

Food Production in Native North America: An Archaeological Perspective. By Kristen J. Gremillion. 2018. Society for American Archaeology, The SAA Press, Washington, DC. 194 pp.

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The last sentence of Kristen J. Gremillion's *Food Production in Native North America: An Archeological Perspective* reads, "Movements are afoot to bring diversity and sustainability back to modern agriculture, and perhaps will lead us to a greater appreciation of ancient agricultural traditions like those of Native America" (2018:144). As an applied ethnobotanist, agroecologist, permaculturalist, and activist engaged in such movements (Campbell and Veteto 2015; Lockyer and Veteto 2013; Veteto and Lockyer 2008), researching Native food production strategies for potential incorporation into contemporary alternative agricultural and foraging sustainable livelihoods was exactly why I was interested in reading the book. I was not disappointed, as Gremillion's work proved to be a useful summary and overview accessible to non-archaeological specialists.

In the introduction and first chapter, Gremillion lays out her theoretical framework which "does not argue for a single dominant causal factor or argue for identical historical pathways to food production: instead, it looks at those pathways as historical enactments of cultural, evolutionary, and ecological processes that affect human societies worldwide" (2018:x). I think this is a wise approach as most scholars at this point realize that nearly every phenomenon we study is mesmerizingly complex and unlikely to be explained by old-fashioned grand theorizing. The book also proposes a coevolutionary

continuum for food production strategies as opposed to the stale hunter-gatherer, horticulturalist, agriculturalist, industrialist typologies of yesteryear. Again, a welcome and necessary approach that is consistent with much contemporary work by archaeobotanists. The rest of the book is an overview-oriented look at pre-Columbian food production strategies in major bioregions of Native North America, including a chapter on post-contact food production and the changes wrought by European colonization, followed by a concluding synthesis.

Chapter 2 is dedicated to examining the Eastern Agricultural Complex (EAC). The EAC is a suite of annual seed/container crops that were domesticated and cultivated in certain areas of the Eastern Woodlands starting about 5000 BP and carrying into the era of large-scale transition into maize (*Zea mays*) cultivation around 1300–1100 BP. In-depth explorations of what contemporary research can tell us about botany and ecology of five major EAC species (*Iva annua*, *Chenopodium berlandieri*, *Helianthus annuus*, *Cucurbita pepo* var. *ovifera*, and *Polygonum erectum*) is provided, in addition to sections on: chronology and culture history; the EAC in North American prehistory; ecological and cultural processes of initial domestication and dispersal; and food production during the Woodland period. One question I always have for archaeobotanists: what is the role of American groundnut (*Apios americana*) and sunchoke (*Helianthus tuberosus*) in EAC subsistence? *Apios*



americana shows up in Appendix A and is mentioned in passing as appearing in archaeological sites, but *H. tuberosus* is entirely absent. The under-coverage of both species is understandable given the preservation difficulty regarding tubers in the archaeological record, but historical and contemporary ethnobotanical literature (though spotty) point to usage of both plants. In permaculture, they are important native perennial tubers in contemporary agroecology systems in the southern Appalachian bioregion.

Chapter 3 shifts focus to maize introduction and dispersal in the United States Southwest via Mexico around 4300 years ago. Like crop introductions elsewhere, the uptake of maize by Southwest Native communities was patchy and variable in terms of rate of increase of use vis-à-vis other preexisting foraged and broadcast seed foodways. Sections of the chapter take us through maize uptake chronologically: early agricultural period communities (4000–1800 BP) and diversification/intensification/social change (AD 200–1400). In a subsection entitled “The Subsistence Role of Maize,” Gremillion (2018:49) writes,

The temporal gap between the initial introduction of maize (1500–2000 BC) and the emergence of economics based largely on food production (AD 500–1000) is sometimes cited as evidence for a lengthy period of use as a dietary supplement rather than a staple.

Conflicting archaeological arguments on “...whether maize was added incrementally in such a way as to be compatible with high mobility or adopted by comparatively sedentary populations already positioned to invest in farming” are explored. As a longtime student of Hopi oral tradition, these and related passages really caught my eye. Hopi oral history, as relayed through the late Dan Evehema and other elders, contends that after emerging from a previous world, the Hopi engaged in lengthy migrations whereby they planted corn and waited for harvest before they moved their encampments for further migration, following this pattern until founding the village of Old Oraibi in AD 1100 (Mails and Evehema 1995). Could Hopi accounts be both fairly consistent with archaeological data and provide a viable model of causation that has been absent from previous explanatory frameworks? As a cultural anthropologist and non-expert on the Southwest, I am not the one to answer this question, but I think consulting Indigenous historical accounts is advisable,

whenever possible and ethically appropriate.

