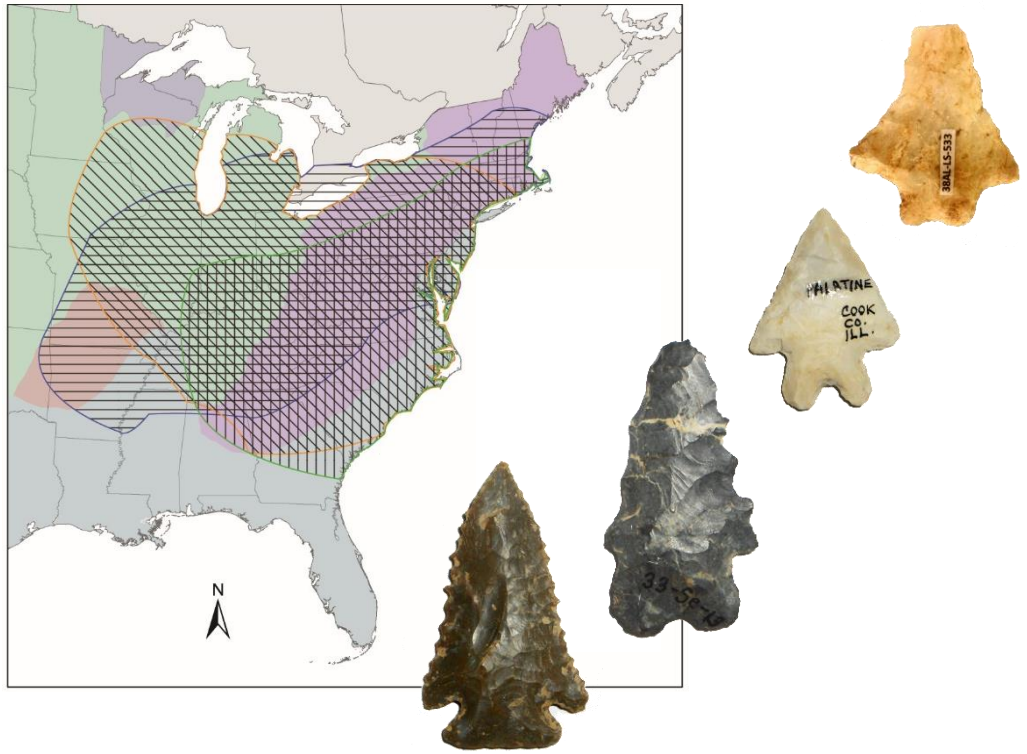
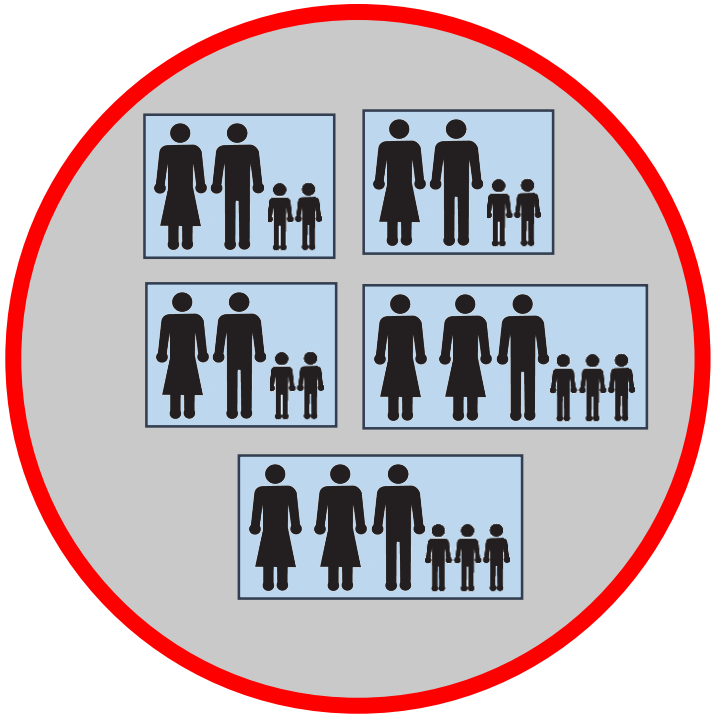
Social Implications of Large-Scale Demographic Change during the Early Archaic Period in the Southeast





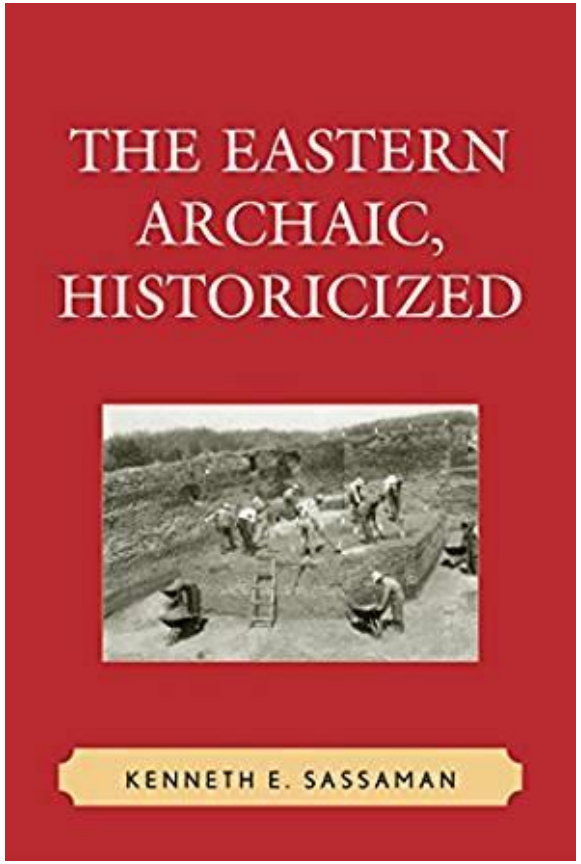
Andrew White
University of South Carolina
aawhite@mailbox.sc.edu

Presented at the 73rd Southeastern Archaeological Conference, Athens, GA, October 28, 2016

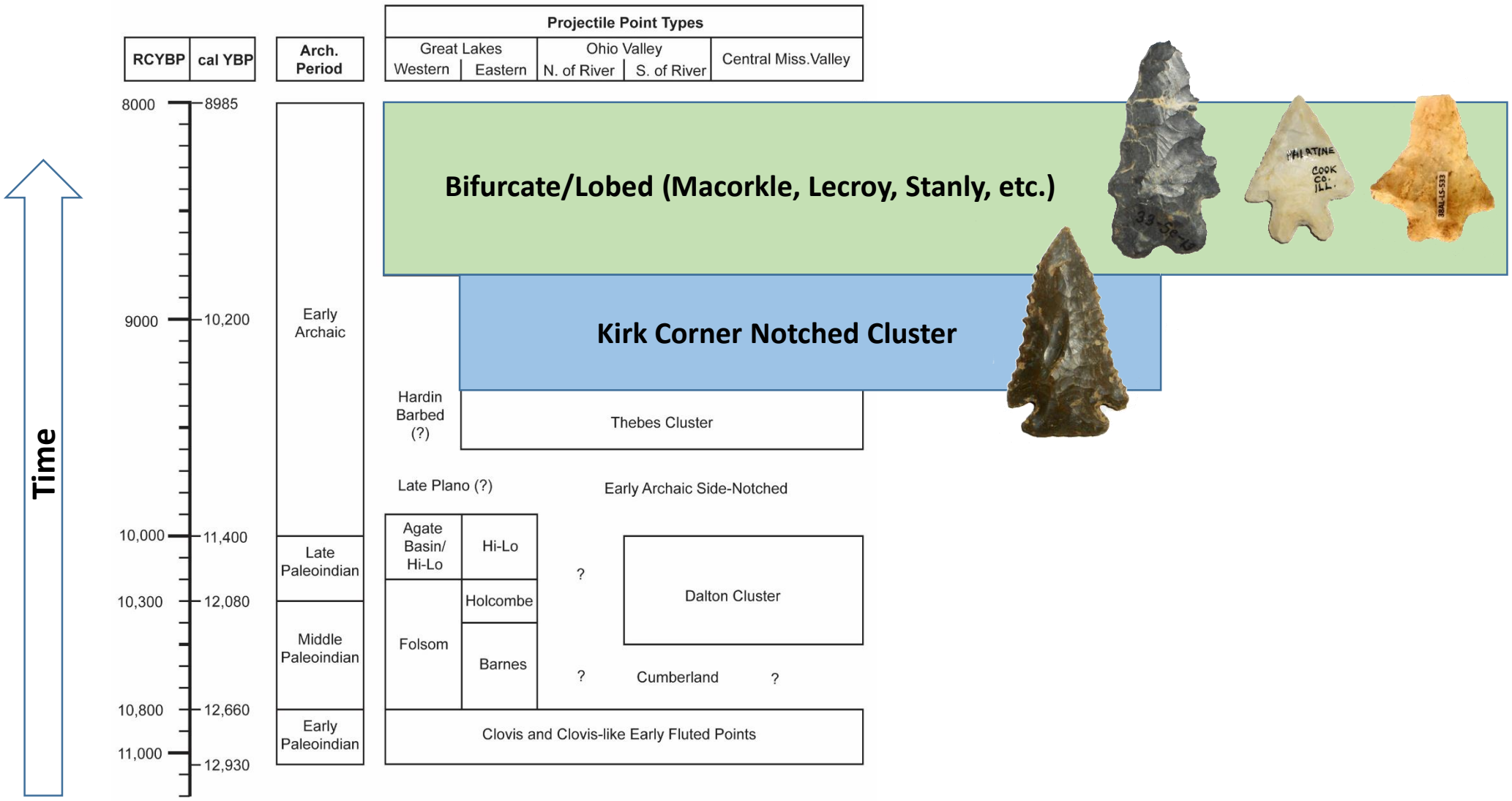
Spoiler alert: I'm going to play the "in progress" card

An abandonment of the lower Southeast during the Early Archaic?

- The case for abandonment
- Why and how do hunter-gatherers abandon a landscape?
- Some thoughts about social implications in this case
- Ways forward

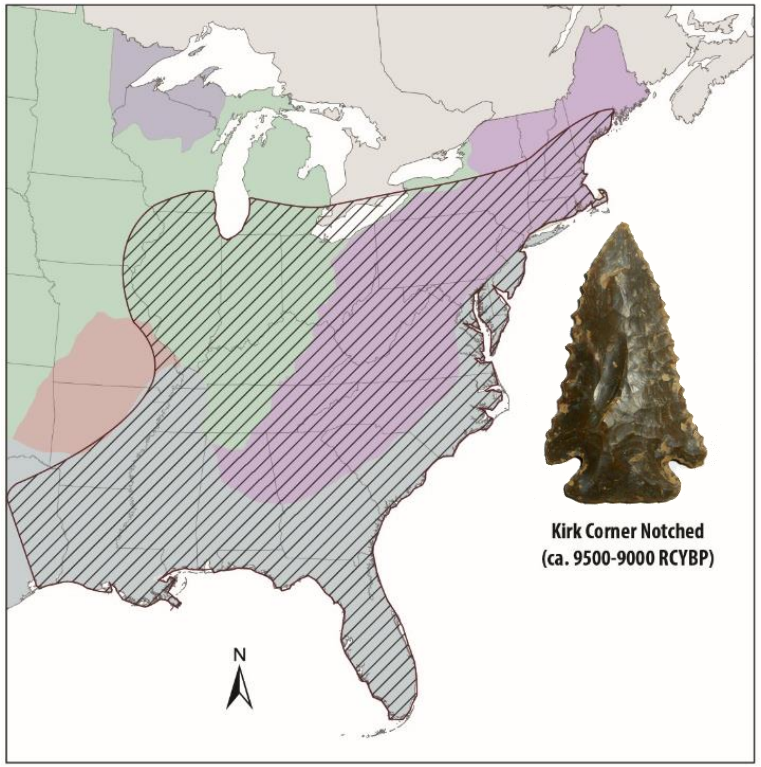


Projectile point chronology



A definition of society

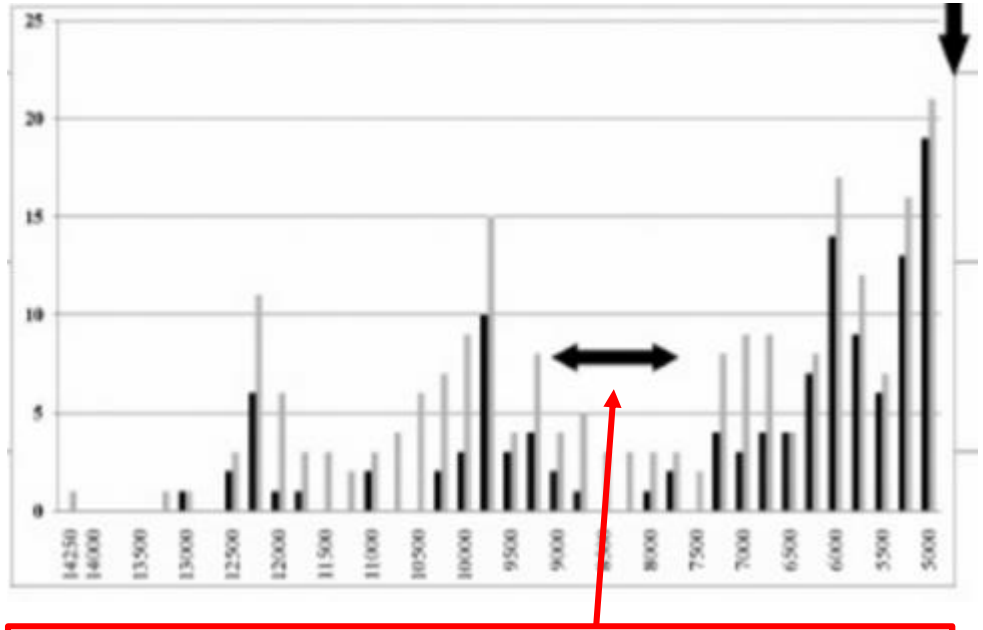
*"Societies are **groups of people defined by persistent social interaction**. While the characteristics of the late Pleistocene and early Holocene hunter-gatherer societies of the Southeast certainly varied, archaeological data generally suggest that these societies were often geographically extensive and structurally complex."*



Distribution map following: Justice, Noel D. 1987. *Stone Age Spear and Arrow Points of the Midcontinental and Eastern United States*. Bloomington: Indiana University Press.

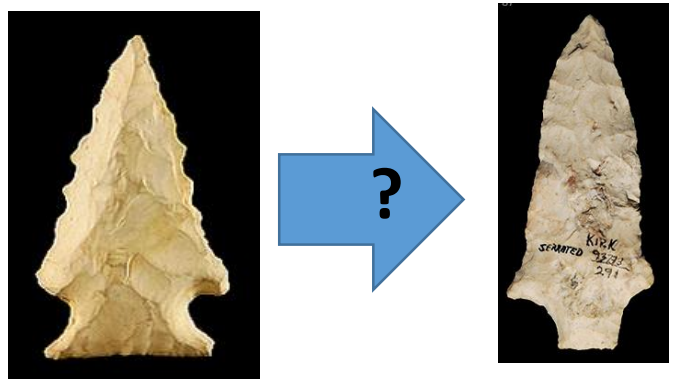
The Case for Abandonment: Did it Happen?

The case for abandonment: Florida



1. Radiocarbon gap: A dearth of C14 dates between 9000-8000 RCYBP

2. Technological discontinuity: Early Archaic Kirk points (Bolen) in Florida do not appear to be ancestral to "Kirk Serrated"



3. Stratigraphic discontinuity: There are no stratified sites that demonstration continuity of technology/occupation

- Data from "The Early Archaic to Middle Archaic Transition in Florida: An Argument for Discontinuity" (Michael Faught and James Waggoner, Jr., 2012, *The Florida Anthropologist* 65(3):153-176)
- Point images from Florida Museum of Natural History, Bullen Projectile Point Type Collection

The case for abandonment: Georgia and the Carolinas

Morrow Mountain

Bifurcate

Kirk

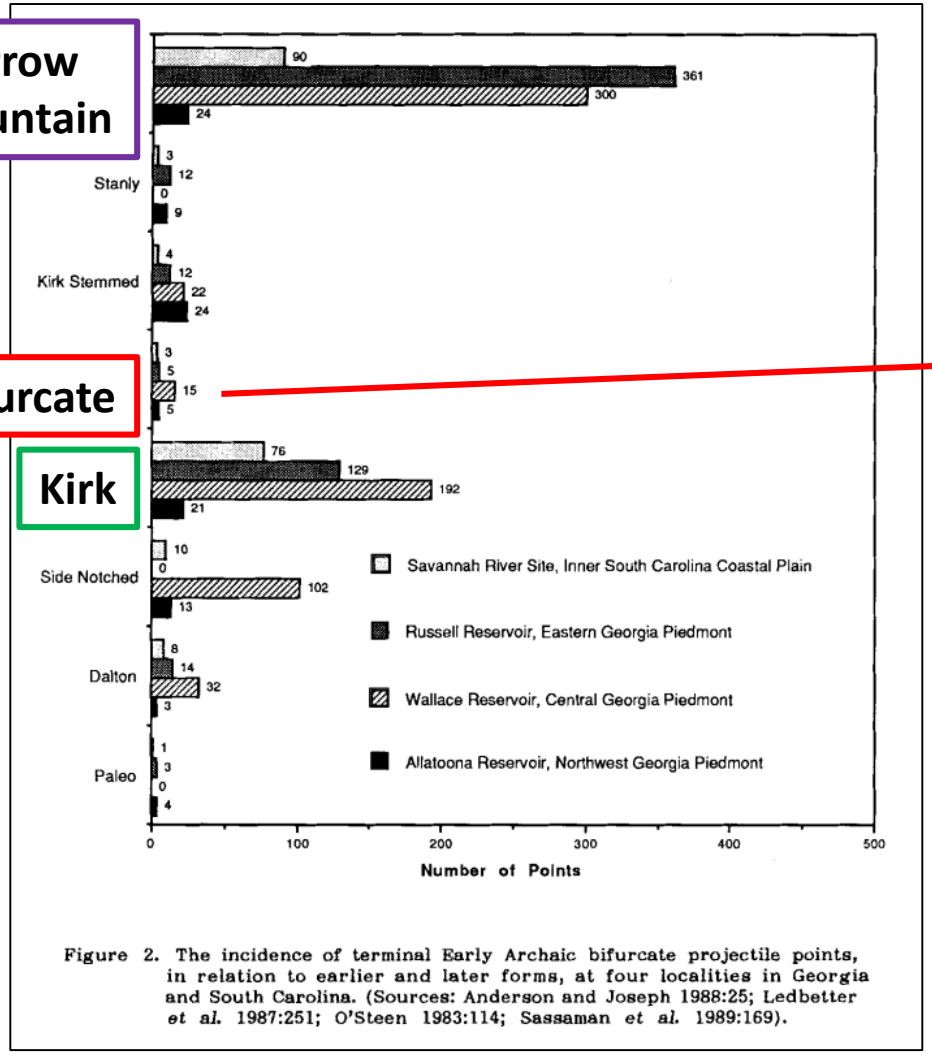


Figure 2. The incidence of terminal Early Archaic bifurcate projectile points, in relation to earlier and later forms, at four localities in Georgia and South Carolina. (Sources: Anderson and Joseph 1988:25; Ledbetter *et al.* 1987:251; O'Steen 1983:114; Sassaman *et al.* 1989:169).

