

Human Influence on Tree Island Formation in the Florida Everglades: Lessons from Prehistory for Restoration Science

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2018 International AMOC Science Meeting
Coconut Grove, Florida





Research paper

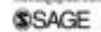
Prehistoric human impact on tree island lifecycles in the Florida Everglades

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Abstract

The current study provides a fine-grained analysis of evidence for sustained pre-Columbian human occupation and socio-ecological interaction within Everglades National Park. Utilizing archaeological data on dietary and cultural patterns recovered from recent excavations at a prehistoric tree island site.

The Holocene
2016, Vol. 26(5) 772–780
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DOI: 10.1177/0959683615618254
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Chronology of Florida Prehistory

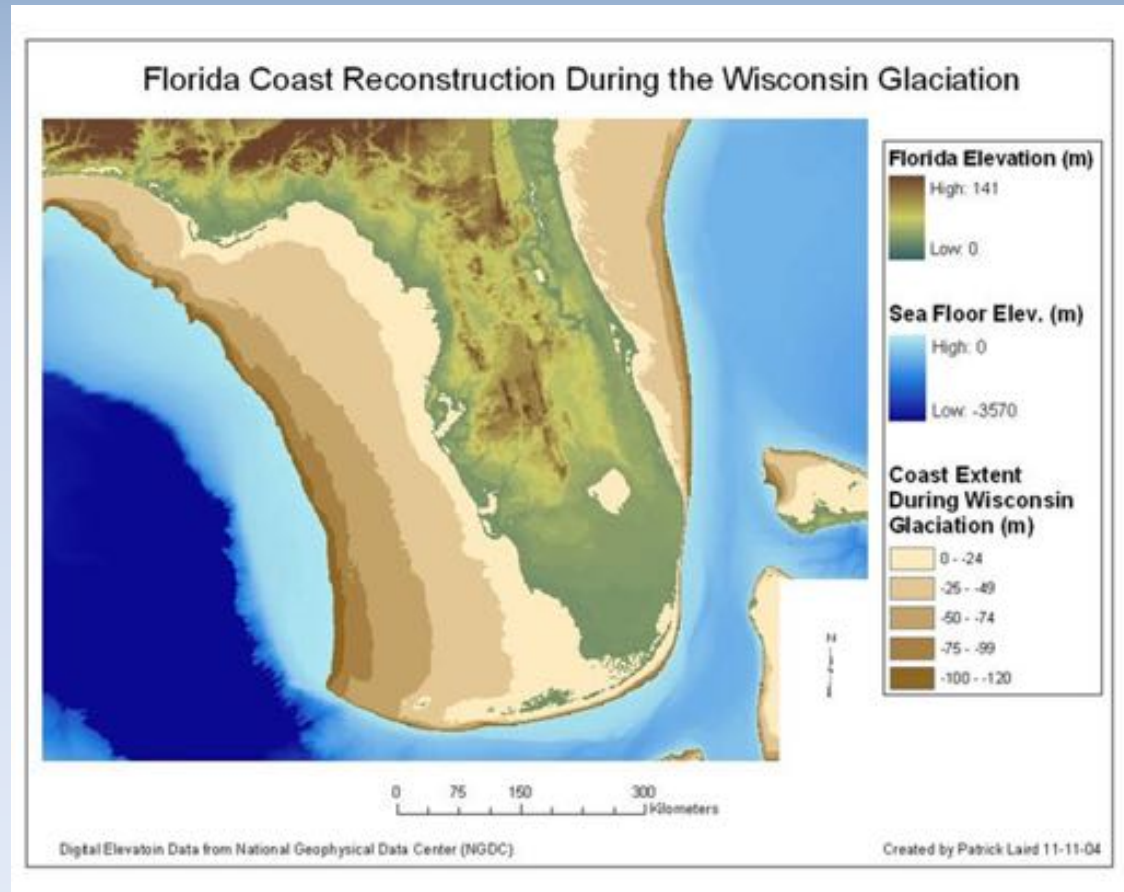
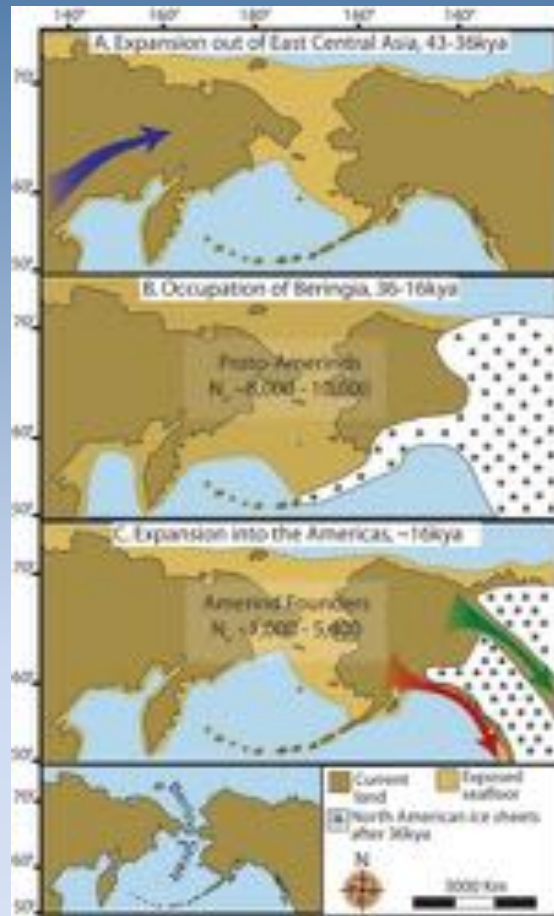
10,000-12,000 BCE—arrival of the first humans