In Chapter 4, Gremillion follows the spread of maize across North America to the Eastern Woodlands and examines the rise of ‘the three sisters’ crop complex (*Zea mays*, *Phaseolus* spp., and *Cucurbita* spp.). Consistent with previous chapters, context and chronology are provided, followed by various sections exploring routes and means of introduction, explaining the ‘long delay’ in uptake congruous with the Southwest, transition to maize-based diets and characteristics of maize agricultural systems, and maize in the Mississippian. The scant treatment of Mississippian period (circa AD 750–1540) maize agriculture (1.5 pages) is curious, considering it is the most prevalent and intensive era with widespread maize-induced cultural upheaval leading to extensive mound-building, social hierarchy, tribute, and trade. There is a voluminous literature available for further exploration. An interesting point made by Gremillion was the possible ceremonial continuance of certain EAC crops such as goosefoot (*C. berlandieri*) and maygrass (*Phalaris caroliniana*) in the context of Maize mound-builder societies, as evidenced by their inclusion in a submound borrow pit at Cahokia that indicates communal meals. The ceremonial-use hunch by Gremillion is supported by ethnographic evidence in other world contexts—for example, the continued cultivation of ‘relict crops’ such as job’s tears (*Coix lacryma-jobi*) and Italian millet (*Setaria italica*) in contemporary upland Southeast Asian farming systems (Dove 1999). Such crops can simultaneously serve several purposes: ceremony, record of agricultural history, famine foods in times of climatic variability and change, and a useful insight to permaculturalists in the Anthropocene-era of climate crisis.

Turning to non-agricultural societies in Chapter 5, Gremillion examines foraging, incipient domestication, and intensification of wild resources in the Pacific Northwest and Great Basin. Consistent with work by contemporary Pacific NW ethno- and archaeo-botanists, Gremillion points out that previous work lacking in ethnographic sophistication by Boasian and evolutionary anthropologists has needed correction to more accurately understand Pacific NW Native cultures as active food producers and not merely forager-fishers. Plant and aquatic resources such as camas (*Camassia quamash*), northern rice root (*Fritillaria camschatscensis*), wapato (*Sagittaria latifolia*), berry patches, and clam gardens were intensively

managed by Native peoples and in some instances qualify as incipient domesticates. Other species such as beaked hazelnut (*Corylus cornuta*) and crabapple (*Malus fusca*) not mentioned in the text have been shown by recent research to have been grown in Pacific Northwest Native orchards (Armstrong 2017). In the Great Basin, I was fascinated to learn that Native groups broadcast annual seed crops (*Chenopodium* spp., *Achnatherum hymeniodes*, and *Mentzelia albicaulis*) in EAC-like fashion, as reported ethnographically by cultural ecologist Julian Steward, who also observed irrigation of several native plant species in the early twentieth century. Many such food production strategies in the Pacific Northwest and Great Basin were invisible to invasive Europeans, particularly perennial systems, as colonists were accustomed to only grain and livestock growing qualifying as ‘agriculture.’ In fact, the Native people of these bioregions were practicing what we now call permaculture and were highly effective at it.

The enormous and irrevocable impact of settler-colonial invasion on Native foodways is reviewed in Chapter 6. An important point driven home by Gremillion is that adoption of European plant species was uneven and that interior groups, in particular, were quite selective in the food production practices they incorporated into their systems. Animal husbandry was nearly uniformly rejected, sometimes for hundreds of years, until it was forced upon Native groups in a Christianized effort to turn them into Jeffersonian yeoman farmers. Exotic livestock was reviled for its tendency to overrun Native gardens and intensively managed wild resources and forced fencing-in of valued food plots. Since the only evidence of pre-European animal domestication were turkeys in some locales in the Southwest, this was nearly unanimously a foreign practice to Native North Americans. Plant species that fit harmoniously into pre-existing Native foodways and agroecosystems were enthusiastically adopted, including peaches, apples, cherries, watermelons, sweet potatoes, and many others.

A helpful synthesis of material presented in the book is provided in Chapter 7. For scholars interested

in the origins of agriculture, intensive management of wild resources, and Native North American subsistence, this book is of great value to those of us who are not archaeobotanists. *Food Production in Native North America* is a pithy overview of this important topic and I highly recommend it to anyone wanting a better understanding of how humans have sustainably nourished themselves for millennia on Turtle Island.

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