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Perspectives

Special Issue: Historical Ecology & Cultural Keystone Places

Cultural Keystone Places and Historical Ecology: Conceptual Benefits and Ethical Impacts

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Abstract The papers in this special issue employ cultural keystone places (CKPs) as a concept to engage scholarship about land. The CKP concept is used in contrast to Eurocentric understandings of place and instead acknowledges the deeper meanings of place to local communities. Research employing the concept is increasingly common through the lens of historical ecology, an integrative research paradigm in ethnobiology and archaeology. In this introduction we articulate what the CKP concept has to offer ethnobiology and archaeology, particularly in terms or practices of ethical inquiry about research, which we term ethical sufficiency. Addressing ethical sufficiency of research also requires addressing the limitations of and challenges to disciplines and academic communities steeped in settler-colonial histories.

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This special issue of *Ethnobiology Letters* focuses on cultural keystone places (CKPs) from the perspective of historical ecology, which is a social science research paradigm that integrates multiple forms of knowledge to study human-environmental interactions (Balée 2013; Crumley 1994, 2021; see summary in Armstrong and Veteto 2015). Cuerrier et al. (2015:432) define a CKP as a

> given site or location with high cultural salience for one or more groups of people and which plays, or has played in the past, an exceptional role in a people's cultural identity, as reflected in their day to day living, food production and other resource-based activities, land and resource management, language, stories, history, and social and ceremonial practices.

The use of the CKP concept has gained traction in the ethnobiological literature over the last decade, particularly in studies within historical ecology that study human-environmental interactions across landscapes. There are several reasons for this; one way to conceive of a CKP, for example, is as a landscape that has deep meaning to one or multiple groups' identities, imbued over centuries or millennia, that has implications for people's heritage and prosperity (or future well-being [Laluk et al. 2022; Supernant et al. 2020]). For many social scientists, the CKP concept can facilitate a shift in logic from analytical considerations of space, where boundaries and locations are merely descriptive, to a deeper understanding of places (e.g., Huaman and Swentzell 2021; Watts 2013). Although we label CKP as a concept in this introduction, we acknowledge that actual CKPs are much more than abstract concepts and are frequently articulated outside of academic framings such as historical ecology. Within historical ecology, however, the CKP concept offers an important structure for how to think in holistic ways about land and people.

Historical ecology, when applied through the conceptual framework of complex adaptive systems (Davis 2023; Sinclair et al. 2018; Wolverton et al. 2023), gives ethnobiology a suite of integrated

concepts for the study of human-environmental interactions (but see Balée and Erickson 2006; Patterson 1994). Consider four properties of complex adaptive systems (CAS) as portrayed by Sinclair et al. (2018:25–26) in Table 1. These concepts ground ethnobiologists into expectations that human-environmental interactions are entangled, blurry in terms of boundaries in space and time, and contingent and evolving—in a word, complex. Because there are emergent cultural and environmental properties that are connected across time and space and that vary by context, the theoretical framing provided by CAS meshes well with some dimensions and ethical concepts framed in environmental justice studies (EJS) (Figueroa 2015; Wolverton et al. 2023).

In the version of EJS we employ, to move from injustice to justice propels recognition of harms, a transformative reconciliation process of potentially unknown extent, and (one hopes) eventual restoration of communal well-being and healed relationships among communities. Limitations of this type of EJS approach include that recognition and reconciliation are Western scholarly constructs (Coulthard 2014), which do not go far enough and should not replace Indigenous forms of justice (Whyte 2020). At their worst, these concepts have been appropriated for political gain and retooled as abusive strategies that cause additional harm by centering narratives on settler-colonial histories, traditions, and norms. During the last decade in Canada, for instance, reconciliation came to symbolize efforts that privilege the stability of the settler state, leading Indigenous activists, scholars, and community members and allies to declare that "reconciliation is dead" and that it cannot represent serious efforts to propel Indigenous sovereignty and decolonization (see Cherry 2025). Thus, what earlier EJS scholars intended to be an iterative moral reckoning process now is recognized as the "r-word" signifying weak efforts to decolonize that instead stabilize domination of settler colonialism. Political failures and justifiable activist resistance to reconciliation have, thus, soiled the potential for using the concept to address ethical interrogation of scholarly norms and traditions. What it actually means *to reconcile opposing moral perspectives*, however, must be brought back into focus because the need for such interrogation and reckoning persists (see Figueroa 2015:138–145). Regarding archaeological fieldwork in the American Southwest at ancestral Pueblo sites, for example, Figueroa (2015:140) asserts that from

> an environmental justice perspective, the Pueblo moral compass is being inverted, and the playing field for the decision making process regarding these sites is not level, since the digs continue with higher regard given to the moral compass pointing to the interests of archaeological knowledge.