10,000-5,000 BCE— Early Archaic Period of mobile gatherers and hunters

5,000-3,000 BCE—Middle Archaic—first permanent settlements along coasts and rivers

3,000-500 BCE—Late Archaic—larger settlements, first pottery, widespread contacts

500 BCE-1500 CE—Glades Sequence for South Florida—emergence of Calusa, Tequesta, Matecumbe, contact and movement up to arrival of Europeans



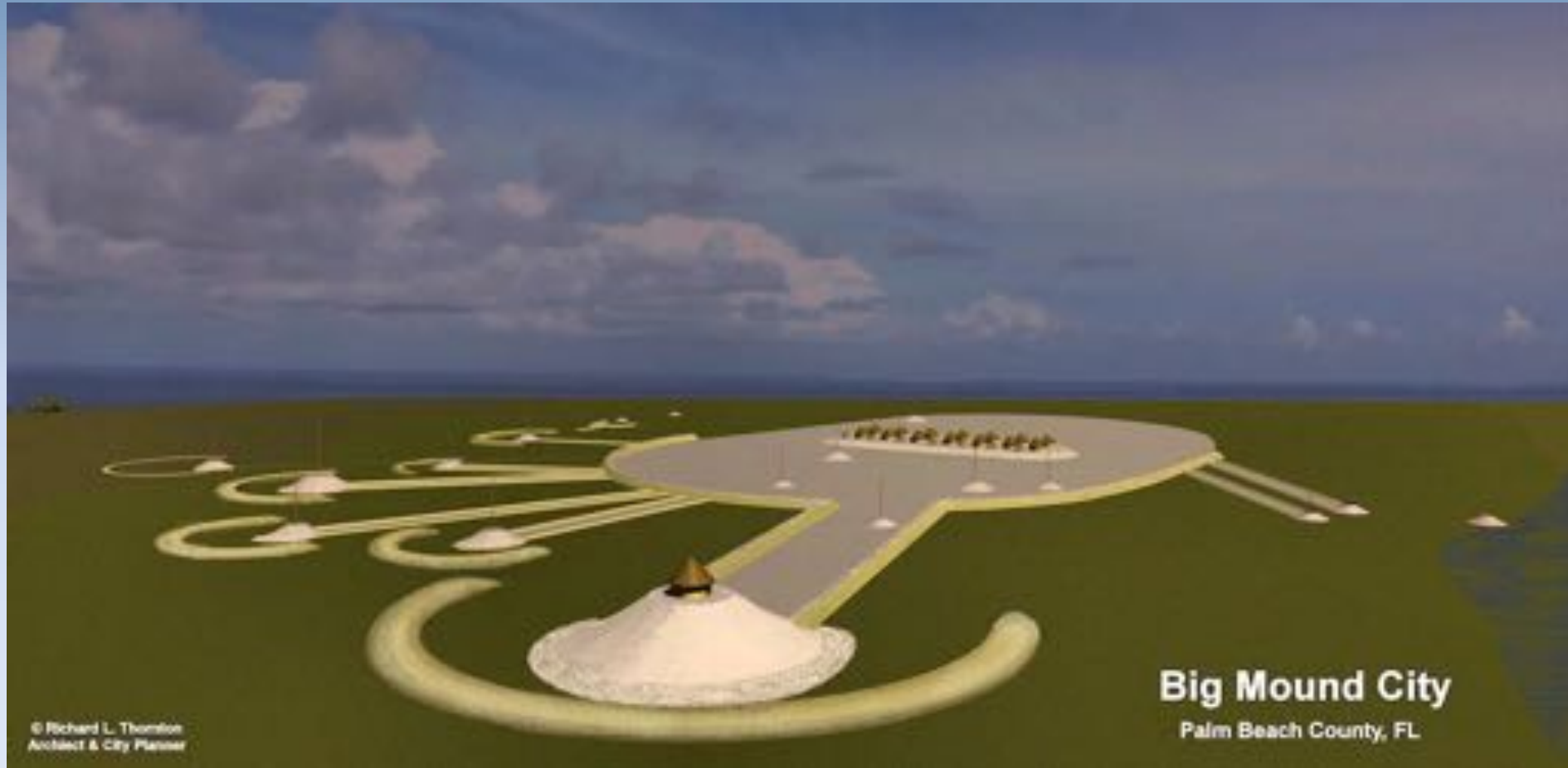


