wonderful amount of phenotypic plasticity and they “act” under Darwinian evolutionary pressures. Plants also adapt because of a variety of human and non-human selection pressures. Recent research has also documented the ways plants communicate through chemical signals between root systems and transfer of nutrients through root systems and mycorrhizal networks (Barto et al., 2012; Novoplansky, 2019). They even emit high-frequency sounds when stressed (Khait et al., 2023). It is up to archaeologists to listen to these biological organisms and life-forms to incorporate their knowledges, agendas, and perspectives.

My work documenting the deep-time legacies of camas (*Camassia* sp.) stewardship would not have been possible without drawing on all three forms of knowledge. I've argued that previous investigations into plant management or stewardship practices in the Northwest failed because they used markers of selection visible among cereal grains, fruits, and squashes—edible annuals with short reproductive life cycles (Carney, 2021; Carney and Connolly, 2024). Camas, an edible bulbous perennial plant, takes 4–5 years to reach sexual maturity and flower. By looking at bulb size and markers of sexual maturity within archaeological bulbs, we've shown that past peoples primarily harvested mature camas plants. With little evidence for immature bulbs, we infer people left these smaller plants to continue to grow and likely harvested camas fields on a rotational basis. Our work further illustrated that past Northwest communities were not selecting camas for an increase or standardization in the edible portion of the plant (bulb size) or decrease in time to maturity, contrary to accepted archaeobotanical expectations (Denham et al., 2020).

Paleoethnobotanists and environmental archaeologists have long been fixated on seed size as a proxy for change in people-plant-environment relationships through time, likely as we prioritize Eurasian crops and research questions (Langlie et al., 2014, p. 1,608; Blake, 2015, p. 20). We have only recently turned our attention to tracing histories of stewardship or selection in fruit or geophyte



FIGURE 2
 Conceptualizing different forms of braided knowledges in the Pacific Northwest, by Megan McGuinness. Cultural keystone species such as salmonids, camas, and huckleberries underly many aspects of Northwest cultural practice with fundamental roles across many areas of social, economic, and ceremonial life (Garibaldi and Turner, 2004). Tracing the histories and relationships of these organisms and people in the past requires drawing on many lines of information, including oral histories, technology, and specialized analyses.

(bulbs, roots, and tubers) species (Denham et al., 2020; Fuller and Denham, 2022). It was only when I began to consider the “goals” of perennial plants, and learn some of the traditional knowledges and cultural values of Northwest peoples, that my colleagues and I were able to begin to understand what camas stewardship looked like for past peoples—where people selected for sustainable reliable plant populations rather than maximizing calories.

This concept of braiding or weaving perspectives should be familiar to archaeologists. To my knowledge, the concept of braiding was first embraced by Allison Wylie’s (189, 2015 work). Wylie (1989), building on a nautical metaphor, suggests archaeologists combine multiple lines of evidence and theory in “cables” to “tack” or zigzag forward, triangulating to generate conceptual and methodological insights. Recent metaphors for braiding emphasize similar benefits: working across multiple knowledge frameworks and lines of evidence offers new insights but also holds us accountable to our colleagues (Wylie, 2015; Gonzalez, 2024).

3 Slipping across species and epistemological boundaries

Given my positionality, I also aim to be very aware of my own role in working between perspectives. For decades, feminist philosophers have illustrated that it is impossible to escape one’s own position in scientific knowledge production (Haraway, 1988). As a non-Indigenous, settler-scholar, these perspectives are not mine. Like Cipolla (in Crellin et al., 2021, p. 178), I am not confident I can adopt a theoretical approach that allows me to completely escape my own worldview, but I do think it is possible to learn from others in reorienting and revitalizing my own scholarship and practices. Archaeologists can incorporate but do not have to directly employ Indigenous frameworks (Lyons and Supernant, 2020), and we absolutely must be careful that we do not co-opt those bodies of thought and continue to alienate or subjugate Indigenous peoples and ideas (Montgomery in Crellin et al., 2021, p. 73).

Stewardship encourages us to consider the ways people cared for their landscapes and kin in the past, but it also reminds us to be active participants in relationships with plants, animals, landscapes, and each other (Reo, 2019). This is why I’ve shifted my language to using the term as a way of acknowledging and foregrounding the ideas, actions, and long-term goals of Indigenous caretakers and sovereign nations. This is my own way of “standing with;” a way of softening and slipping across boundaries (Kimmerer, 2013; Tallbear, 2014).