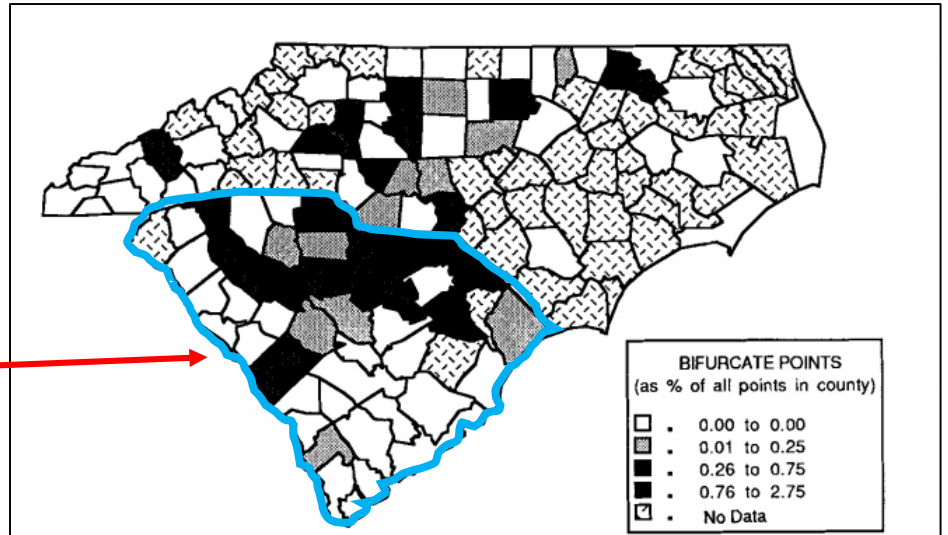
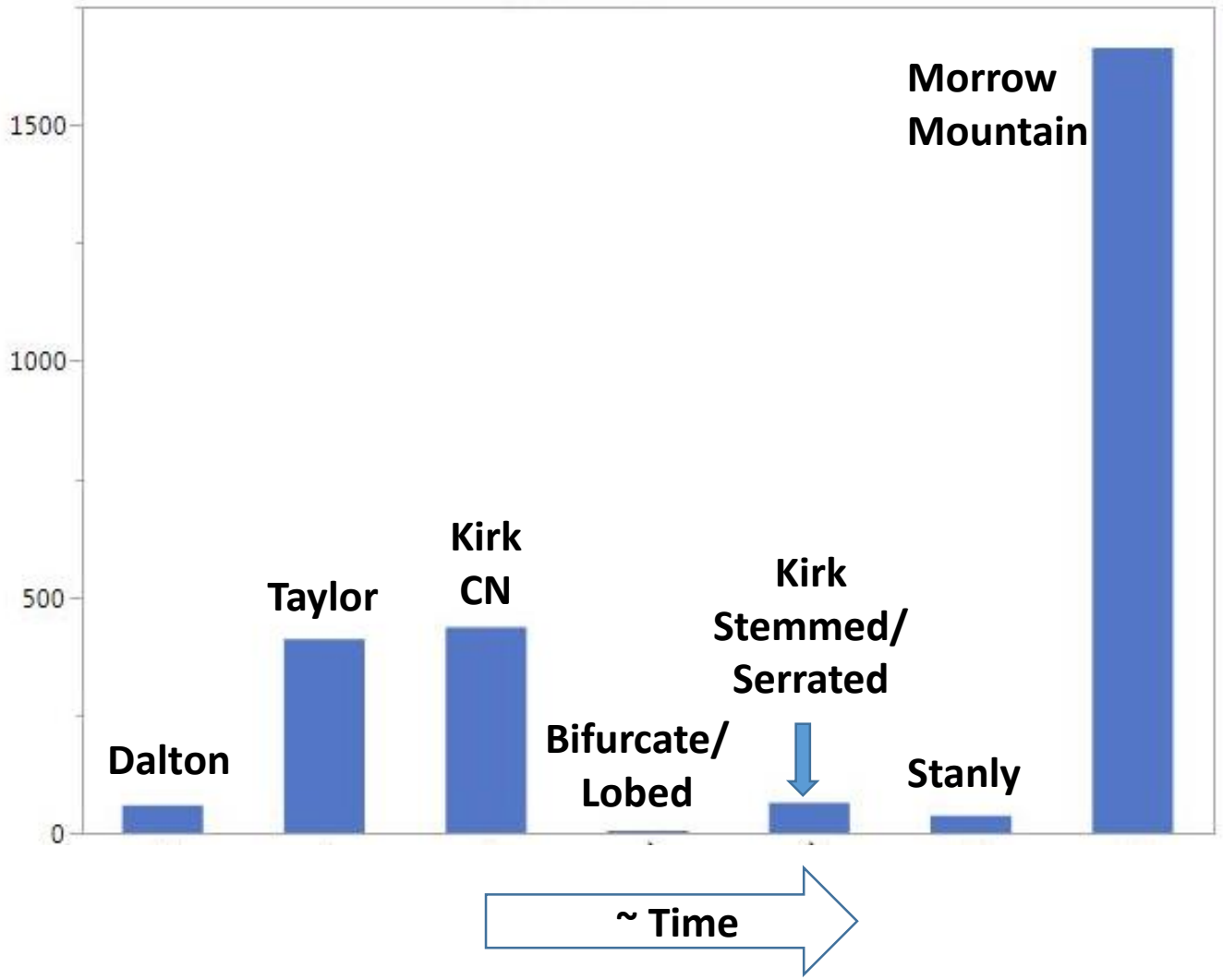


Figure 3. The distribution of bifurcate points in North and South Carolina. (Sources: Charles 1986, n.d., Davis and Daniel 1990).

Images modified from "The Bifurcate Tradition in the South Atlantic Region" (David Anderson, 1991, *Journal of Middle Atlantic Archaeology* 7:91-106)

Another data point: the Larry Strong Collection



- Allendale County, South Carolina
- 4000-5000 Early and Middle Archaic points

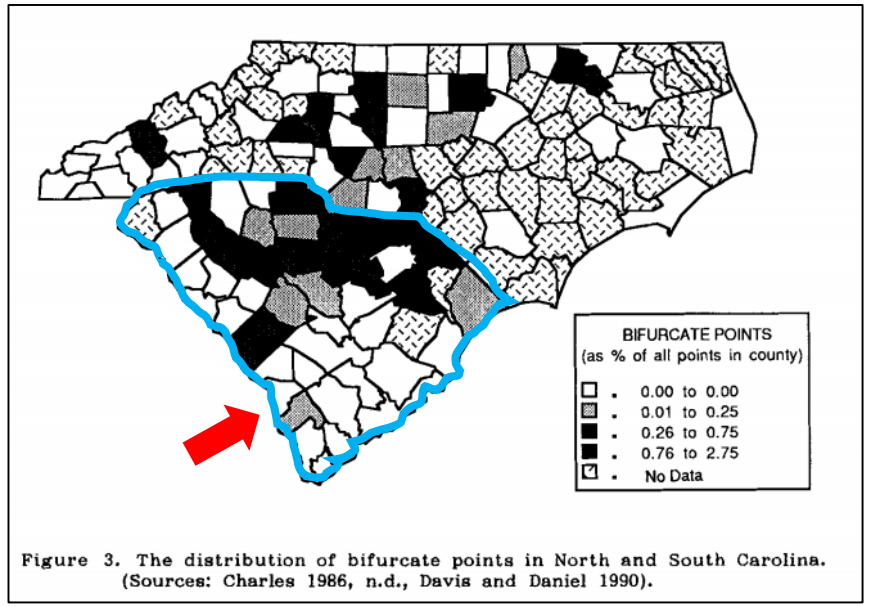
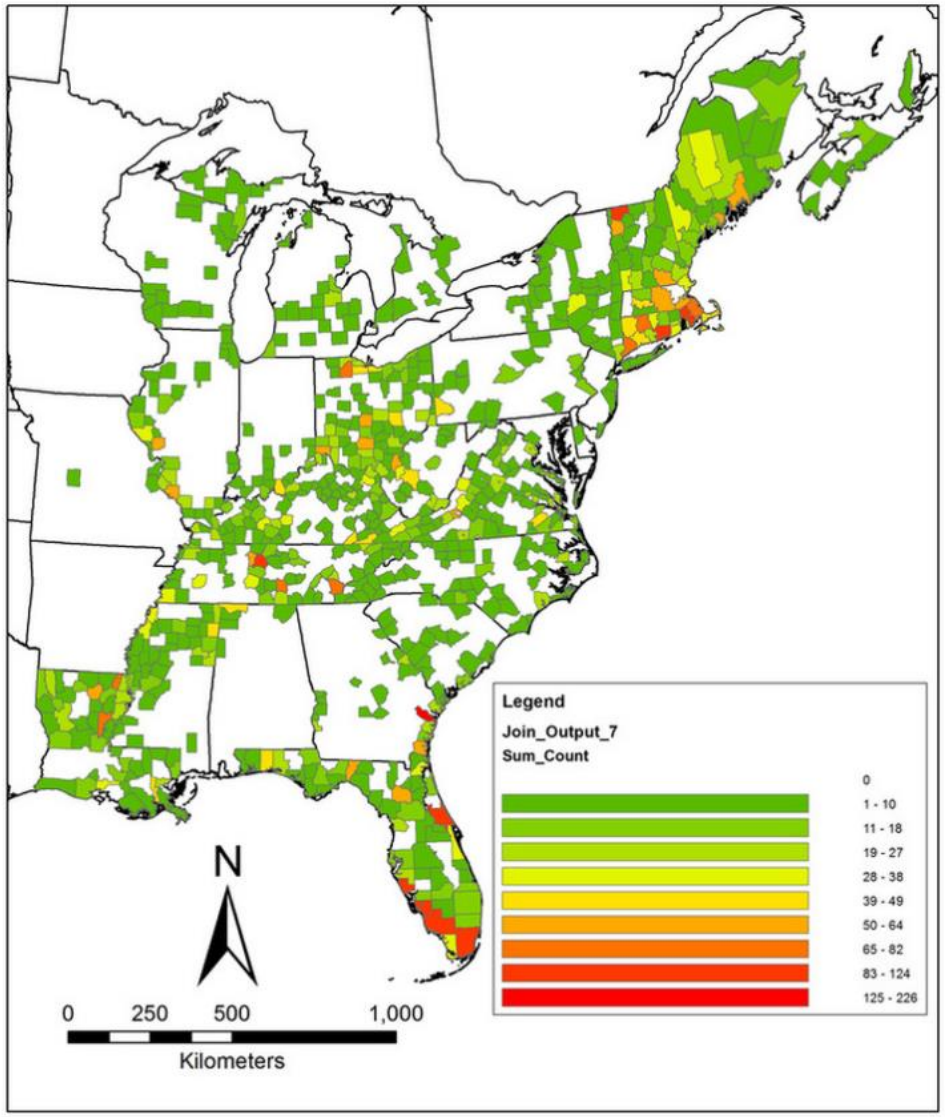


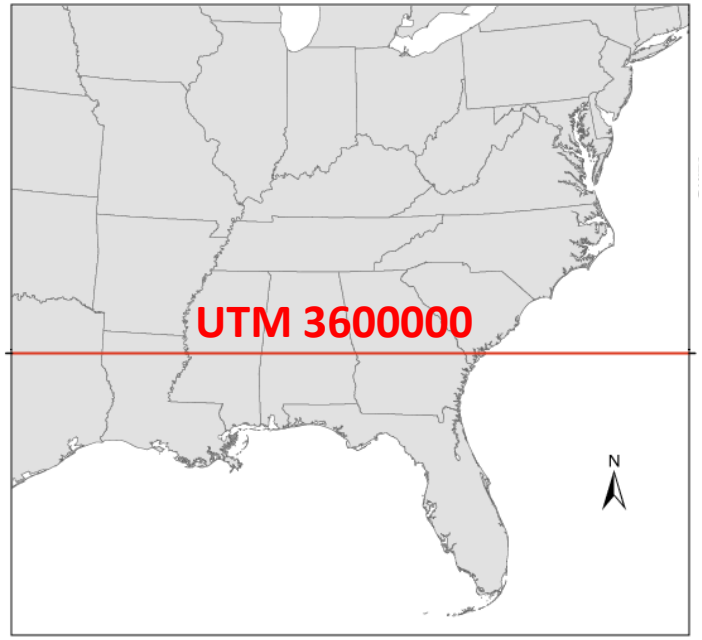
Figure 3. The distribution of bifurcate points in North and South Carolina. (Sources: Charles 1986, n.d., Davis and Daniel 1990).

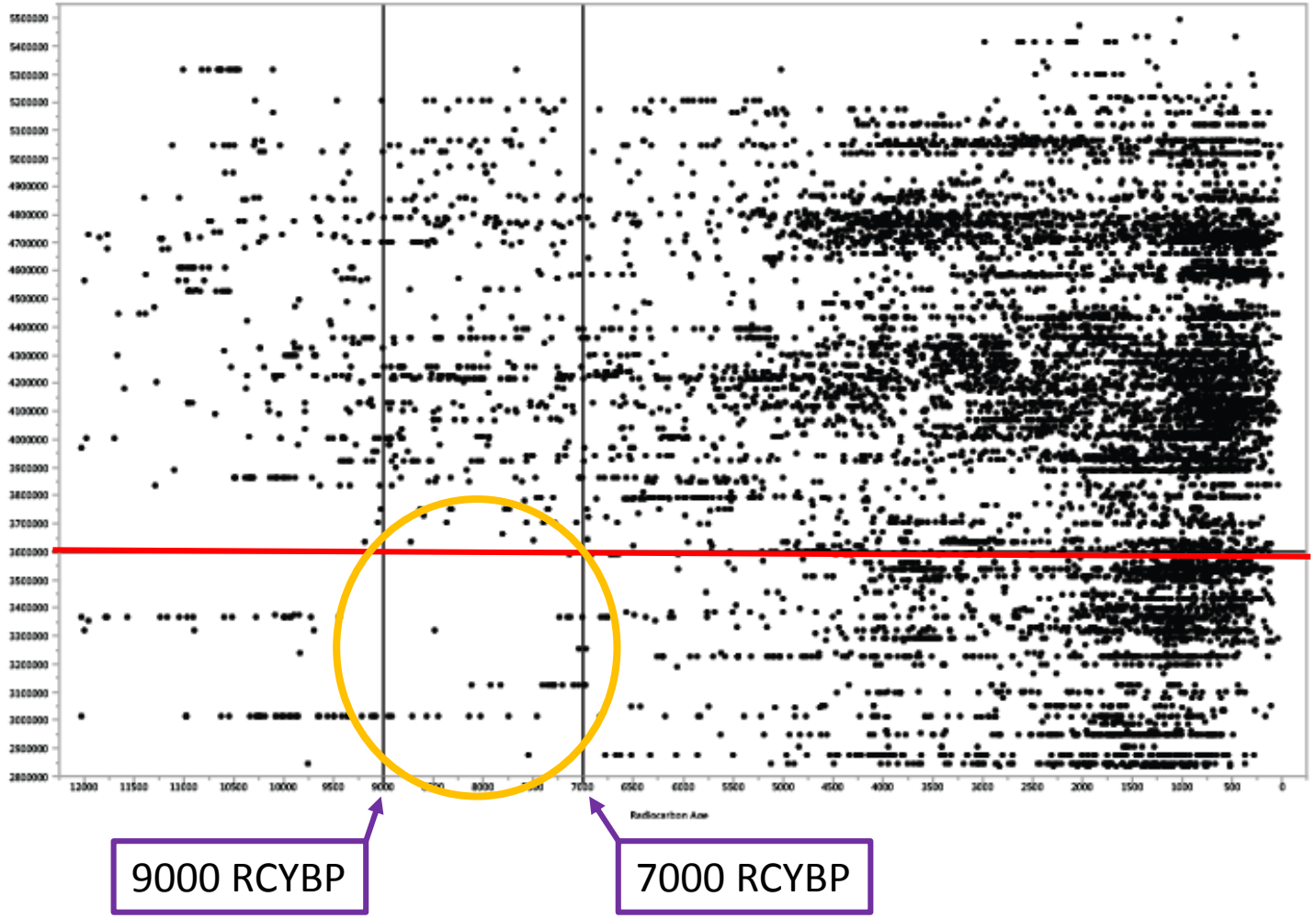
A large scale appraisal of the “radiocarbon gap”



