



Debate Article

Routes to relevance in archaeology

Kathleen D. Morrison*

* Department of Anthropology, University of Pennsylvania, USA (✉ kathy.morrison@sas.upenn.edu)

I am in broad agreement with Smith (2021) that archaeology has potential relevance to a range of contemporary issues that is, for the most part, unrealised. I draw here on my experience linking the archaeology of pre-colonial irrigation in southern India to colonial and contemporary debates (Morrison 2010), work on the historical marginalisation of lower-status groups (Morrison 2018a, *in press*), and the LandCover6k project (Gaillard *et al.* 2018). LandCover6k exemplifies many of the qualities that Smith (2021) promotes, and our experience as a transdisciplinary research group using archaeology and pollen data to improve land-cover change and climate models can be used to amplify some of his points and to challenge others.

Archaeologists have long known that humans have had variable, but often significant, impacts on regional vegetation—activities whose ‘land-cover footprint’ is mediated primarily by land use. While anthropogenic land-cover change is important for informing climate models, existing efforts to model these changes are deeply problematic, with competing approaches differing significantly (Gaillard *et al.* 2010). None of these models is based on direct evidence of past vegetation or land use, despite the existence of extensive archives of palaeoenvironmental, archaeological and historical data. PAGES LandCover6k is an international working group dedicated to data-based reconstruction of both land cover (using pollen data) and land use (using archaeological and historical data) in an effort to deploy the power of these historical archives and contribute directly to the improvement of climate models (Gaillard & LandCover6k Interim Steering Group 2015; Harrison *et al.* 2020). Participants include modellers, palaeoecologists, geographers and archaeologists.

Premises

Smith (2021) notes correctly that archaeological data have often been represented by others (e.g. Diamond 2011), or in works that appear to be based on archaeology (e.g. Ellis *et al.* 2021), but actually are not. Archaeologists do engage with the public, but dominant narratives of discovery and origins reduce the impact of our work. Linking archaeological research to policy is an emerging arena, especially outside the world of heritage and cultural resources. Recent research on fire history and Indigenous fire management in western North America provides an excellent example of the potential for such linkage; here, both collaborations with Indigenous forest stewards and data from archaeology and palaeoecology combine to help guide policy (Roos 2020).

Reasons

Why does archaeology not have a seat at the ‘big challenge’ table? Smith (2021) gives three reasons. First, we do not understand what is relevant to other fields. During a LandCover6k

workshop involving climate modellers, archaeologists in the room repeatedly faced the chasm of disciplinary differences: from relatively simple issues of scale—global modellers are impatient with local-scale patterns, while archaeologists tend to resist generalisation—to more fundamental differences in worldview. For this workshop, it was correct, as Smith asserts, that to work together we needed to understand relevance in their terms and respond to it. In this vein, we are currently working on some numerical data related to land use that the modellers requested. Our social science understandings, however, are also germane and have allowed us to question *their* approaches. Anthropogenic land-cover change models assume, among other things, constant levels of consumption over time, something that even a cursory acquaintance with historical evidence reveals as problematic. Our data are critical, but so also are our broader understandings.

The second reason, Smith argues, that we have failed to engage with big challenges is because we are not scientific. It is time to retire this worn-out trope. I have spent a great deal of time over the last six years explaining to other scholars how archaeologists reach conclusions. Questions such as ‘was there agriculture here?’ or ‘how important was grazing at that time?’ require a constellation of data sources (e.g. artefacts, structures, plant and animal remains, survey data, dates), a degree of definitional precision and concern for data quality and coverage. Some of the most relevant questions for other fields are those that require the full range of our inferential toolkit, including humanist/post-humanist insights. The modellers we work with are not particularly concerned with *how* we decide to answer these questions and whether or not we are properly ‘scientific’ in our approach; they rely on peer review to establish credibility. Smith (2021: 1064) argues that “knowledge must be credible, salient and legitimate”. While this is undeniable, to equate it with ‘science’ is a red herring.

Finally, Smith notes that archaeology often reaches a limited audience. This is probably true, but equally concerning to me are the modes of public representation that exoticise archaeology, and problems of communication *within* our discipline. Unlike our colleagues in the palaeosciences (e.g. Williams *et al.* 2018), we have little tradition of sharing data and often cannot even begin to do so until we agree on basic categories. Scientific names and dates are easily commensurable, but more ‘mid-level’ understandings are conceptualised in highly diverse ways. Preparing a global-scale database of land-use categories and variables for specific time periods has required that we first develop a common vocabulary (Morrison *et al.* 2021), that we share data and that we look beyond our familiar regions.