I began this essay with Kimmerer’s comments on braiding and language as a form of creating relationships. She continues: “Doing science with awe and humility is a powerful act of reciprocity with the more-than-human world... It can be a path to kinship” (Kimmerer, 2013, p. 252). By braiding and listening to our Indigenous colleagues and other-than-human cohabitators, we can rebuild relationships between archaeologists and tribal nations and represent the past more fully (Gonzalez, 2024). My hope is that these braided, pluralistic perspectives serve as a starting point for fresh and productive ways of thinking through stewardship across people, plants, and places in the past. Though this framework may not work for everyone, I have found it helpful to come closer to

honoring the realities of the communities we work with (Lyons and Supernant, 2020).

Data availability statement

The datasets presented in this study can be found in online repositories. The names of the repository/repositories and accession number(s) can be found in the article/Supplementary material.

Author contributions

MC: Writing – original draft, Writing – review & editing.

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Conflict of interest

The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Supplementary material

The Supplementary Material for this article can be found online at: <https://www.frontiersin.org/articles/10.3389/fearc.2024.1433611/full#supplementary-material>

References

- Aripa, L., Yellowtail, T., and Elders, O. (1999). *Stories That Make the World: Oral Literature of the Indian Peoples of the Inland Northwest*. Norman: University of Oklahoma Press.
- Armstrong, C. G., and Anderson, E. N. (2020). "Ecologies of the heart: people, land, and heritage management in the Pacific Northwest," in *Archaeologies of the Heart*, eds. K. Supernant, J. E. Baxter, N. Lyons, and S. Atalay (New York, NY: Springer), 3.
- Armstrong, C. G., Earnshaw, J., and McAlvay, A. C. (2022). Coupled archaeological and ecological analyses reveal ancient cultivation and land use in Nuchatlaht (Nuu-chah-nulth) territories, Pacific Northwest. *J. Archaeol. Sci.* 143:105611. doi: 10.1016/j.jas.2022.105611
- Atalay, S. (2012). *Community-Based Archaeology: Research With, By, and for Indigenous and Local Communities*. Berkeley, CA: University of California Press.
- Atalay, S. (2020). Indigenous science for a world in crisis. *Publ. Archaeol.* 19, 37–52. doi: 10.1080/14655187.2020.1781492
- Atlas, W. I., Ban, N. C., Moore, J. W., Tuohy, A. M., Greening, S., Reid, A. J., et al. (2021). Indigenous systems of management for culturally and ecologically resilient Pacific salmon (*Oncorhynchus* spp.) fisheries. *Bioscience* 71, 186–204. doi: 10.1093/biosci/biaa144
- Ball, A. M. (2021). *Fisheries at a New Scale: The Contributions of Archaeological Fish Scales in Understanding Indigenous Fisheries in Wuikinuxv First Nation Territory and Beyond*. Victoria, BC: University of Victoria.