- ~9,500 radiocarbon dates so far

A conspicuous dearth of 9000-7000 RCYBP dates in the deep south





Far fewer than expected 9000-7000 RCBYP dates south of 3600000 N

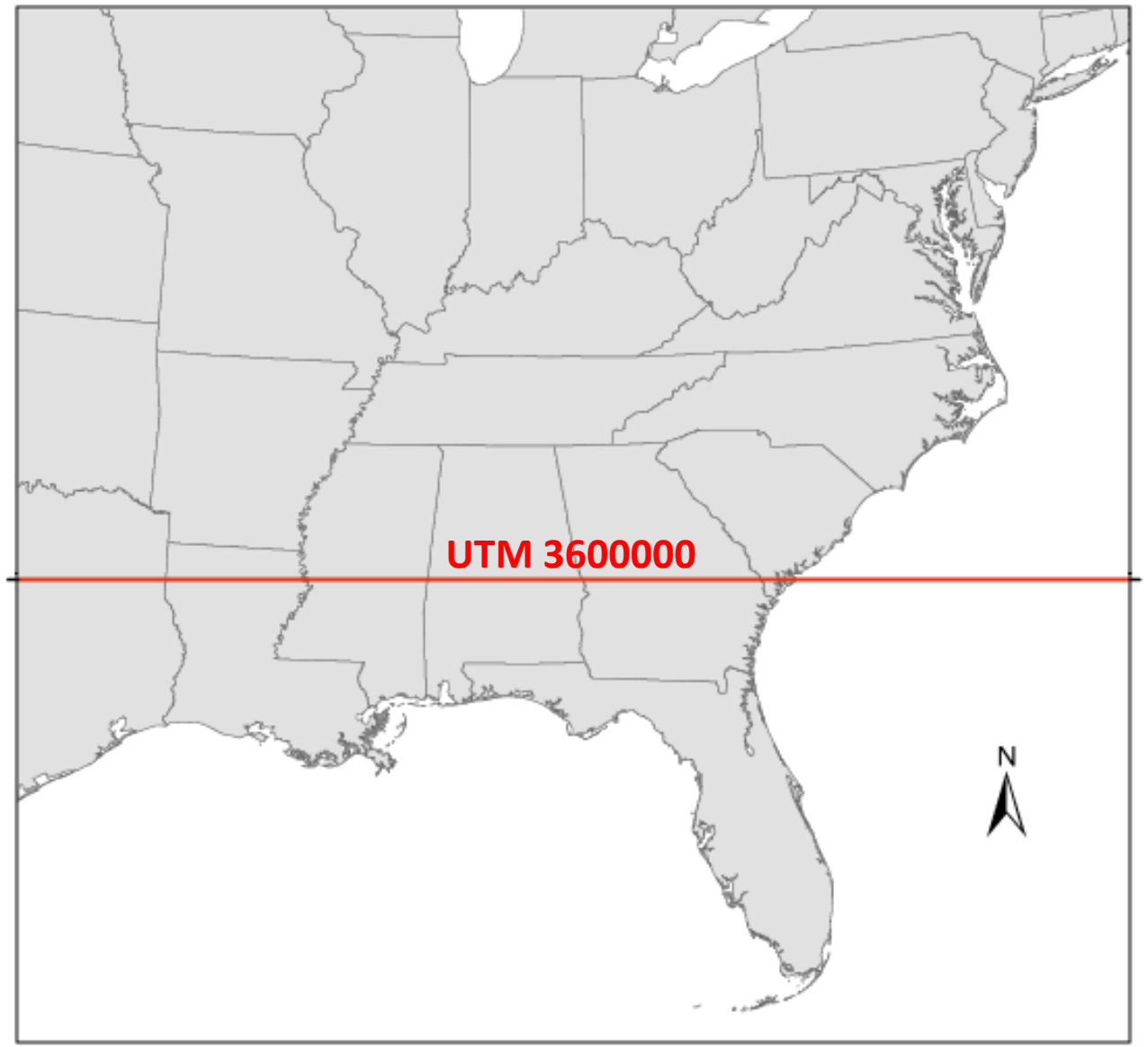
	pre-9000 RCYBP	9000-7000 RCYBP	post-7000 RCYBP	
N of 3600000	256 *245.00* (0.49)	377 *308.15* (15.38)	6567 *6646.86* (0.96)	**7200**
S of 3600000	66 *77.00* (1.57)	28 *96.85* (48.95)	2169 *2089.14* (3.05)	**2263**
	322	**405**	**8736**	**9463**

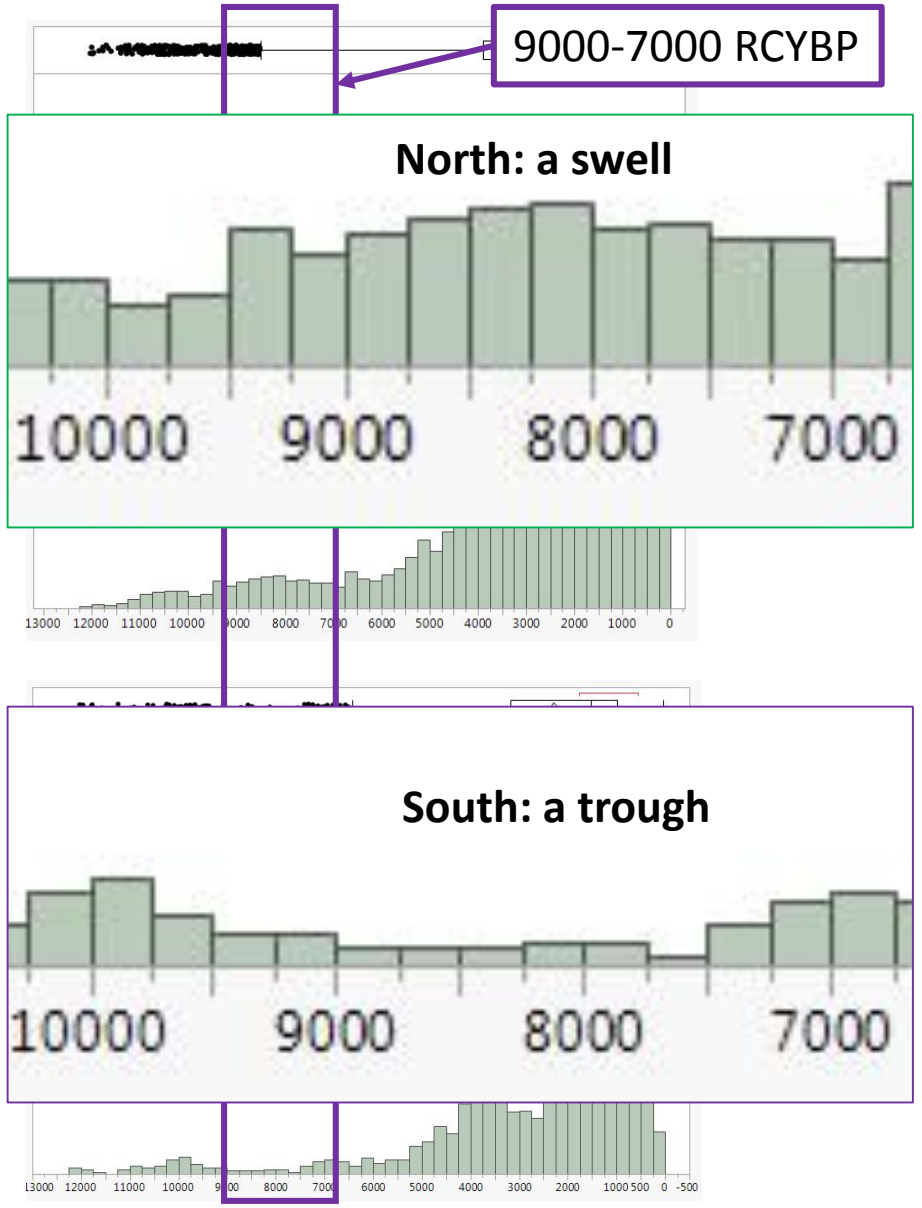
χ^2 = 70.410, df = 2, χ^2/df = 35.21, P(χ^2 > 70.410) = 0.0000

Not a chance!

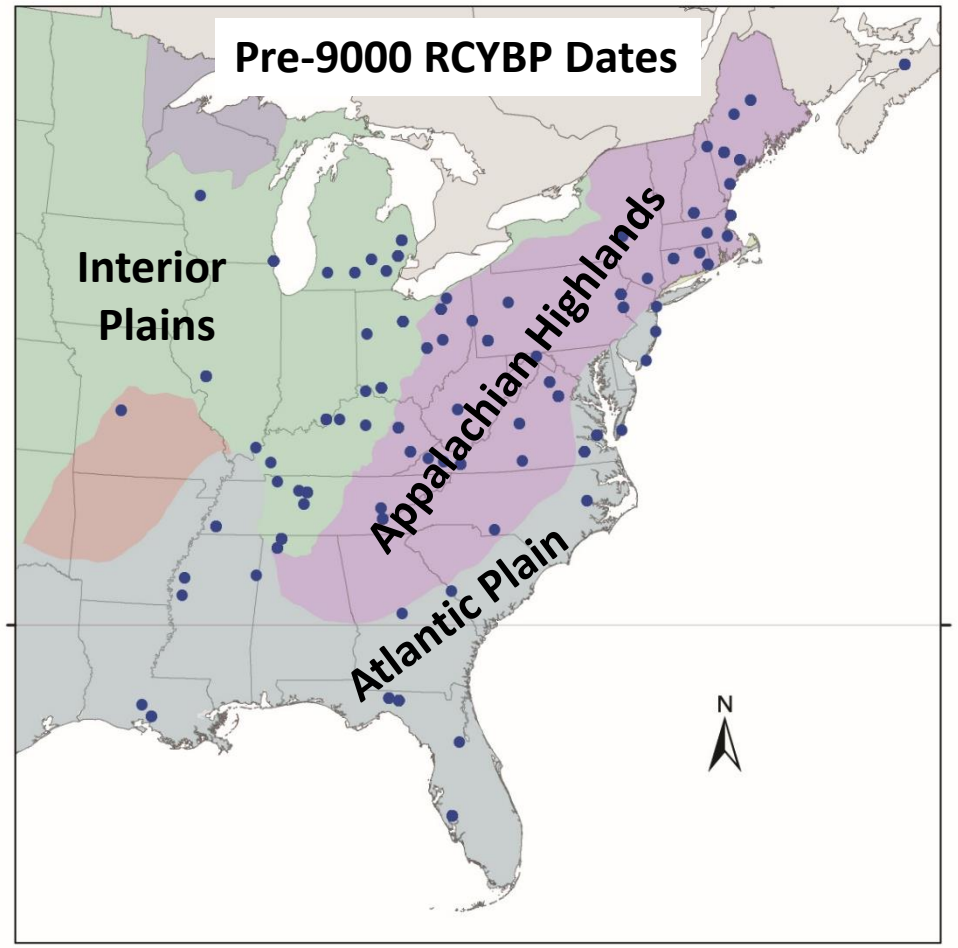
expected values are displayed in *italics*
individual χ^2values are displayed in (parentheses)

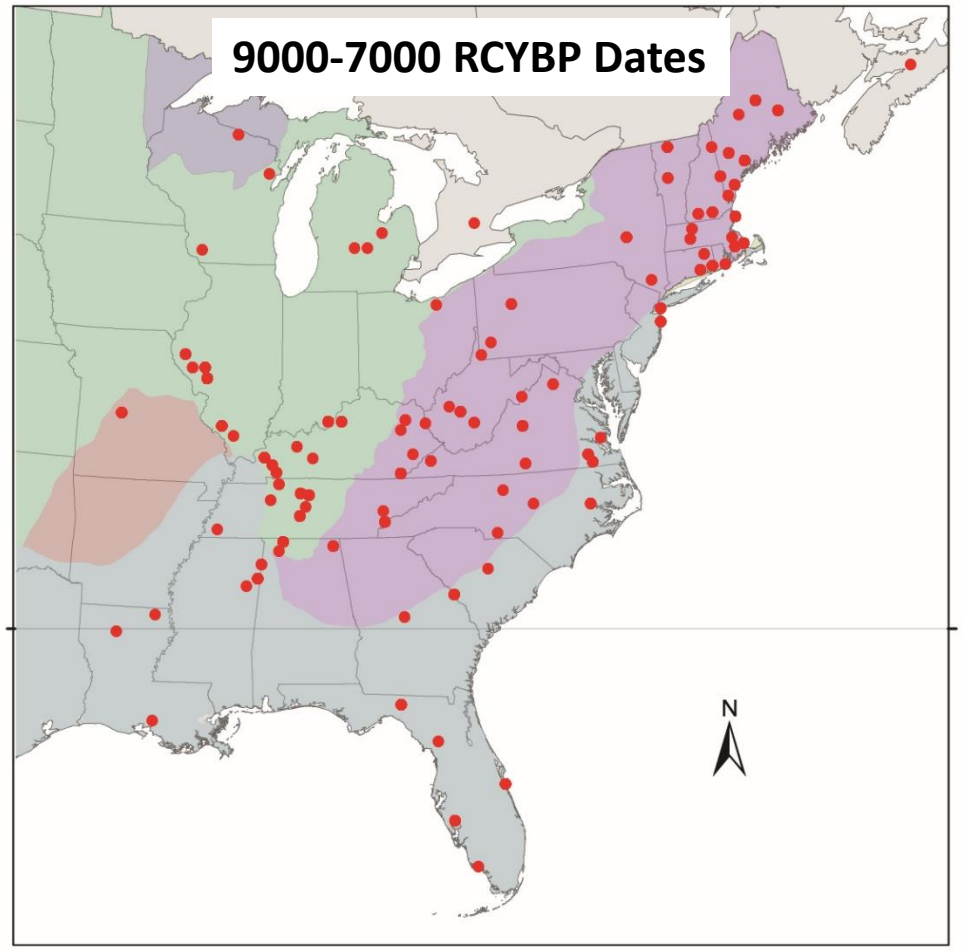
Distribution: north vs. south





Are we seeing an abandonment/marginalization of the Atlantic Plain?





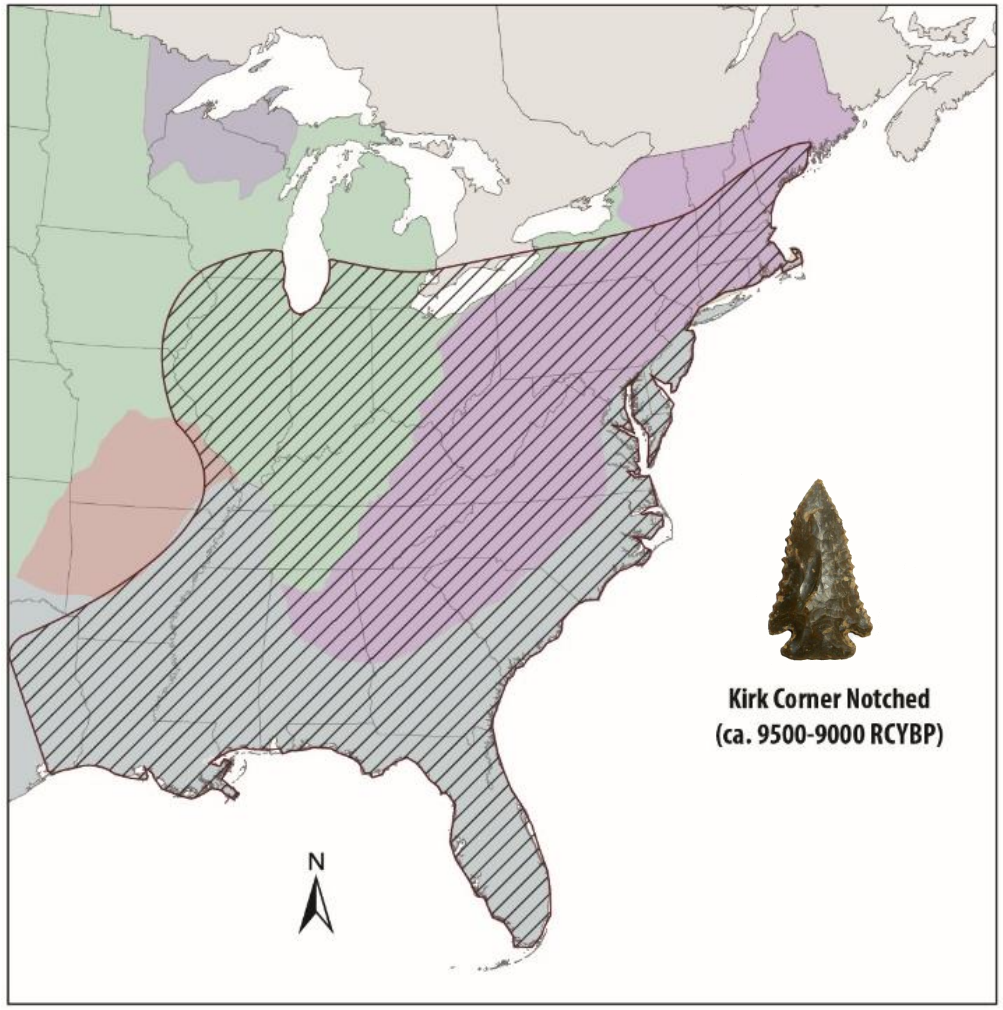
Fewer than expected 9000-7000 RCYBP dates in Atlantic Plain