Solutions

Relevance, Smith (2021) argues, requires transdisciplinary, collaborative research. This is precisely what we are doing. I note, however, that this effort builds on decades of more traditional archaeological research, such as surveys, excavations and long hours in the laboratory. These, along with the broader cultural and social understandings we gain from the humanities and social sciences, are foundational. Smith concludes that we need to generate quantitative results that can be used by other disciplines. This is indeed what our Earth-system modeller colleagues demand, and is what they will get. In the process of engagement, however, we have come to understand that our social and cultural insights are at least as important as the numbers we can generate. I am committed to improving anthropogenic

land-cover change models, but I also acknowledge that they are fundamentally flawed representations of human behaviour and thus of anthropogenic environmental change (Morrison 2018b).

Relevance in my South Asian work is similarly more capacious than science and numbers. The spiritual significance of pre-colonial reservoirs in southern India has policy relevance for development projects in that region today, while ethnographic misrecognition of forest dwellers as timeless primitives, along with archaeological reassessments of that view, have relevance for the struggles of their descendants today. As archaeologists work to address the challenges of the present and future, we would do well to leave the science wars behind us and get on with the job.

References

- DIAMOND, J. 2011. *Collapse: how societies choose to fail or succeed*. New York: Penguin.
- ELLIS, E.C. *et al.* 2021. People have shaped most of terrestrial nature for at least 12 000 years. *Proceedings of the National Academy of Sciences of the USA* 118: e2023483118. <https://doi.org/10.1073/pnas.2023483118>
- GAILLARD, M.-J. & LandCover6k Interim Steering Group. 2015. LandCover6k: global anthropogenic land-cover change and its role in past climate. *PAGES Magazine* 23: 38–39. <https://doi.org/10.22498/pages.23.1.38>
- GAILLARD, M.-J. *et al.* 2010. Holocene land-cover reconstructions for studies on land cover-climate feedbacks. *Climate of the Past* 6: 483–99. <https://doi.org/10.5194/cp-6-483-2010>
- GAILLARD, M.-J., K.D. MORRISON, N. WHITEHOUSE & M. MADELLA. 2018. Past land-use and land-cover change: the challenge of quantification at the subcontinental to global scales. *Past Global Changes Magazine* 26: 3. <https://doi.org/10.22498/pages.26.1.3>
- HARRISON, S.P. *et al.* 2020. Development and testing of scenarios for implementing Holocene LULC in Earth system model experiments. *Geoscientific Model Development* 13: 1545–81. <https://doi.org/10.5194/gmd-13-805-2020>
- MORRISON, K.D. 2010. Dharmic projects, imperial reservoirs, and new temples of India: an historical perspective on dams in India. *Conservation and Society* 8: 182–95. <https://doi.org/10.4103/0972-4923.73807>
- 2018a. Christians and spices: hidden foundations and misrecognitions in European colonial expansion to South Asia, in N. Boivin & M. Frachetti (ed.) *Globalization and the people without history*: 283–307. Cambridge: Cambridge University Press.
- 2018b. Provincializing the Anthropocene: Eurocentrism in the Earth system, in G. Cederlöf & M. Rangarajan (ed.) *At nature's edge: the global present and long-term history*: 1–18. Oxford: Oxford University Press.
- In press. *Forests, foragers, and empires: socio-natural histories of southern India*. Delhi: Primus.
- MORRISON K.D. *et al.* 2021. Mapping past human land use using archaeological data: a new classification for global land use synthesis and data harmonization. *PLoS ONE* 16: e0246662. <https://doi.org/10.1371/journal.pone.0246662>
- ROOS, C.I. 2020. Scale in the study of Indigenous burning. *Nature Sustainability* 3: 898–99. <https://doi.org/10.1038/s41893-020-0579-5>
- SMITH, M.E. 2021. Why archaeology's relevance to global challenges has not been recognised. *Antiquity* 95: 1061–69. <https://doi.org/10.15184/aqy.2021.42>
- WILLIAMS, J.W. *et al.* 2018. The Neotoma Paleocology Database: a multi-proxy, international community-curated data resource. *Quaternary Research* 89: 156–77. <https://doi.org/10.1017/qua.2017.105>