- Bartlett, C., Marshall, M., and Marshall, A. (2012). Two-Eyed Seeing and other lessons learned within a co-learning journey of bringing together indigenous and mainstream knowledges and ways of knowing. *J. Environ. Stud. Sci.* 2, 331–340. doi: 10.1007/s13412-012-0086-8
- Barto, E. K., Weidenhamer, J. D., Cipollini, D., and Rillig, M. C. (2012). Fungal superhighways: do common mycorrhizal networks enhance below ground communication? *Trends Plant Sci.* 17, 633–637. doi: 10.1016/j.tplants.2012.06.007
- Blake, M. (2015). *Maize for the Gods: Unearthing the 9,000-year History of Corn*. Oakland, CA: University of California Press.
- Cajete, G. (2000). *Native Science: Natural Laws of Interdependence*. Santa Fe: Clear Light Books.
- Carney, M. (2021). *Fleshing Out Scales of Precontact Bulb Stewardship and Consumption in the Pend Oreille Valley*. Washington State (Ph. D.), Washington State University, Washington, DC, United States.
- Carney, M., and Connolly, T. (2024). Scales of plant stewardship in the precontact Pacific Northwest, USA. *Holocene* 204:9596836241247307. doi: 10.1177/09596836241247307
- Childe, V. G. (1951). *Man Makes Himself*. New York, NY: The New American Library, Inc.
- Cook, K. (2020). "Re-coding collaborative archaeology: digital teaching and learning for a decolonised future," in *Communicating the Past in the Digital Age: Proceedings of the International Conference on Digital Methods in Teaching and Learning in Archaeology (12-13 October 2018)*, ed. S. Hageneuer (London: Ubiquity Press), 115–126. doi: 10.5334/bchi
- Crellin, R. J., Cipolla, C. N., Montgomery, L. M., Harris, O. J. T., and Moore, S. V. (2021). *Archaeological Theory in Dialogue: Situating Relationality, Ontology, Posthumanism, an Indigenous Paradigms*. Abingdon; New York, NY: Routledge.
- Cuthrell, R. Q. (2024). "Archaeology, historical ecology, and the revitalization of indigenous land stewardship," in *Inclusion, Transformation, and Humility in North American Archaeology: Essays and Other "Great Stuff" Inspired by Kent G. Lightfoot*, eds. S. Mallios, S. L. Gonzalez, M. Grone, K. L. N. Hull, and S. W. Peter Silliman (New York, NY: Bergahan Books), 15.
- Denham, T., Barton, H., Castillo, C., Crowther, A., Dotte-Sarout, E., Florin, S. A., et al. (2020). The domestication syndrome in vegetatively propagated field crops. *Ann. Bot.* 125, 581–597. doi: 10.1093/aob/mcz212
- Duchesne, L. C., and Wetzel, S. (2004). Effect of fire intensity and depth of burn on lowbush blueberry, *Vaccinium angustifolium*, and velvet leaf blueberry, *Vaccinium myrtilloides*, production in eastern Ontario. *Can. Field-Naturalist* 118, 195–200. doi: 10.22621/cfn.v118i2.913
- Efford, M., Taft, S., Morin, J., George, M., George, M., Cavers, H., et al. (2023). Archaeology demonstrates sustainable ancestral Coast Salish salmon stewardship over thousands of years. *PLoS ONE* 18:e0289797. doi: 10.1371/journal.pone.0289797
- Erlanson, J. M., and Braje, T. J. (2013). Archeology and the anthropocene. *Anthropocene* 4, 1–7. doi: 10.1016/j.ancene.2014.05.003