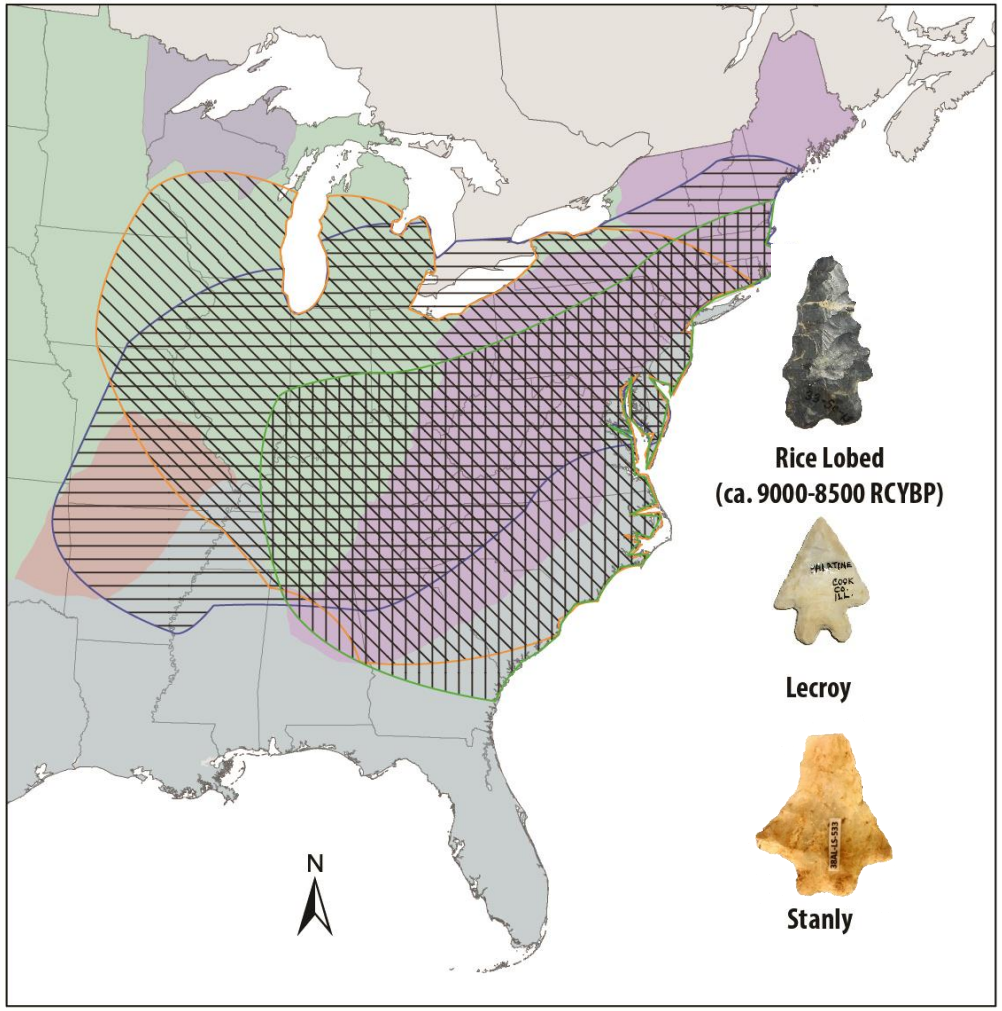
	pre-9000 RCYBP	9000-7000 RCYBP	
Atlantic Plain	110 *86.14* (6.61)	68 *91.86* (6.20)	**178**
Appalachian Highlands	140 *159.22* (2.32)	189 *169.78* (2.18)	**329**
Interior Plains	112 *116.63* (0.18)	129 *124.37* (0.17)	**241**
	362	**386**	**748**

χ^2 = 17.655, df = 2, χ^2/df = 8.83, P(χ^2 > 17.655) = 0.0001

expected values are displayed in *italics*
individual χ^2values are displayed in (parentheses)

Post-Kirk projectile point styles absent(?) from deep south?





Point distributions following Justice (1987)

The case for abandonment seems compelling, so far

Why and How do Hunter-Gatherers Abandon a Landscape?

First: a nod to the “why” question

- It **appears** as though late Early Archaic peoples abandoned/marginalized a particular environmental zone (the Atlantic Plain – at least the southern part)

- That suggests environment is part of the equation

Significant vegetation changes ca. 9500 RCYBP

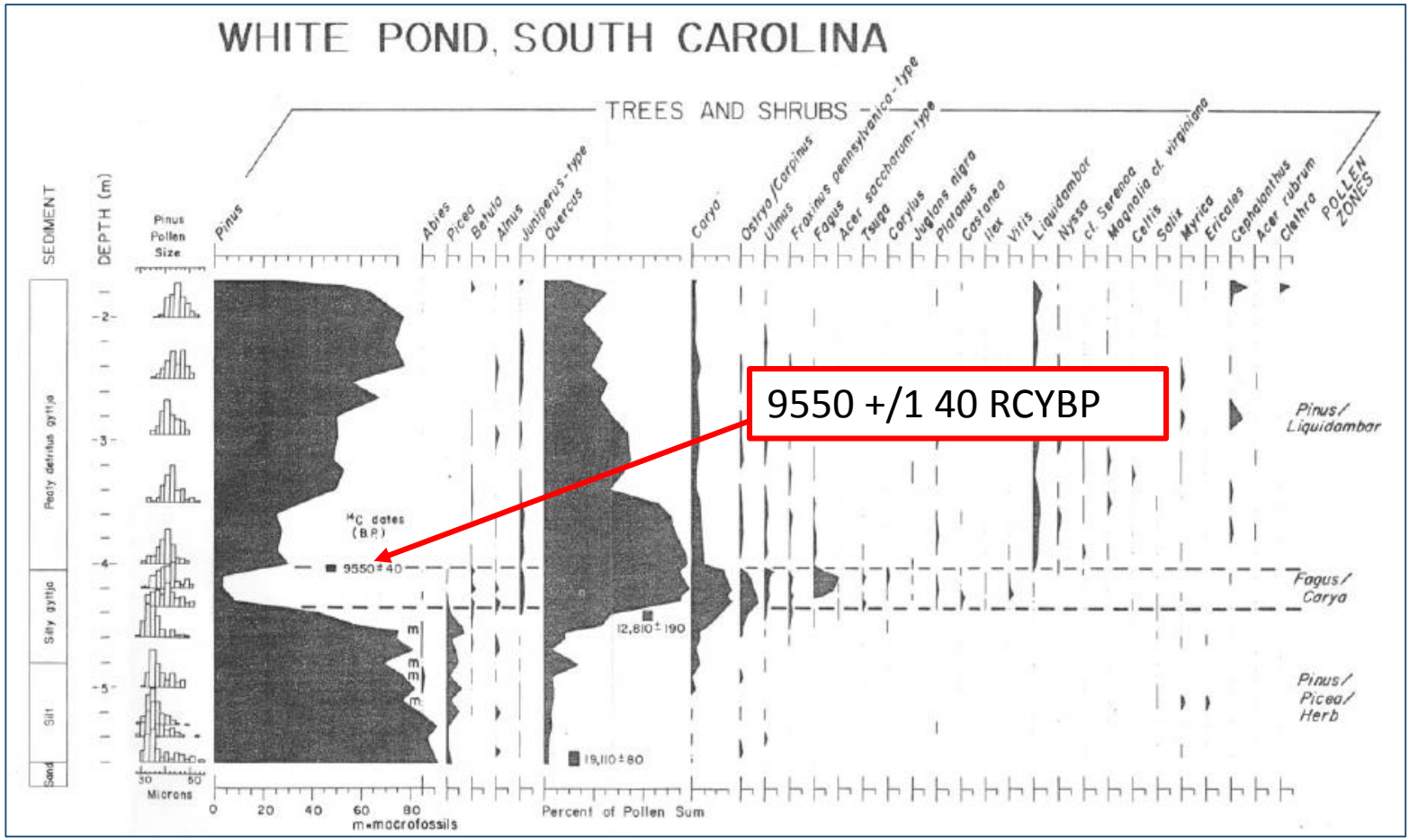
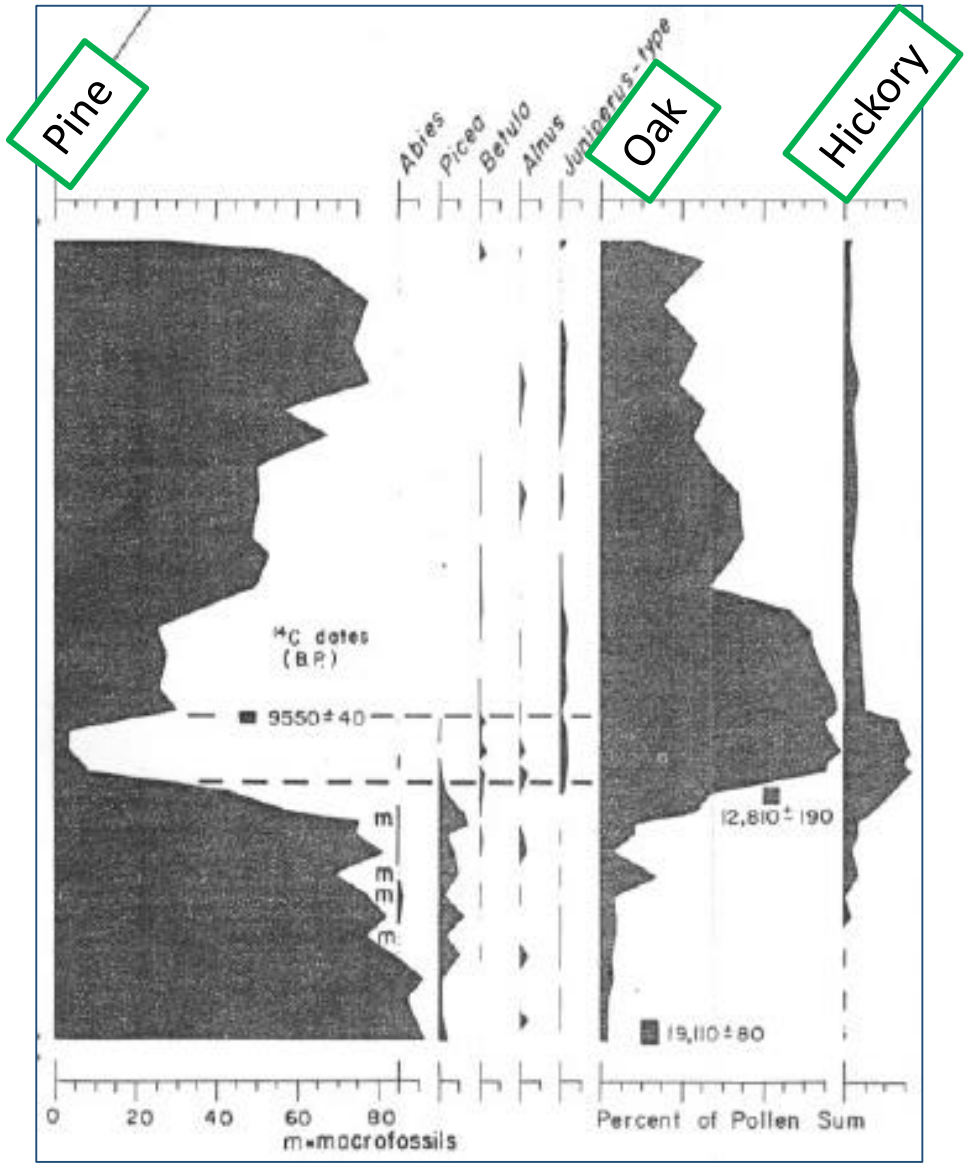


Image source: W. A. Watts. 1980. "Late-Quaternary Vegetation History at White Pond on the Inner Coastal Plain of South Carolina," *Quaternary Research* 13:187-199.



"After 9550 +/- 40 yr . . . a sharp decline of Carya [Hickory], Fagus, and Ostrya-Carpinus takes place in the pollen diagram. There is a new increase in pine, . . . About 7000 yr. BP., . . . pine again increases at the expense of oak, and a forest essentially like the modern forest was established."

- Watts 1980:194

"Oak trees are the most important group of mast species for wildlife. In a good year, more than a quarter ton of acorns per acre can cover our forest floor, and they can be ***the most important food to carry many species of wildlife through the winter****."*

- Jim Pack, "Why is Mast Important to Hunters?", *West Virginia Wildlife*

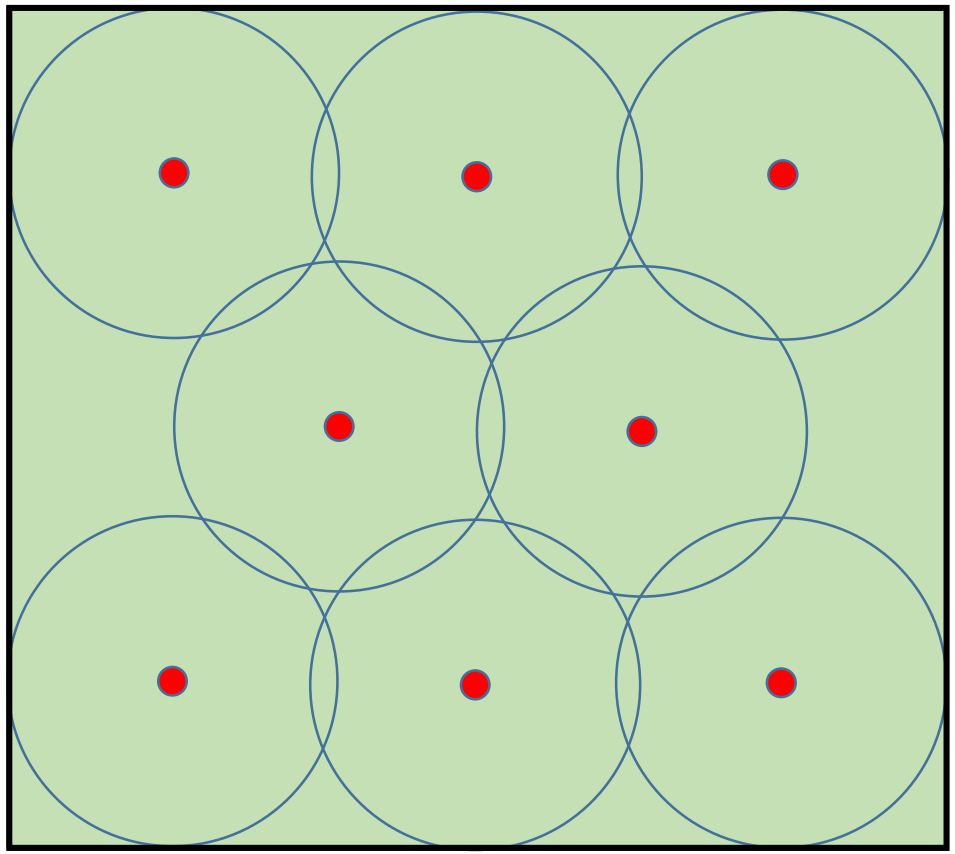
Second: the “how” question

Populations appear to have shifted their distribution after 9000 RCYBP . . . but how did that happen?

