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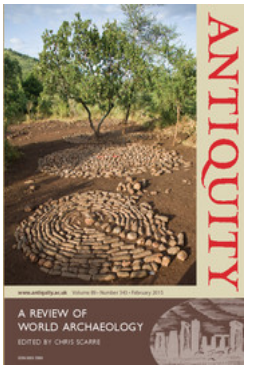

Gyles Iannone (ed.). *The great Maya droughts in cultural context: case studies in resilience and vulnerability*. xx +466 pages, 72 b&w illustrations, 13 tables. 2014. Boulder: University Press of Colorado; 978-1-60732-279-5 hardback \$75.

Lisa J. Lucero

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GYLES IANNONE (ed.). *The great Maya droughts in cultural context: case studies in resilience and vulnerability*. xx+466 pages, 72 b&w illustrations, 13 tables. 2014. Boulder: University Press of Colorado; 978-1-60732-279-5 hardback $75.

I begin with the end of the story. No matter the causes—and there is never just one—by AD 900

Classic Maya kings disappeared from the southern Maya lowlands. Farmers, however, adapted; they lived as smaller communities in and around centres or in the hinterlands. Many commoners eventually had to migrate out of the interior southern lowlands, searching for more reliable sources of water. The book under review here tells the story of how this happened using case studies from all over the southern lowlands. This excellent 15-chapter edited volume is not just for Mayanists, because it shows that the impacts of a changing climate are multidimensional and complex. You will not find environmental determinism here, but trajectories of how people, groups of people and societies respond to climate change—if climate change indeed played a role in all instances. The case studies show again and again that even when large-scale climatic events occurred, impacts and responses were localised and varied, which has been discussed previously, but with less evidence for climate change on hand (e.g. Lucero 2006).

The first few chapters present succinct primers on climate change in the Maya area, adaptive cycle theory, resilience and other concepts, and they also highlight the need to define the term 'collapse', or even if we should continue using it at all. A main goal of this edited volume is to show that 'megadroughts' were not the main reason for all Classic Maya kings losing power. In fact, in several instances they lost power before the several multi-year droughts struck, beginning in the late AD 700s, as was the case in the Petexbatún area and parts of the western lowlands. In the former case, the causes had to do with changing trade routes, and in the latter were due to the increasing difficulty of politically reaching an increasingly dispersed subject populace. Not all authors agree on various topics, including, for example, the scale and extent of a managed forest landscape and the degree of Classic-period deforestation and its role in the Terminal Classic political dissolution and urban diaspora. Each camp argues their point well, which goes to show how challenging addressing past environmental issues can be. That said, the studies present new data that are slowly adding to the understanding of political collapse and urban diaspora.

The story is different in the northern lowlands, yet archaeologists and others continue to conflate these two disparate areas, as do several authors in this book. The northern lowlands are drier and have thinner soils and over 6000 *cenotes* (steep-sided sinkholes fed by groundwater); in the southern lowlands, while there are deeper pockets of fertile land, the water table is much lower and, as a consequence, there exist relatively few *cenotes*. This fact may have been the major reason the Maya did not abandon centres in the north to the extent that they did in the interior zones of the south; water tables drop during drought, but do not necessarily desiccate. These factors played a major role in their different political and settlement trajectories, and are the major reason scholars need to cease conflating them. Another issue, which many of the authors deal with quite nicely, concerns the conflation of occupation and political histories. In fact, most chapters demonstrate that kings disappeared relatively quickly, whereas centres and their hinterlands were abandoned at a much slower pace.

In two chapters, novel methods are presented to assess climate change using faunal remains via oxygen isotopic analysis and the distribution of water-related species. While it is too soon yet to evaluate how useful these methods will be, given that archaeologists continue to fine-tune them, they are promising and innovative climate proxies. Most recently, and after this book was published, Frappier and colleagues (2014) have presented the results of isotopic analysis of a speleothem from a northern Yucatán cave, where they have identified severe hurricane events that not only would have destroyed crops, homes and lives, but also subsequently led to massive wildfires. More interesting for purposes here is that prolonged droughts can mask hurricanes and other major rainfall events in speleothems. As a result, periods without evidence for hurricane activity can be an indirect measure for extreme droughts, especially as deluge events occur on average every three to five years. Nor would the destructive hurricane events end a drought

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period; floods recede, leaving behind destruction and eventual desiccation—and wildfires. The point is that climate change can and does set in motion natural and cultural events in both the short and long term.

It is appropriate to end this review with a discussion of the final chapter by D. Webster, who makes the main point implied throughout this volume—that climate change between *c.* AD 750 and 900 impacted the southern lowlands differently than earlier periods of climate instability because of its impact on an inherited, modified landscape, onto which was mapped millennia of agriculture, forest use and population growth. More importantly, he asks the question I have always had: why didn't kings or any complex political system re-appear in the southern lowlands? We disagree on the answer. Webster posits that the land was too degraded. Alternatively, I think that the several prolonged droughts played a major role in the interior zone of the southern lowlands, in addition to some areas being degraded. That said, if people were adjusting quite well elsewhere, why would they return in droves? And the area was never vacant, as many contributors highlight. A topic Webster is the only one to address is the population question; as he has argued before, population estimates are much too high, a stance with which I wholeheartedly agree.

Understanding how weather, climate change and other factors impact southern lowland political and occupation histories is complex and multidimensional. Each centre has its own history. In the end though, the inflexible political systems did not adapt, whereas subjects and farmers did.

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LISA J. LUCERO
Department of Anthropology, University of Illinois at Urbana-Champaign, USA
(Email: ljlucero@illinois.edu)

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