- Fowler, C. S., and Lepofsky, D. (2011). "Traditional resource and environmental management," in *Ethnobiology*, eds. E. N. Anderson, D. Pearsall, and E. Hunn (Hoboken, NJ: John Wiley & Sons), ch17.
- Frey, R. I. C. W. T. S. U. (2001). *Landscape Traveled by Coyote and Crane: the World of the Schitsu'umush (Coeur d'Alene Indians)*. Seattle, WA: The University of Washington Press.
- Fuller, D. Q., and Denham, T. (2022). "Coevolution in the arable battlefield: pathways to crop domestication, cultural practices, and parasitic domesticoids," in *The Convergent Evolution of Agriculture in Humans and Insects*, eds. T. R. Schultz, R. Gawne, and P. N. Peregrine (Cambridge, MA: The MIT Press), 17.
- Garibaldi, A., and Turner, N. (2004). Cultural keystone species: implications for ecological conservation and restoration. *Ecol. Soc.* 9:1.
- Gonzalez, S. L. (2024). "Telling survivance: connecting the past with the present in archaeologies of colonialism," in *Inclusion, Transformation, and Humility in North American Archaeology: Essays and Other "Great Stuff" Inspired by Kent G. Lightfoot*, eds. S. Mallios, S. L. Gonzalez, M. Grone, K. L. Hull, P. Nelson, and S. W. Silliman (New York, NY: Bergahan Books), 16.
- Haraway, D. (1988). Situated knowledges: the science question in feminism and the privilege of partial perspective. *Feminist Stud.* 14, 575–599. doi: 10.2307/3178066
- Hoagland, S. J., and Albert, S. (2023). *Wildlife Stewardship on Tribal Lands: Our Place Is in Our Soul*. Baltimore, MD: JHU Press.
- Johnson, J. T., Howitt, R., Cajete, G., Berkes, F., Louis, R. P., and Kliskey, A. (2015). Weaving indigenous and sustainability sciences to diversify our methods. *Sustainabil. Sci.* 11, 1–11. doi: 10.1007/s11625-015-0349-x
- Kanngieser, A., and Todd, Z. O. E. (2020). 3. From environmental case study to environmental kin study. *Hist. Theor.* 59, 385–393. doi: 10.1111/hith.12166
- Khait, I., Lewin-Epstein, O., Sharon, R., Saban, K., Goldstein, R., Anikster, Y., et al. (2023). Sounds emitted by plants under stress are airborne and informative. *Cell* 186, 1328–1336 e10. doi: 10.1016/j.cell.2023.03.009
- Kimmerer, R. (2013). *Braiding Sweetgrass: Indigenous Wisdom, Scientific Knowledge and the Teachings of Plants*. Minneapolis, MN: Milkweed Editions.
- Krawec, P. (2022). *Becoming Kin: An Indigenous Call to Unforgetting the Past and Reimagining Our Future*. Minneapolis, MN: Broadleaf Books.
- Langlie, B. S., Mueller, N. G., Spengler, R. N., and Fritz, G. J. (2014). Agricultural origins from the ground up: archaeological approaches to plant domestication. *Am. J. Bot.* 101, 1601–1617. doi: 10.3732/ajb.1400145
- Lecompte, J. K. (2015). *Restoring Coast Salish Foods and Landscapes: A More-than-Human Politics of Place, History and Becoming* (Ph.D.). University of Washington, Washington, DC, United States.
- Lelièvre, M. A., Martin, C., Abram, A., and Moran, M. (2020). Bridging indigenous studies and archaeology through relationality? Collaborative research on the Chignecto peninsula, Mi'kma'ki. *Am. Indian Quart.* 44, 171–195. doi: 10.5250/amerindiquar.44.2.0171
- Lertzman, K. (2009). The paradigm of management, management systems, and resource stewardship. *J. Ethnobiol.* 29, 339–358. doi: 10.2993/0278-0771-29.2.339
- Lightfoot, K., Cuthrell, R. Q., Hylkema, M. G., Lopez, V., Gifford-Gonzalez, D., Jewett, R. A., et al. (2021). The eco-archaeological investigation of Indigenous stewardship practices on the Santa Cruz coast. *J. Calif. Great Basin Anthropol.* 41, 187–205.
- Lyons, N., and Supernant, K. (2020). "Introduction to an archaeology of the heart," in *Archaeologies of the Heart*, eds. K. Supernant, J. E. Baxter, N. Lyons, and S. Atalay (Cham: Springer), 5.
- Marek-Martinez, O. (2021). "Indigenous archaeological approaches and the refusal of colonialism in archaeology," in *The Routledge Handbook of the Archaeology of Indigenous-Colonial Interaction in the Americas*, eds. L. M. Panich and S. L. Gonzalez (London: Routledge), 35.
- Marek-Martinez, O., and Gonzalez, S. L. (2023). Chapter 4. Good medicine: prescriptions for indigenous archaeological practice. *Archaeolo. Pap. Am. Anthropol. Assoc.* 34, 47–57. doi: 10.1111/apaa.12171