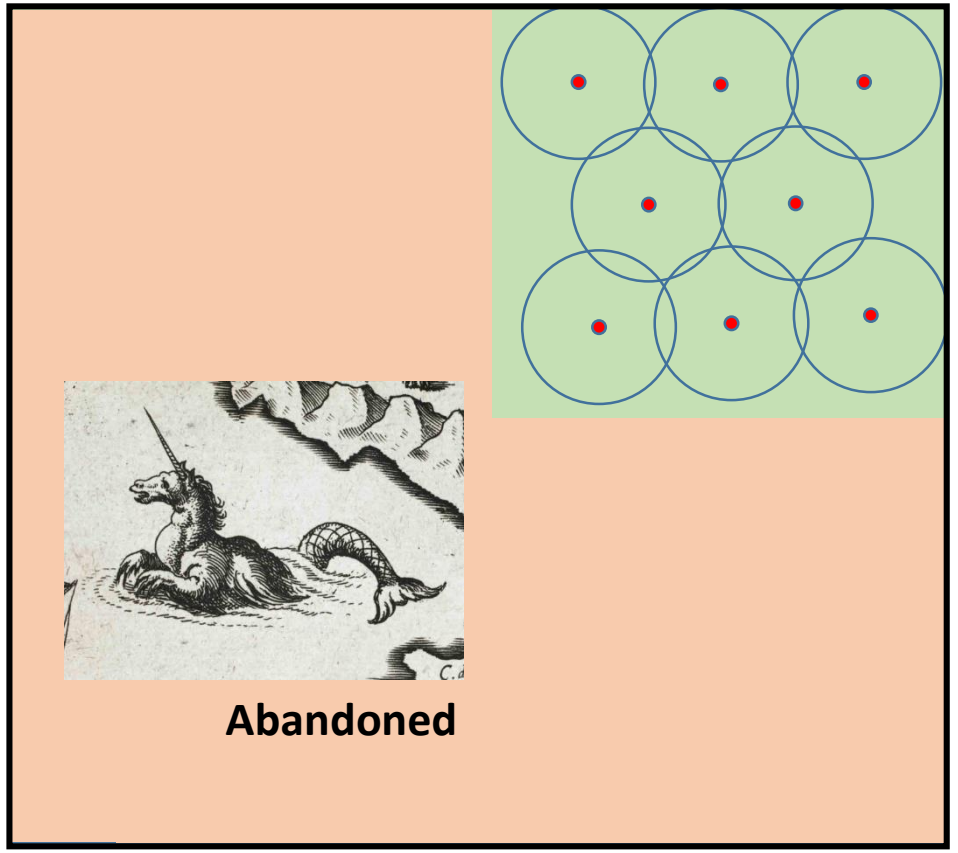
Several possibilities

- Range contraction
- Population migration (two kinds?)
- Population reduction

Range contraction:
population stays the same, range decreases within space

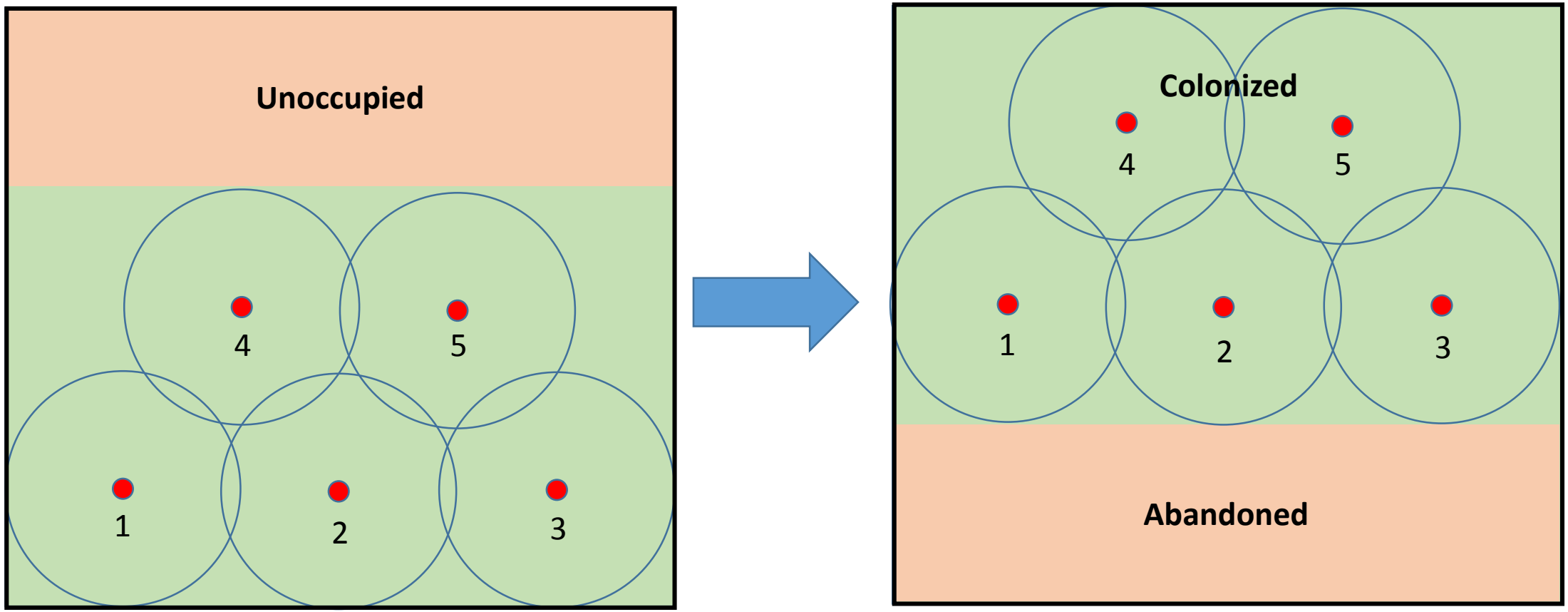


Filled landscape



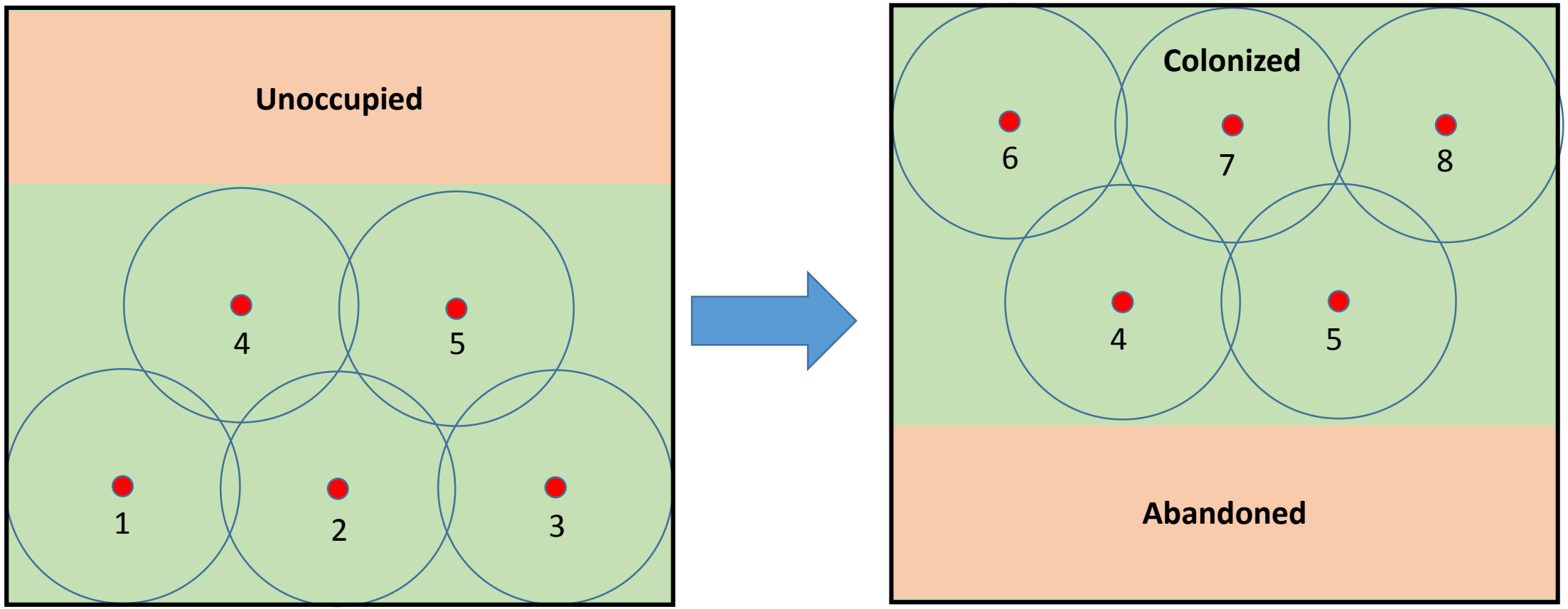
50% reduction in range = ¾ of landscape abandoned

Population migration (1): population simultaneously shifts to different space



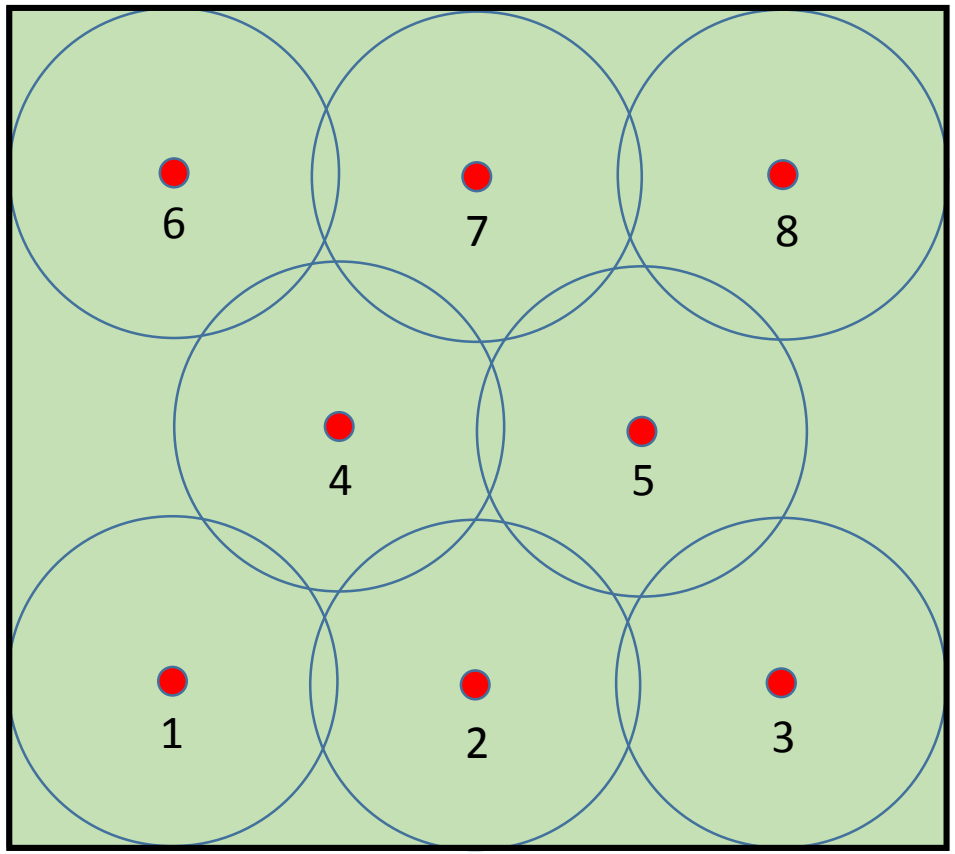
That’s a “billiard ball” model (solid)

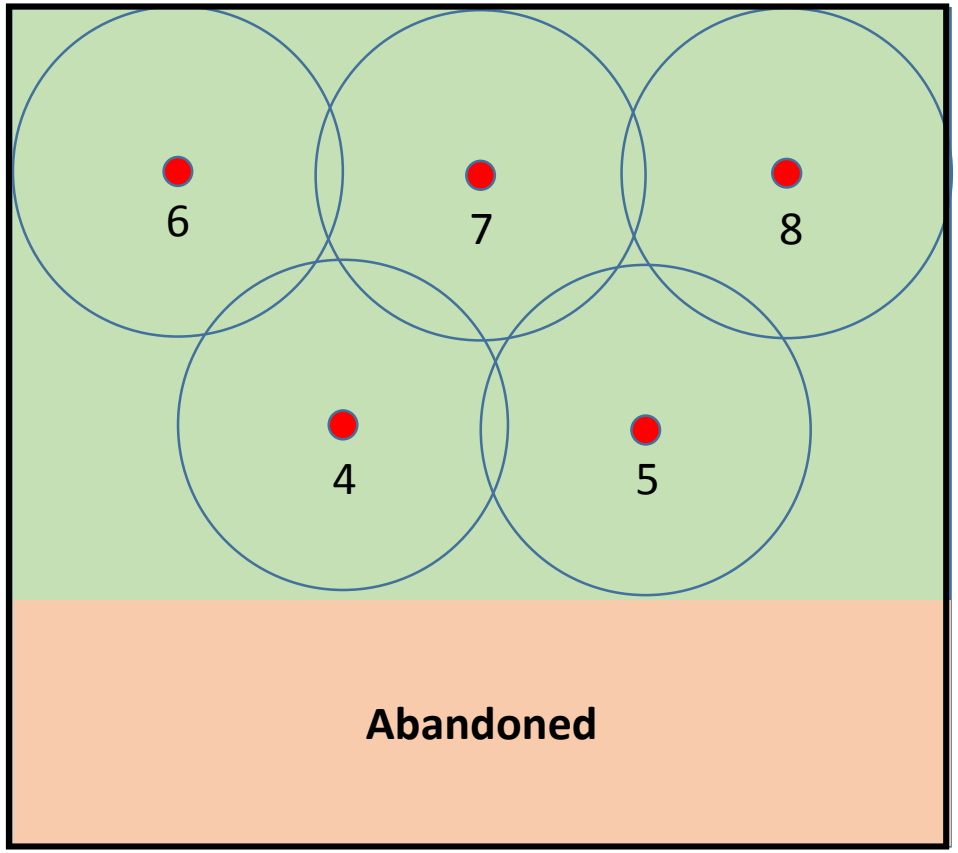
Population migration (2): population shifts into different space through expansion and attrition



I think of that as a “tide” model (fluid)

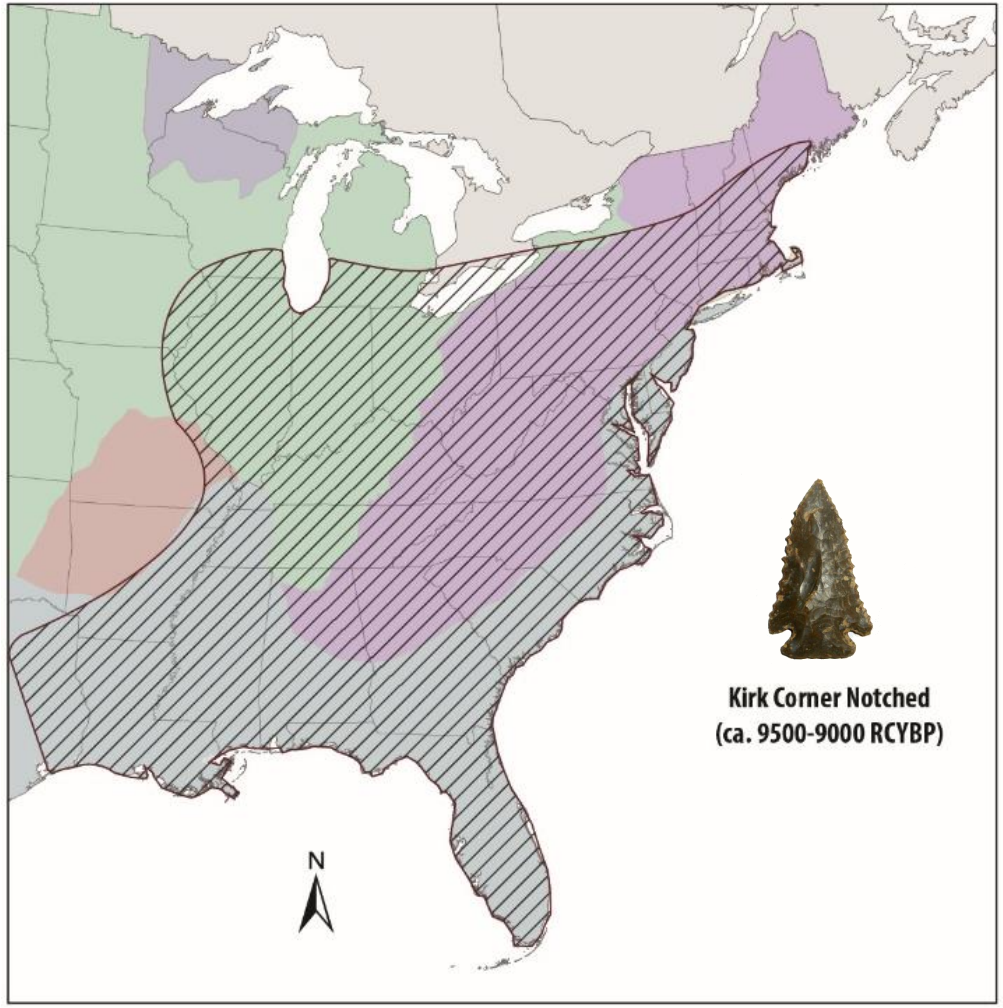
Population reduction:
range decreases through loss of population rather than transfer

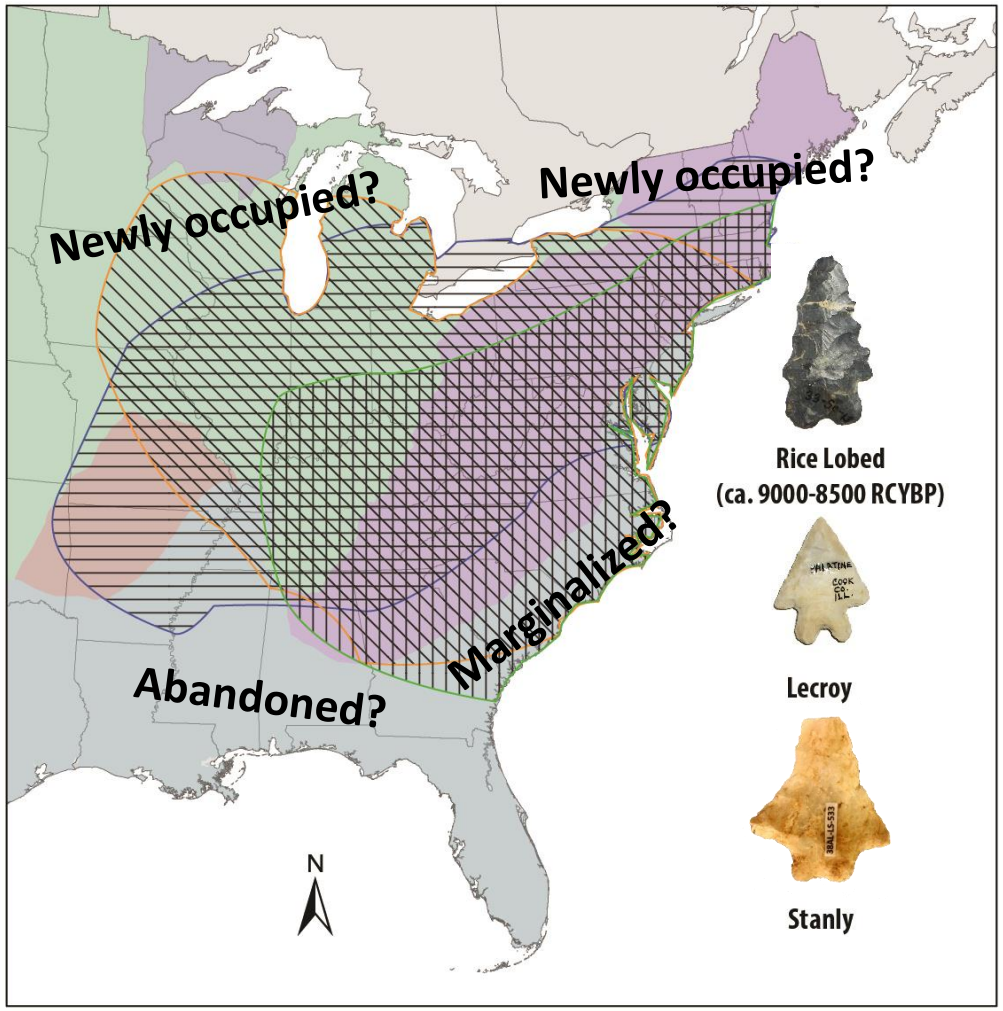




Cut to the chase:
I think a range contraction (perhaps with some northward expansion/colonization) is perhaps the most likely scenario

Abandonment Scenario	Overall population	Total space occupied	"Front end" process	"Back end" process
Range contraction	Same (or higher)	Lower	-	Attrition
Migration (simultaneous)	Same	Same	Colonization	Outward migration
Migration (demographic expansion/attrition)	Same	Same	Colonization/ expansion	Attrition
Population reduction	Lower	Lower	Attrition (or none)	Attrition

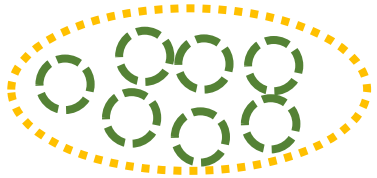

Kirk Corner Notched
(ca. 9500-9000 RCYBP)
N


Newly occupied?
Newly occupied?
Marginalized?
Abandoned?
Rice Lobed
(ca. 9000-8500 RCYBP)
Lecroy
Stanly
N

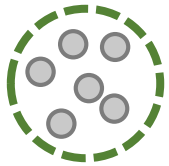
So what?