The playing field remains unlevel (Wolverton et al. 2021), and unexamined higher regard for archaeological science (and other fields) should be questioned and countermanded.

Ethnobiology and archaeology, as social sciences, in our view, should aggressively turn toward ethical inquiry because the fields remain steeped in Western academic traditions of research that feed into and are fed by systems of meritocracy as well as uncontested norms of unfettered curiosity. Our view is that justice work can seek to correct problematic academic traditions *and* open or vacate conceptual spaces for Indigenous scholarship. The ethnobiologist can expect diverse identities and values between and among communities with disproportionate power and differing experiences of injustice because human-environmental interactions are connected, emergent, historical, and contextual (e.g., Hua et al. 2018). Historical ecology provides a framework for integrating many forms of scholarship; the papers in this special issue provide powerful examples.

An important contribution of CKP research within historical ecology is that it expands the conceptual toolkit of the ethnobiologist or archaeologist. One way to describe this expansion is to think in terms of what evolutionary biologist Richard Lewontin (1974) termed theoretical and empirical sufficiency (see Dunnell 1982). In Lewontin's terms, research that provides concepts that improve clarity of understanding increases theoretical sufficiency. Those approaches that increase clarity of observation increase empirical sufficiency. In our view, research through the conceptual frame of CKP increases clarity of understanding. Acknowledgement of CKPs extends how social scientists may conceive of land beyond geographically bounded units of space serving utilitarian functions related to property, tourism, extraction, and other products of settler-colonial history. Although not holding precisely the same meaning as Lewontin's empirical sufficiency, the CKP concept brings into focus Indigenous sovereignty and relationships to land that are not as clearly understood or acknowledged in many forms of

Table 1 Four properties of complex systems from Sinclair et al. (2018; after Wolverton et al. 2023: Table 2).

Concept	Description by Sinclair et al. (2018)
Connectivity	"There are many interacting agents, such as people, animals, plants, or molecules. The interactions can result from close proximity, where the agents form groups, or be based on the exchange of information or other commodities. Often then create different kinds of network [s]…" (Sinclair et al. 2018:25).
History	"Interactions are influenced by path dependency, memory, or feedback. Path dependency means that past events amplify through positive feedback to strongly affect interactions today… Memory may also affect interactions… Feedbacks are chains of events that influence themselves, either positively or negatively… All the interaction modifiers will have strong effects on the dynamics of a system… The existence of feedback loops also means that agents can adapt their strategies and behaviours, based on history or earlier experiences, and that systems can change over time" (Sinclair et al. 2018:25–26).
Context	"A system is typically open, meaning that it can be influenced by its larger context. This may seem trivial since only truly closed systems exist in the laboratory, but it is important because most of the theory describing system dynamics in physics and mathematics is based on closed systems… Real-world systems, however, have more complex behaviours than theoretical [closed] systems" (Sinclair et al. 2018:26).
Emergence	"Systems often show surprising emergent phenomena. Because of feedback loops and the openness of systems, they are seldom or never in equilibrium, i.e., they are not static or stable. As agents respond to one another or to changes in their environment, almost any pattern can appear… Such emergent phenomena seem to arise spontaneously since they occur without any central controller, but as a consequence of all the interactions and adjustments of the system (Sinclair et al. 2018:26)

social science or policy (see Watts 2013), which we believe increases clarity of observation.

Use of the CKP concept brings ethnobiology and archaeology into what might be considered a third form of sufficiency that we also feel is represented by the papers in this special issue, a focus on inquiring about the ethical impact of research. "Ethical sufficiency" under this logic is a condition or practice of inquiring about the ethical implications of research before, during, and after projects. A limitation of employing the word "sufficiency" here is that it can easily be misunderstood as a dichotomous variable, such that researchers dub their research as ethically sufficient or not. That dichotomy is not what we intend. Rather, what we mean is that to be ethically sufficient, one must be engaged in a continuous process of learning about the impacts of research. Despite a possible alignment with Lewontin's use of the word sufficiency, it may be desirable to simply describe this concept as an iterative process of engaging in ethical inquiry. Our point is that the CKP concept provides theoretical clarity, extends perspectives on land relationships, and thereby challenges researchers to engage in a deeper process of ethical inquiry.