- Marks-Block, T., Lake, F. K., Bliege Bird, R., and Curran, L. M. (2021). Revitalized Karuk and Yurok cultural burning to enhance California hazelnut for basketweaving in northwestern California, USA. *Fire Ecol.* 17:6. doi: 10.1186/s42408-021-00092-6
- Mcalvay, A. C., Armstrong, C. G., Baker, J., Elk, L. B., Bosco, S., Hanazaki, N., et al. (2021). Ethnobiology phase VI: decolonizing institutions, projects, and scholarship. *J. Ethnobiol.* 41, 170–191. doi: 10.2993/0278-0771-41.2.170
- Montgomery, L. M., and Fryer, T. C. (2023). The future of archaeology is (still) community collaboration. *Antiquity* 97, 795–809. doi: 10.15184/auq.2023.98
- Morin, J., Royle, T. C. A., Zhang, H., Speller, C., Alcaide, M., Morin, R., et al. (2021). Indigenous sex-selective salmon harvesting demonstrates pre-contact marine resource management in Burrard Inlet, British Columbia, Canada. *Sci. Rep.* 11:21160. doi: 10.1038/s41598-021-00154-4
- Newsom, B., Soctomah, D., Blackwood, E., and Brough, J. (2023). Indigenous archaeologies, shell heaps, and climate change. *Adv. Archaeol. Pract.* 11, 302–313. doi: 10.1017/aap.2023.14
- Novoplansky, A. (2019). What plant roots know? *Semin. Cell Dev. Biol.* 92, 126–133. doi: 10.1016/j.semcdb.2019.03.009
- Reid, A. J., Eckert, L. E., Lane, J. F., Young, N., Hinch, S. G., Darimont, C. T., et al. (2020). "Two-eyed seeing": an indigenous framework to transform fisheries research and management. *Fish. Fisher.* 22, 243–261. doi: 10.1111/faf.12516
- Reo, N. J. (2019). Inawendiwin and relational accountability in anishnaabeg studies: the crux of the biscuit. *J. Ethnobiol.* 39:65. doi: 10.2993/0278-0771-39.1.65
- Rindos, D. (1984). *The Origins of Agriculture: an Evolutionary Perspective*. Cambridge, MA: Academic Press.
- Sanchez, G. M. (2020). Indigenous stewardship of marine and estuarine fisheries? Reconstructing the ancient size of Pacific herring through linear regression models. *J. Archaeol. Sci.* 29:102061. doi: 10.1016/j.jasrep.2019.102061
- Sanchez, G. M., Grone, M., and Apodaca, A. (2023). Indigenous stewardship of coastal resources in native California. *Front. Earth Sci.* 11:1064197. doi: 10.3389/feart.2023.1064197
- Smith, B. D. (2001). Low-level food production. *J. Archaeol. Res.* 9, 1–43. doi: 10.1023/A:1009436110049
- Stephens, L., Fuller, D., Boivin, N., Rick, T., Gauthier, N., Kay, A., et al. (2019). Archaeological assessment reveals Earth's early transformation through land use. *Science* 365, 897–902. doi: 10.1126/science.aax1192
- Tallbear, K. (2014). Standing with and speaking as faith: a feminist-indigenous approach to inquiry. *J. Res. Pract.* 10, 1–7.
- Topa, W., and Narvaez, D. (2022). *Restoring the Kinship Worldview: Indigenous Voices Introduce 28 Precepts for Rebalancing Life on Planet Earth*. Hhichin, Unceded Ohlone Land: North Atlantic Books.
- Van Der Veen, M. (2014). The materiality of plants: plant-people entanglements. *World Archaeol.* 46, 799–812. doi: 10.1080/00438243.2014.953710
- Watts, V. (2013). Indigenous place-thought and agency amongst humans and non humans (First Woman and Sky Woman go on a European world tour!). *Decolonization* 2, 20–34.
- Werdell, T. J., Matarrita-Cascante, D., and Lucero, J. E. (2024). State of Traditional Ecological Knowledge in the wildlife management profession. *J. Wildlife Manag.* 2024:22579. doi: 10.1002/jwmg.22579
- Wilson, S. (2008). *Research Is Ceremony: Indigenous Research Methods*. Black Point, NS: Fernwood Publishing.
- Witze, A. (2024). Geologists reject the anthropocene as Earth's new epoch - after 15 years of debate. *Nature* 2024:8. doi: 10.1038/d41586-024-00675-8
- Wolverton, S., Figueroa, R. M., and Armstrong, C. G. (2023). Integrating historical ecology and environmental justice. *J. Ethnobiol.* 43, 57–68. doi: 10.1177/02780771231162196
- Wylie, A. (1989). Archaeological cables and tacking: the implications of practice for Bernstein's "Options beyond objectivism and relativism." *Philos. Soc. Sci.* 19, 1–18. doi: 10.1177/004839318901900101
- Wylie, A. (2015). "A plurality of pluralisms: collaborative practice in archaeology," in *Objectivity in Science: New Perspectives from Science and Technology Studies*, eds. F. Padovani, A. Richardson, and J. Y. Tsou (New York, NY: Springer), 10.
- Zeder, M. A. (2015). Core questions in domestication research. *Proc. Natl. Acad. Sci. U. S. A.* 112, 3191–3198. doi: 10.1073/pnas.1501711112