The Social Implications of Abandonment

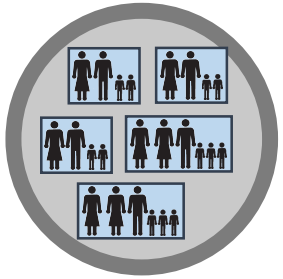
System Scale



Social System

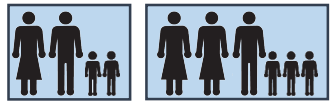


"Bands"



Foraging Groups

Human Scale



Households

Persons

How did abandonment articulate with changes at the various levels of Early Archaic societies?

The process of abandonment in the context of long-term patterns of land use

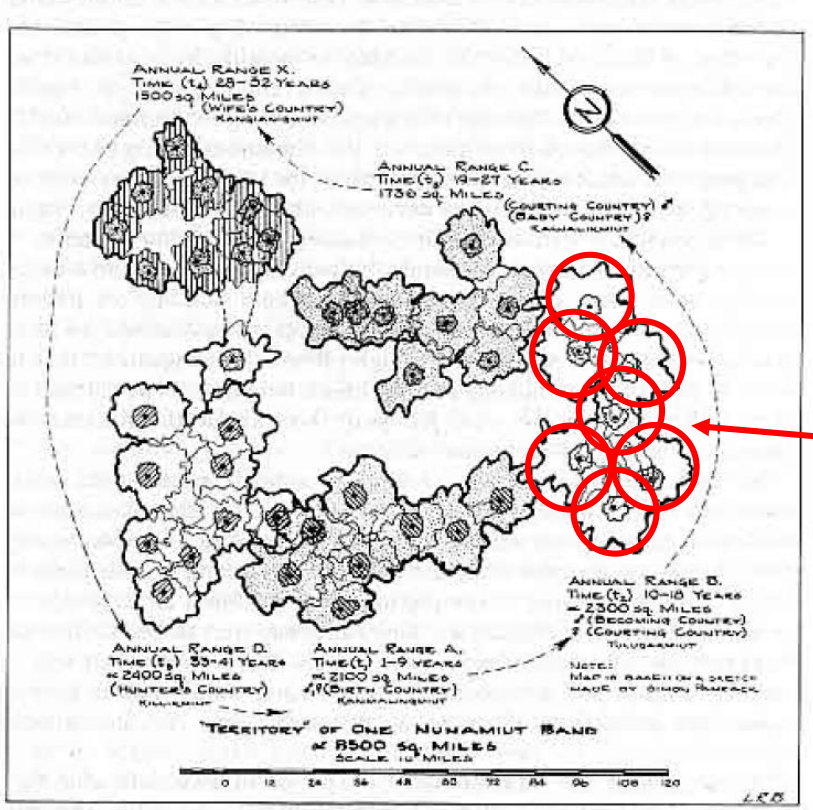
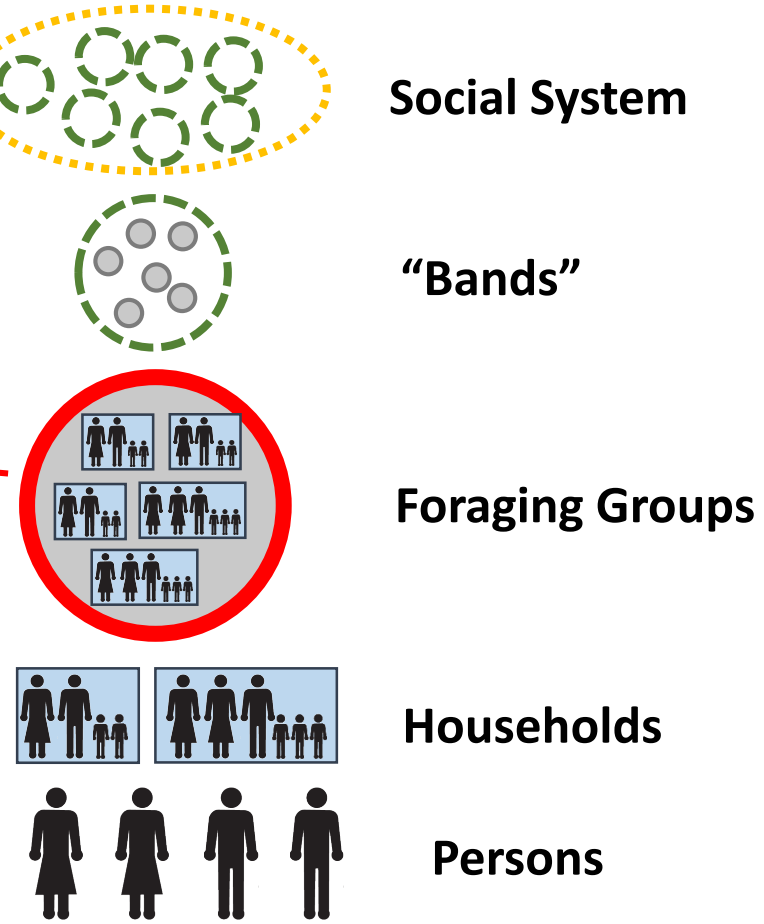


Fig. 2. Territory of one Nunamiut band in relation to annual ranges.

Figure from: Binford, L. R. 1983. "Long Term Land Use Patterns: Some Implications for Archaeology," in *Lulu Linear Punctated: Essays in Honor of George Irving Quimby*, edited by R. C. Dunnell and D. K. Grayson, pp. 27-53. Anthropological Papers 72. Museum of Anthropology, University of Michigan, Ann Arbor.



Social System

"Bands"

Foraging Groups

Households

Persons

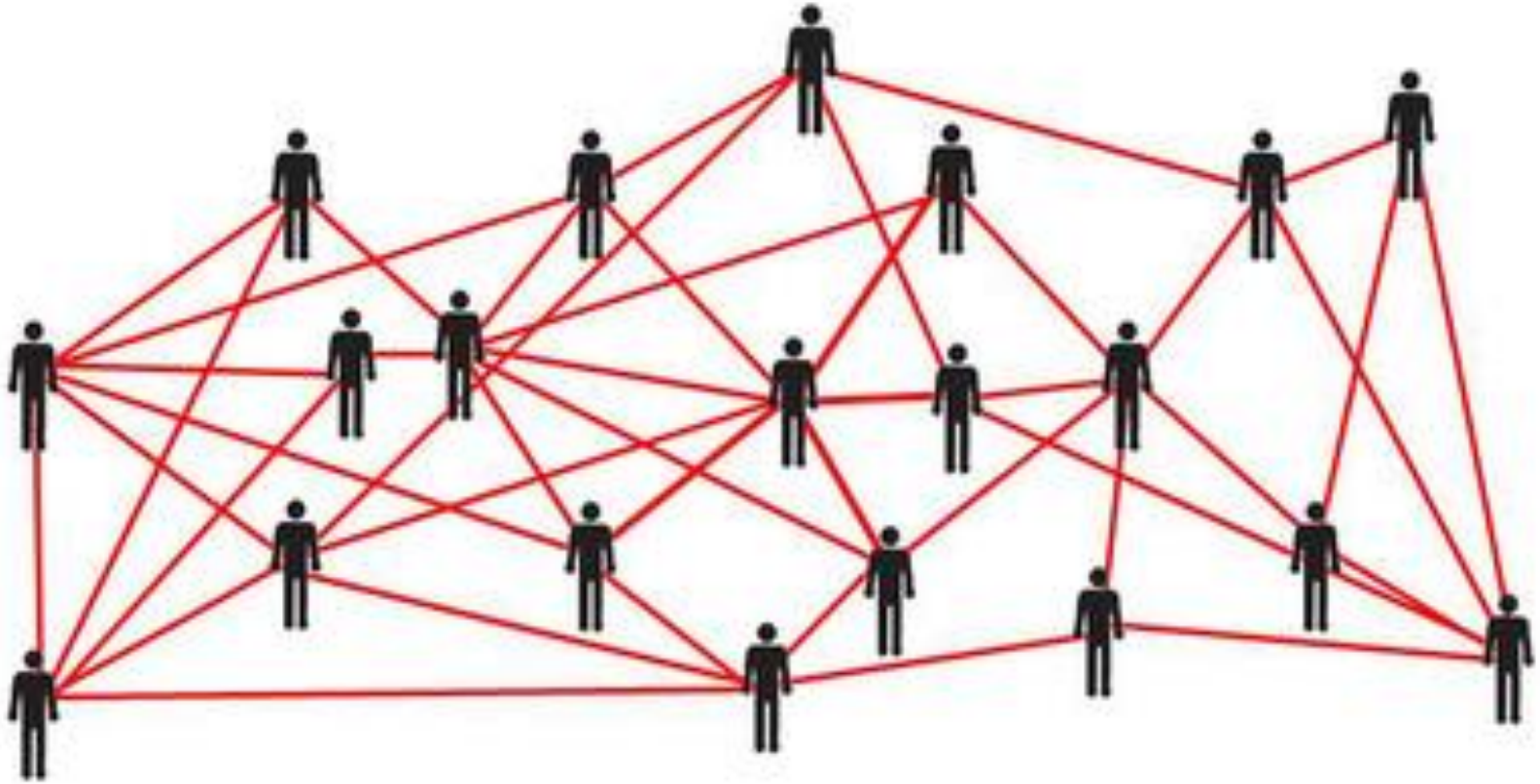
“When we first move into a valley everything is good, people want visitors, people want to see friends, people want to share, but as time goes on, things get used up and the place gets full of flies, then people start to fight. When that happens it’s time to move to a place where nobody has lived for a long time.”

- A Nunamiut man, quoted in Binford (1983:38)

Movement is a fundamental, but you still have to determine where to go next

Maybe the simplest case is that “abandonment” emerges from the group- and family-level choices about where to go next

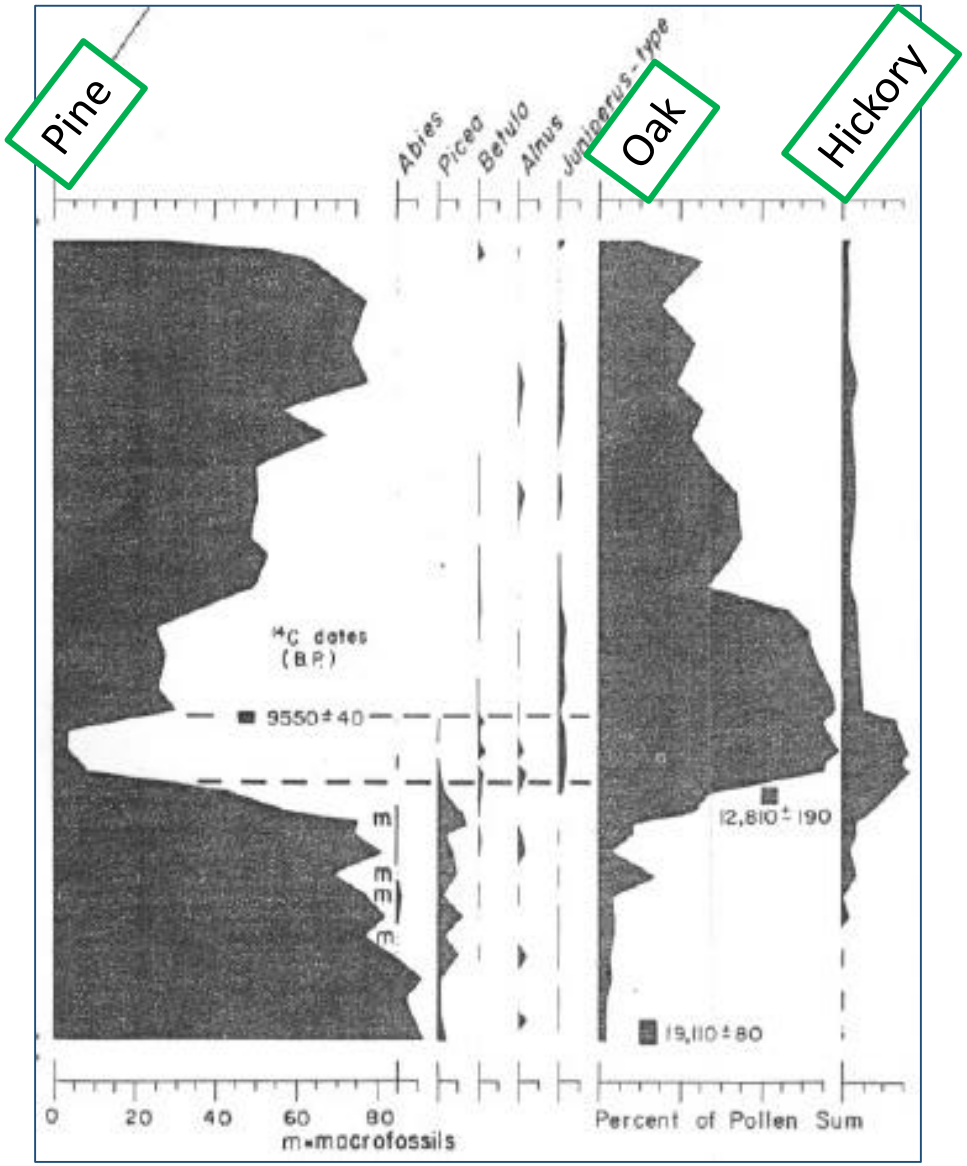
Ultimately, mobility is a “human-level” behavior that is structured by social networks

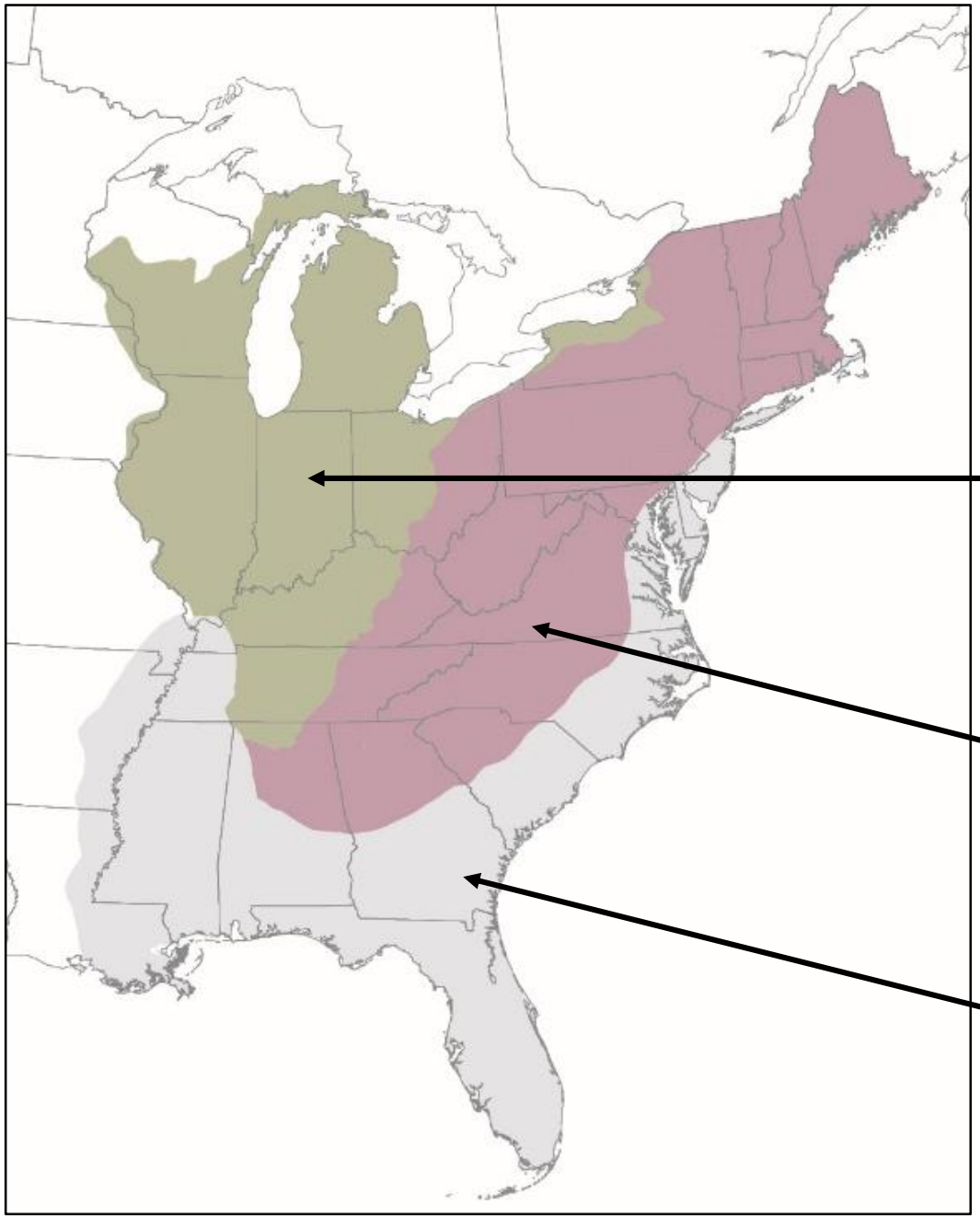


If it’s important to maintain external contacts (and it is), populations will contact rather than atomize