The papers in this special issue exemplify how CKP research enhances our understanding of place. Arinyo-i-Prats et al. (2025), for instance, move beyond consideration of place more deeply into cultural practices. Dimdiigibuu and Armstrong (2025) illustrate how understanding of CKPs offers a different way for archaeologists and ethnobiologists to discuss places that laterally enfold Indigenous perspectives, sovereignty, and ontologies in their defense of land stewardship practices, concepts of legality, and environmental heritage in Gitxsan Territories of British Columbia. CKPs, thus, can be contrasted to recognizable concepts of place prioritized in Eurocentric contexts such as tourism destinations, archaeological sites, and areas for resource extraction. Such meaning is similarly grounded by Forste et al. (2025) through deep temporal connections of past Islamic cultural and food heritage and contemporary environmental and cultural conceptions of place in Menorca, Spain. Wolverton et al. (2025) highlight that the archaeological record of presence and absence of cultural materials evolves over time and can be understood more impactfully through the lens of historical ecology and CKPs, which is of particular importance

for engaging legal or regulatory spaces. The paper by Sachs et al. (2025), which centers Quw'utsun perspectives in ecological restoration, exemplifies working beyond restoration ecology into a process of land stewardship through a study design that focuses on the cultural resurgence of Indigenous perspectives. Such integration should become expected and rewarded in academic contexts.

To summarize, we hold that understanding of CKPs makes multiple non-western forms of knowledge something that ethnobiologists and archaeologists must acknowledge holds a deeper reality than might be sensed through analysis, quantification, or conventional social science study; we view this acknowledgement as akin to Lewontin's empirical sufficiency. We have argued elsewhere (Wolverton et al. 2023) that historical ecology and EJS provide a theoretical framework by profiling concepts such as collective continuance, which concerns the future well-being of peoples through environmental heritage (see also Harjo 2019; Meskell 2010), which we think is akin to Lewontin's theoretical sufficiency.

To reiterate, a limitation of our use of the term "ethical sufficiency" is that it could be used in a dualistic manner that we do not intend. For instance, a scholar or research team might simply use a checklist from a code of ethics, use their own judgement to determine potential harms and benefits, and conclude "our work is done, we checked the boxes, and our work is ethically sufficient (i.e., adequate), let's proceed." Ethical sufficiency in our introduction of the term, however, does not represent a product or an outcome; one could not determine that, say, one or another research project attains the state of being ethically sufficient. Rather, ethical sufficiency, as we frame it, represents an iterative and incremental process that seeks normative change. If a scholar or research team is not routinely evaluating the impacts of their research before, during, and after projects, the process is ethically insufficient. In contrast, if a scholar or team routinely vets their research design against ethical standards, including locally relevant ones, shares research plans and products widely, invites and welcomes consultation and criticism at any stage (before, during, or after), and has clear stopping rules for pausing or terminating a project, they are engaging in an iterative process of ethical inquiry. That is, they are questioning the ethical impact of their work as routine practice. One thing we like about the concept of ethical sufficiency is that it gives ethical inquiry equal standing alongside theoretical and empirical sufficiency; ethical inquiry is thus not an addendum, or external to, the research process, but it is integral to it.

A limitation of our position in this introduction to this special issue is our grounding in science and social science from a Western perspective. Lewontin's (1974) framing of theoretical and empirical sufficiency represents that colonial tradition. Our framing cannot thus replace, diminish, or counter work by Indigenous scholars (e.g., Huaman and Swentzell 2021; Simpson 2014; Watts 2013), those who contested Western approaches to reconciliation prior to its political downfall (Coulthard 2014; Coulthard and Simpson 2016) or those who frame Indigenous forms of environmental justice and empowerment (e.g., Simpson 2017; Whyte 2020). A process of ethical inquiry is important because many archaeologists and ethnobiologists are entrenched in academic settings that are steeped in settler-colonial histories, traditions, and norms. One way to challenge our paradigms is to develop conceptual frameworks within academic traditions that enable and encourage researchers in those traditions to reflect on the impacts of their work. We hold that each paper in this special issue engages in that process.

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