This popped up when I Googled “atomize”

Contraction would tend to be oriented toward more productive environments


Pine
Oak
Hickory
Abies
Picea
Betula
Alnus
Juniperus-type
14C dates
(B.P.)
9550±40
12,810±190
15,110±80
m
m
m
m
0
20
40
60
80
m=macrofossils
Percent of Pollen Sum



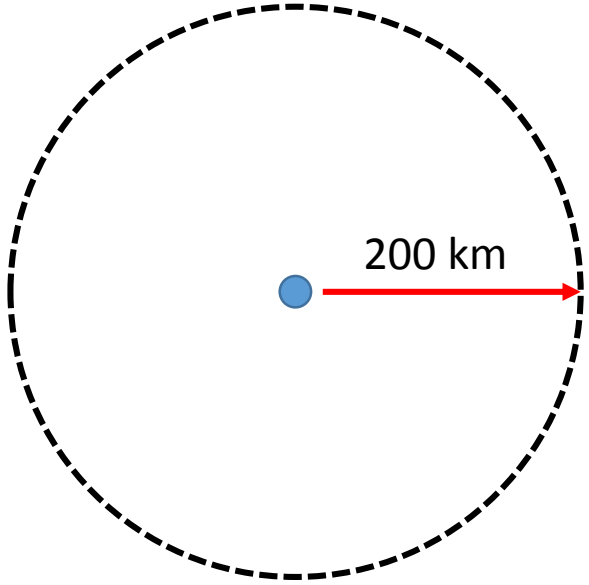
If the Atlantic Plain is abandoned, total area occupied drops by 33 percent

Interior Plains
669,349 square km

Appalachian Highlands
887,906 square km

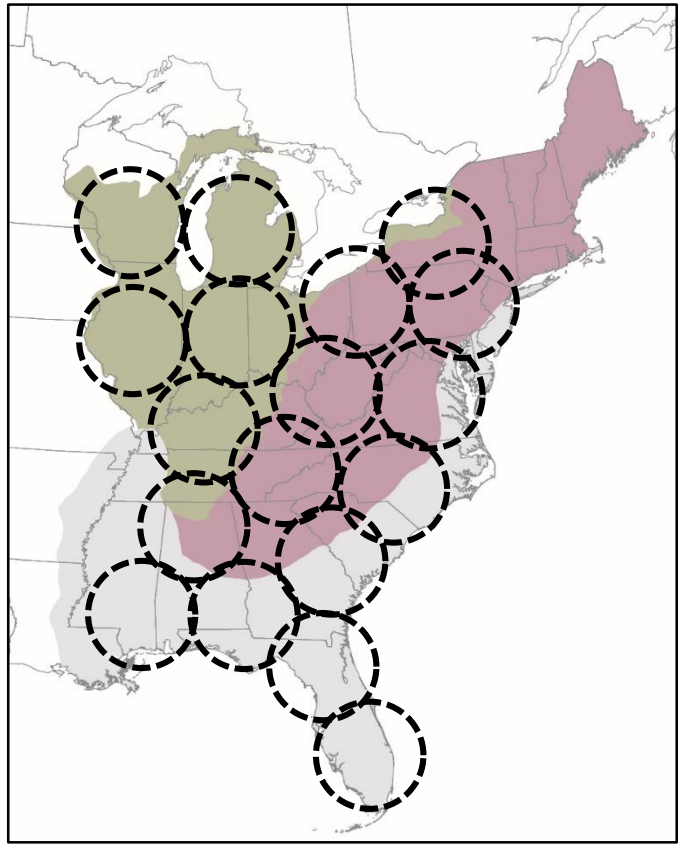
Atlantic Plain
759,328 square km

High residential mobility in Kirk societies



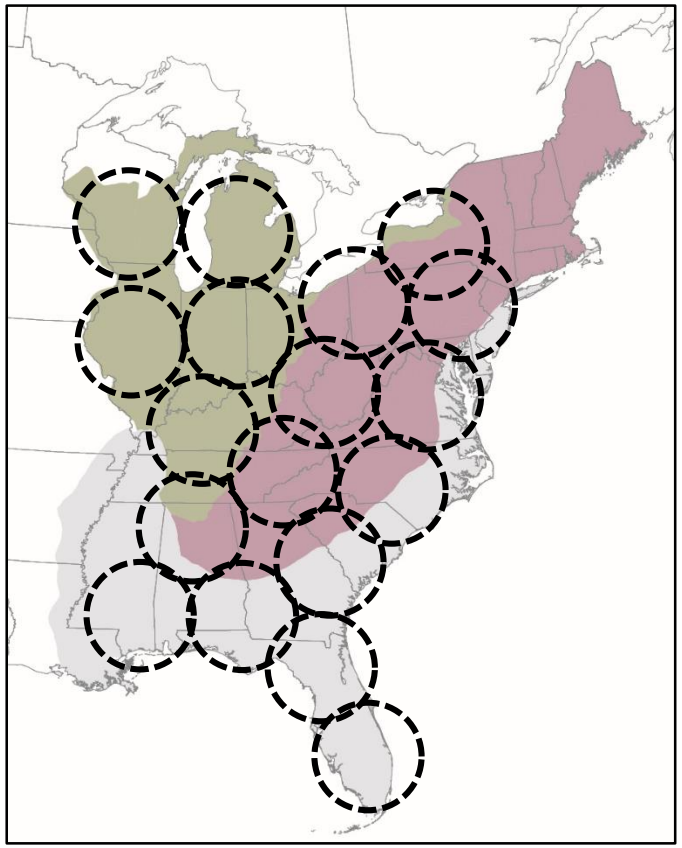
Presume a 200 km radius of residential mobility for a Kirk "band"

~126,000 square km per "band"



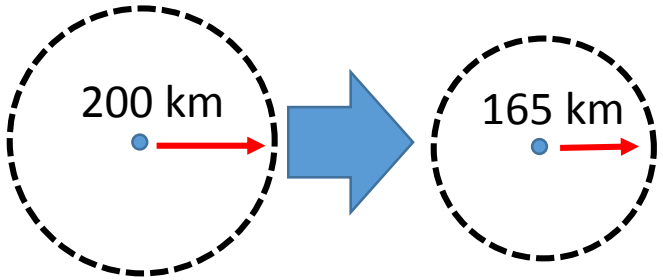
A total of 18 "bands" occupying the three regions

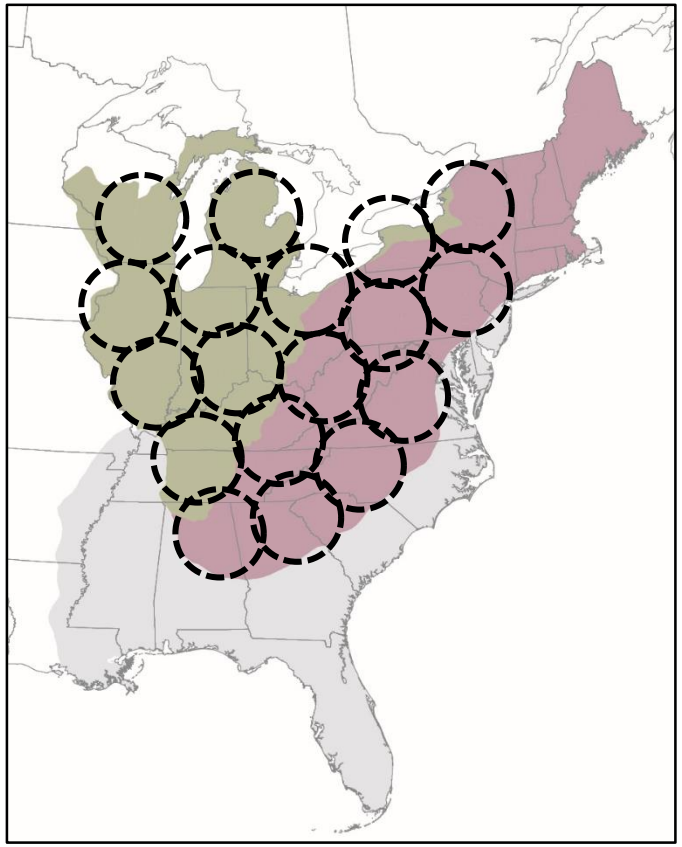
Assuming population stays the same, mobility has to change if the occupied area shrinks



A total of 18 “bands” occupying all three regions

If occupied area shrinks by a third, mobility radius has to be reduced by 17%

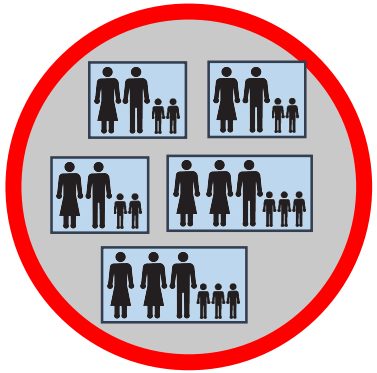




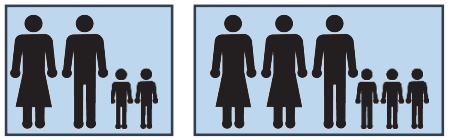
A total of 18 “bands” occupying two regions

Reductions in the scale of mobility would have had ramifications up and down the levels of society

- Distance and frequency of residential moves
  - Some combination of **fewer moves** (e.g., 43 moves/year instead of 52 moves/year) or **shorter moves**
- Mobility strategies
  - **Strategic choices** about residential vs. logistical mobility (cheaper to bring food to people in some circumstances?)
- Long-distance interactions
  - Closer proximity on the landscape would make it easier to maintain long-distance relationships through face-to-face interaction → **less gifting, less long-distance marriage** required for maintaining sufficient social fabric



Foraging Groups



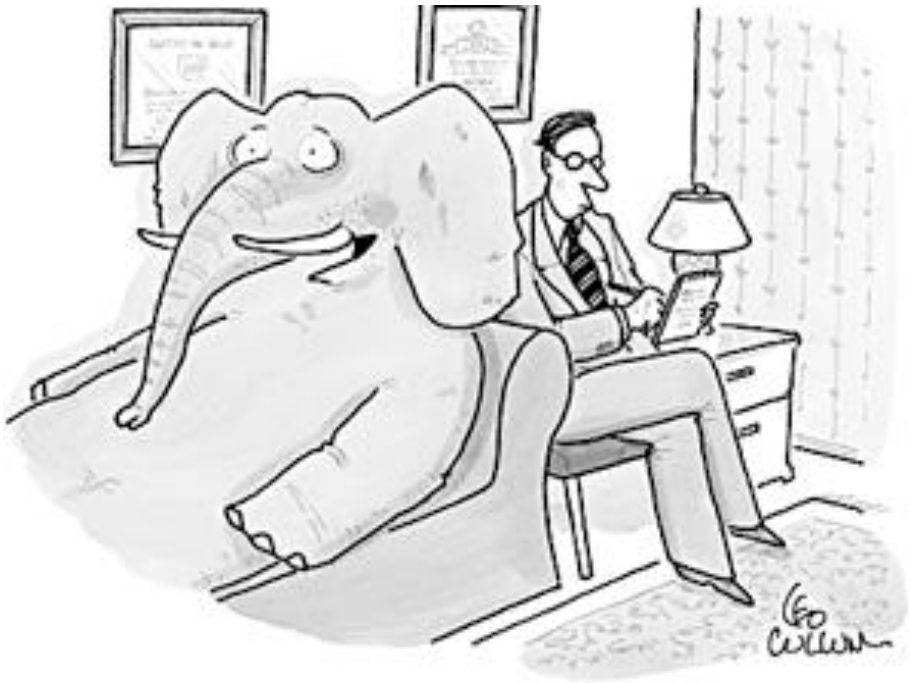
Households

Persons

Gender roles?

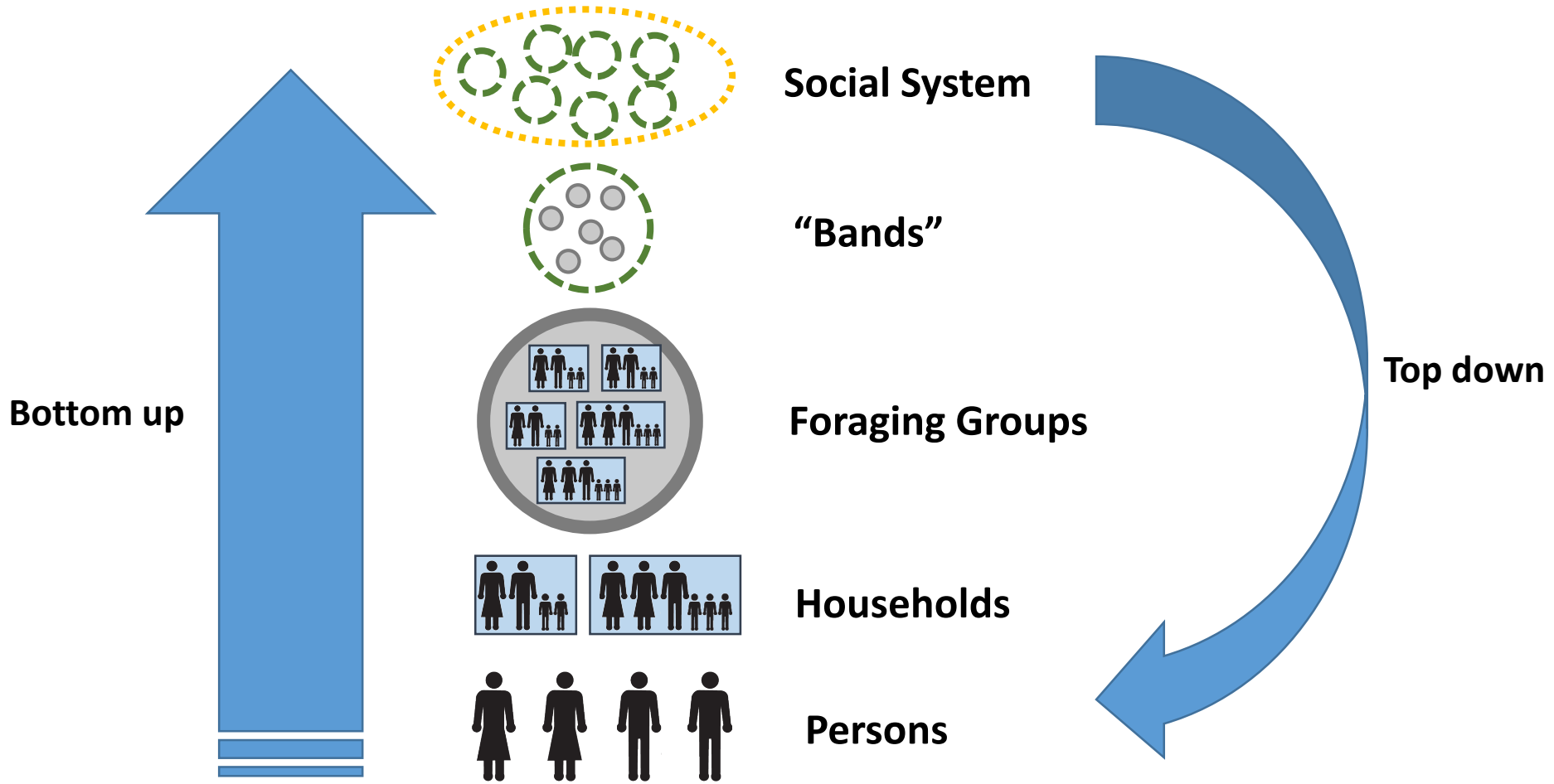
Changes in mobility would have also affected roles and responsibilities within families

- Production (subsistence . . . increase in diet breadth)
- Reproduction (family size and structure)
- Politics (“internal” vs. “external” relationships)



“I’m right there in the room, and no one even acknowledges me.”

There would have been feedbacks between different levels of Early Archaic societies

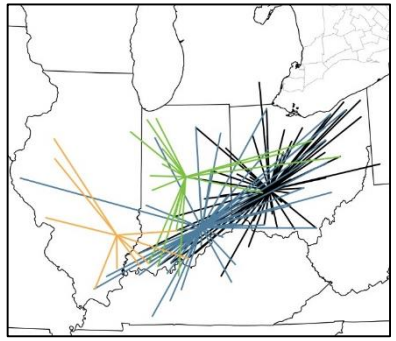


Ways Forward: Developing and Testing Expectations

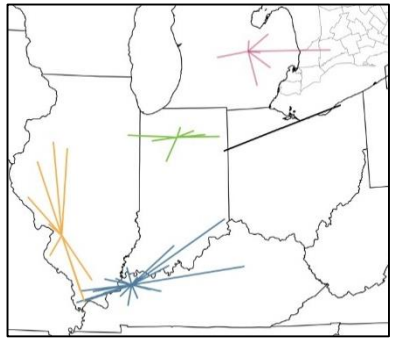
Both archaeological and theoretical components required

Hypothesis	Basic Data	Expectation
The **Atlantic Plain was largely abandoned** during the period 9000-7000 RCYBP	• Radiocarbon • Projectile point distributions • Stratigraphic sequences	Broad pattern of lack of evidence for intensive occupation
Abandonment coincided with **environmental change** that lowered the attractiveness of the Atlantic Plain	• Environmental data	9000-7000 RCYBP Atlantic Plain environments were significantly less productive than pre-9000 RCYBP and those of other regions (Interior Plains, Appalachian Highlands)
Abandonment followed by a significant **reduction in the scale of mobility**	• Lithic raw material data	Bifurcate points will show significantly lower mean transport distances
Maintenance of social fabric **less dependent on gift-giving**	• Gift items (lithic and non-lithic)	Post-Kirk indicators of long-distance gift exchange will be reduced or absent
Maintenance of social fabric **less dependent on long-distance marriage and other personal movements**	• Patterns of variability in material culture	More regionalization of projectile point styles

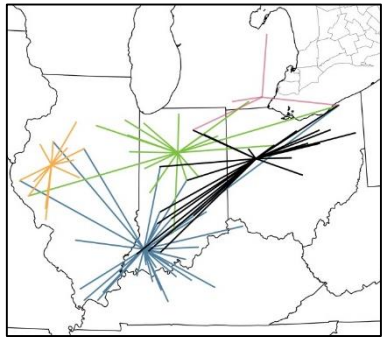
Hypothesis	Basic Data	Expectation
Abandonment followed by a significant **reduction in the scale of mobility**	• Lithic raw material data	Bifurcate points will show significantly lower mean transport distances



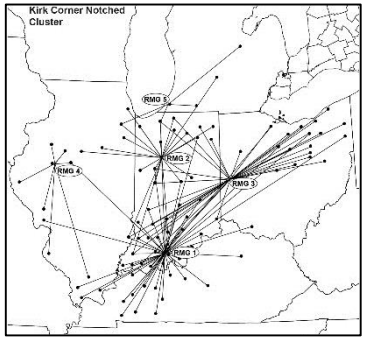
Early Paleoindian



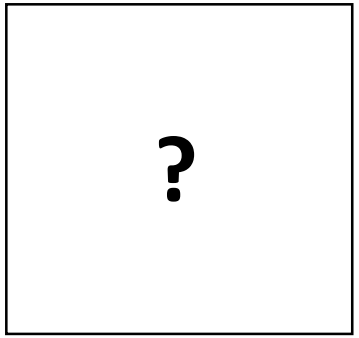
Late Paleoindian (Dalton/Hi-Lo)



Early Archaic (Thebes)



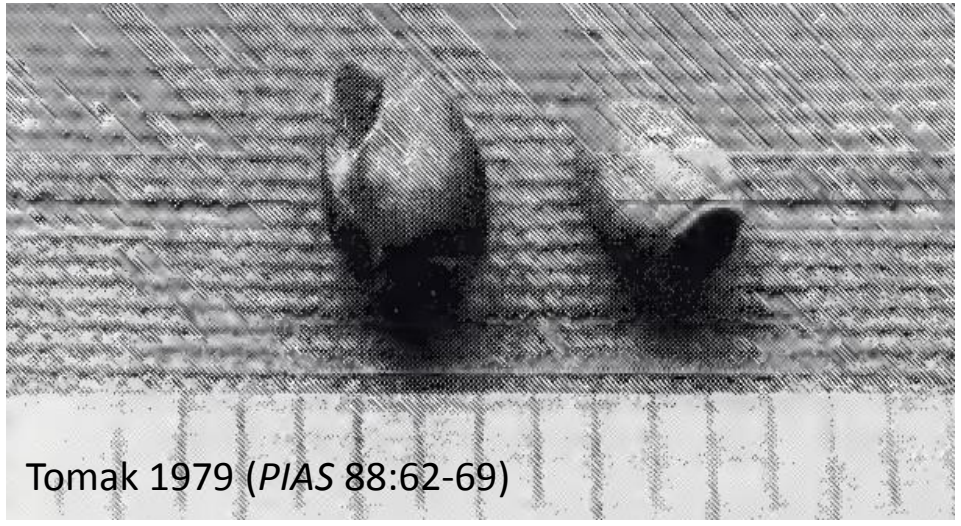
Early Archaic (Kirk)



Early Archaic (Bifurcate)

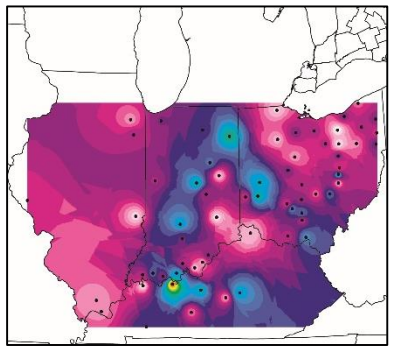
Hypothesis	Basic Data	Expectation
Maintenance of social fabric **less dependent on gift-giving**	• Gift items (lithic and non-lithic)	Post-Kirk indicators of long-distance gift exchange will be reduced or absent

Marine shell beads from Modoc Rock Shelter (Randolph County, Illinois)

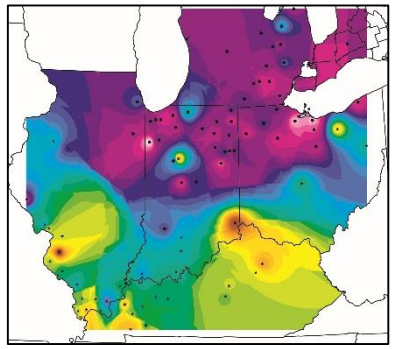


Marine shell beads from the Jerger Site (Daviess County, Indiana)

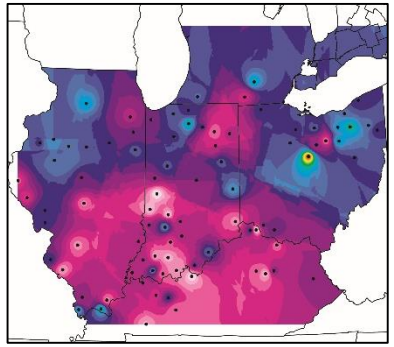
Hypothesis	Basic Data	Expectation
Maintenance of social fabric **less dependent on long-distance marriage and other personal movements**	• Patterns of variability in material culture	More spatial patterning in projectile point styles



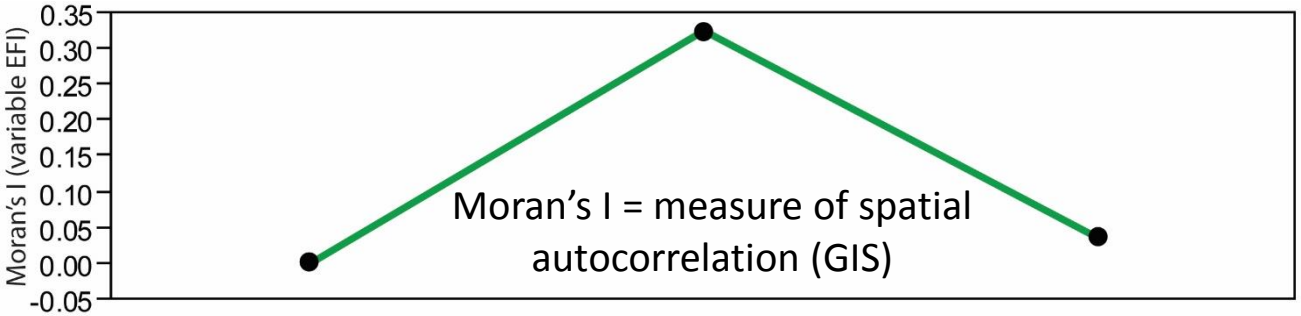
Early Paleoindian



Late Paleoindian

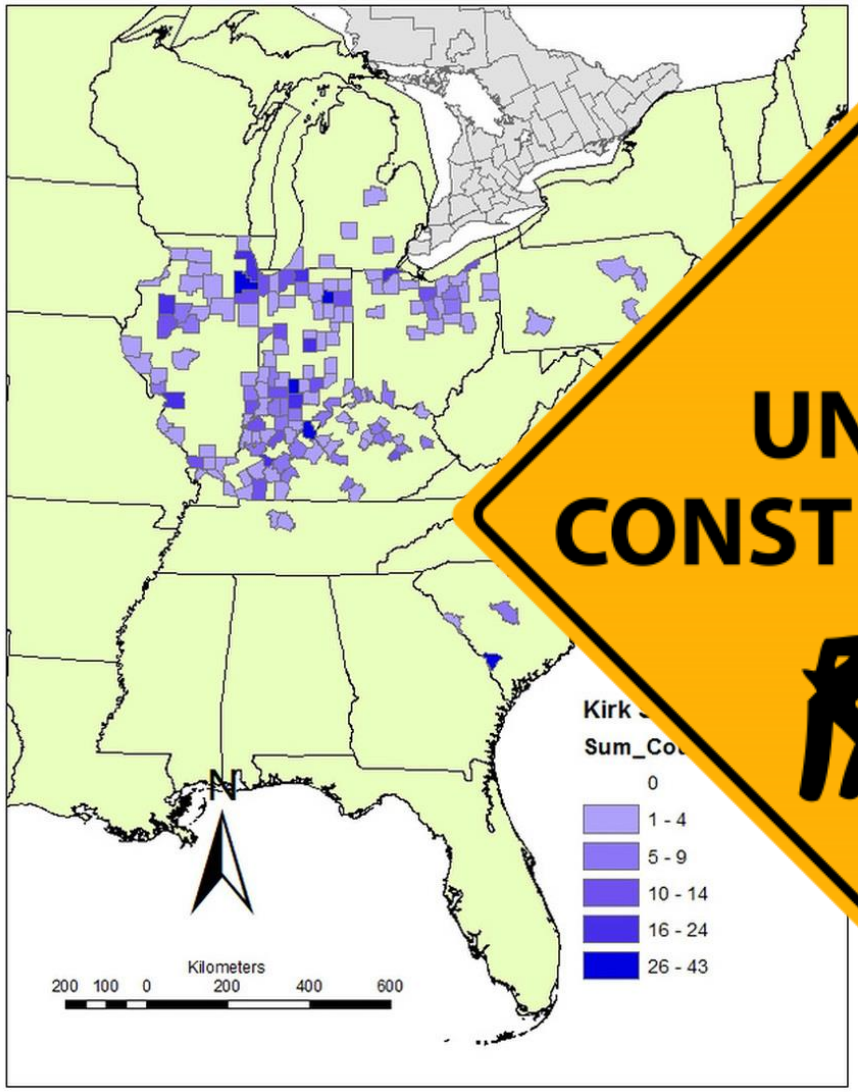


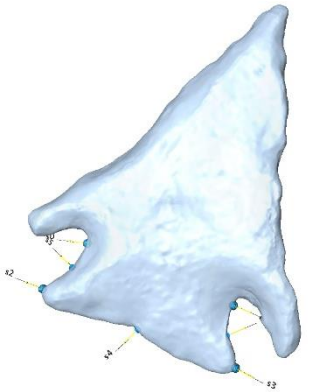
Early Archaic



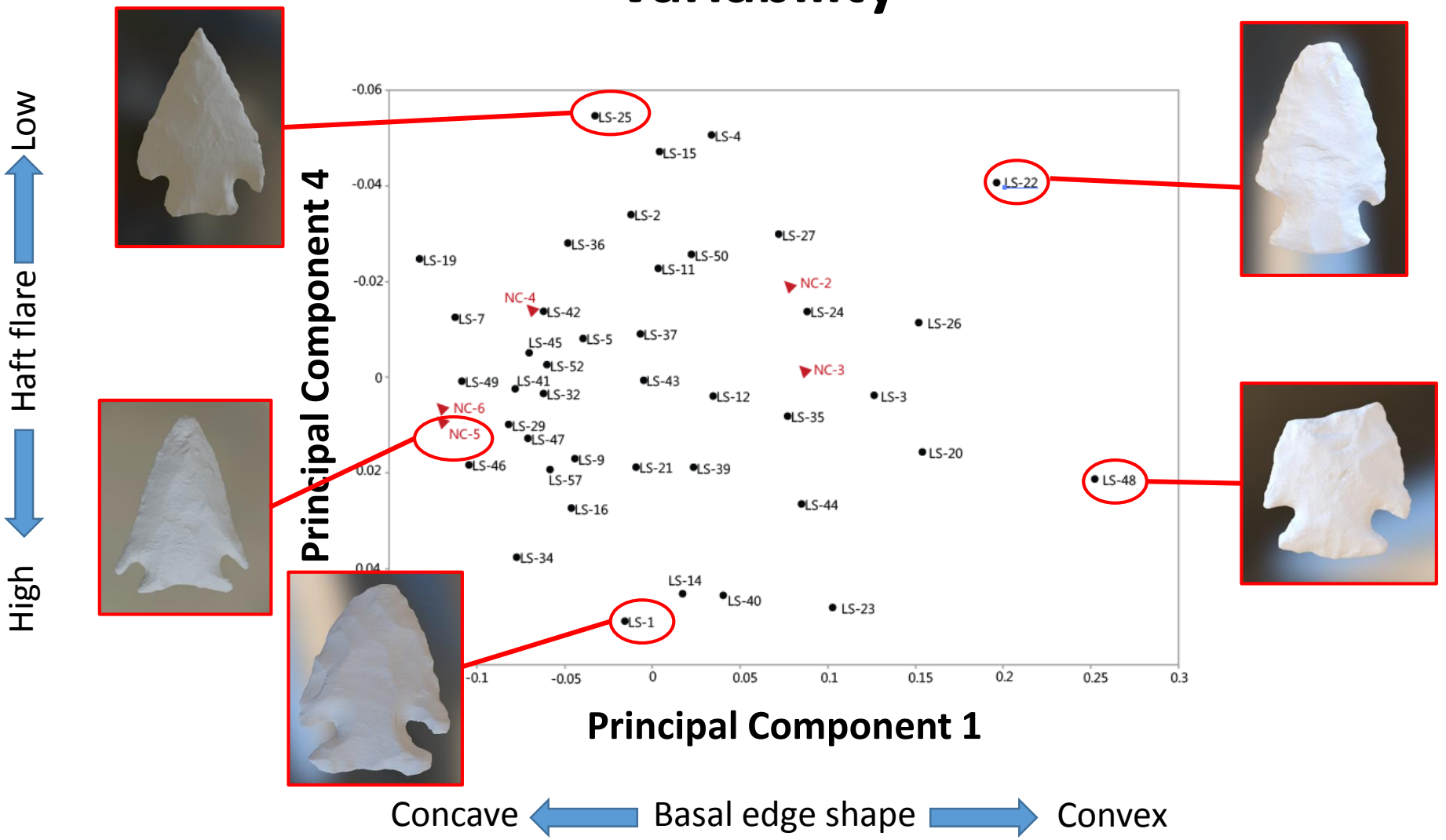
Social networks, social learning, and patterns of stylistic variability

The Kirk Project





Goal: understand spatial and temporal components of variability



The final card I will play: the Lloyd Williams card

“Retreat? Hell, we just got here.”

Abandonment

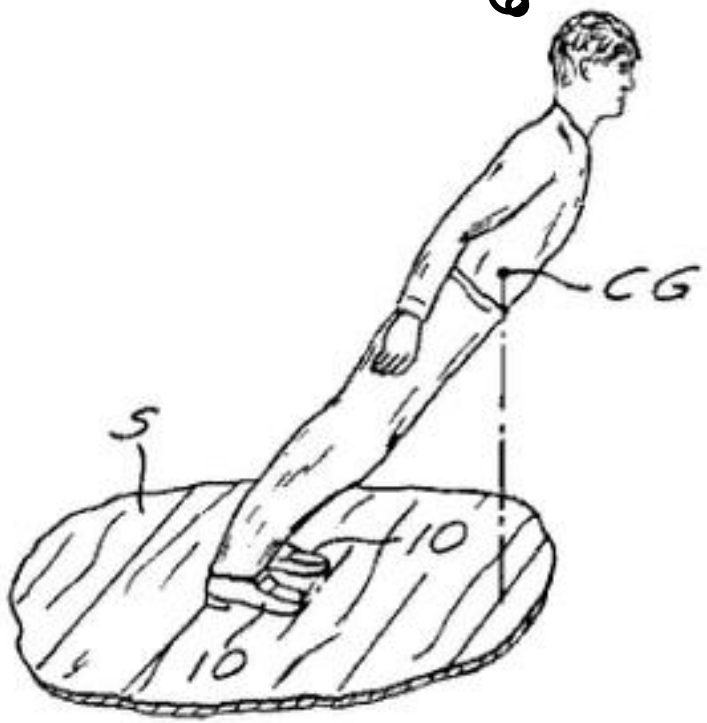


Fig. 6

Thank you

Archaeological Research Trust, SCIAA, Al Goodyear, David Anderson, Shane Miller, CARD, Ken Sassaman