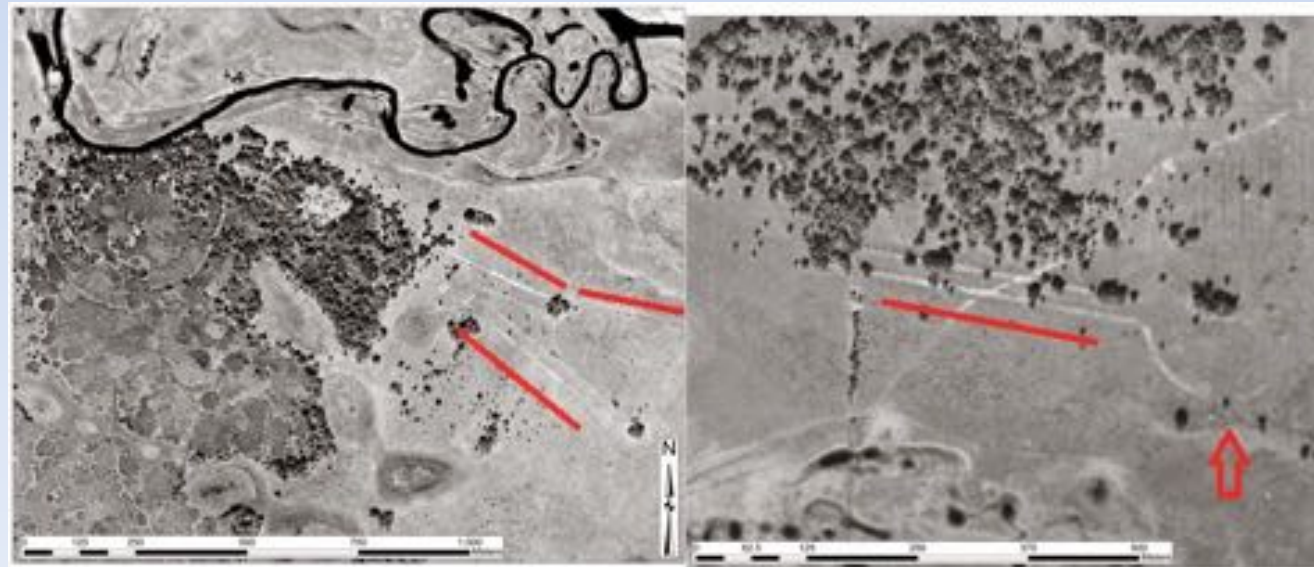
Little Salt Spring, Sarasota County





Late Archaic 3000 BCE-500 BCE





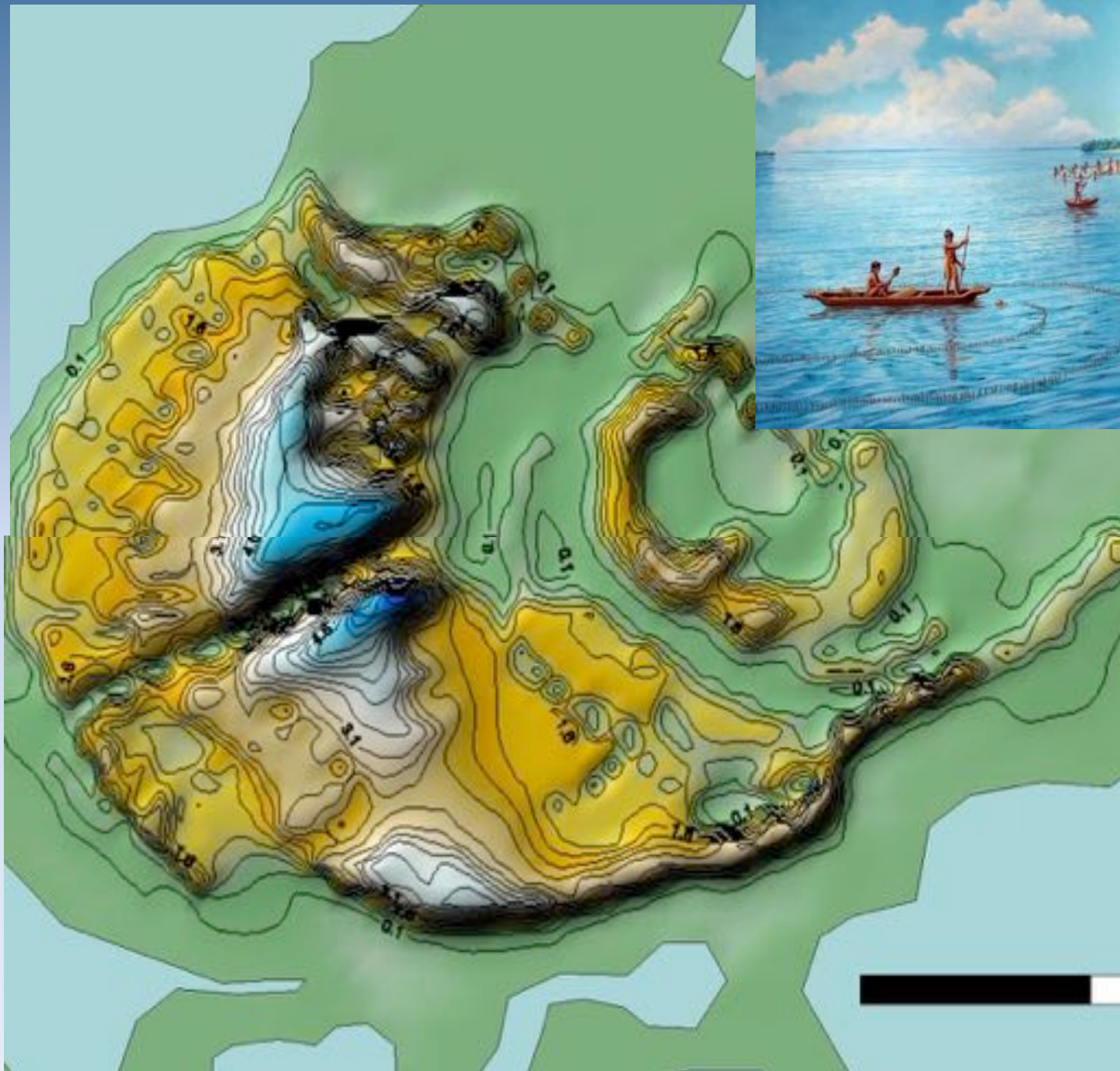
Ft. Center (L) Lakeport (R) 1949



Glades Series 500 BCE-1500 CE





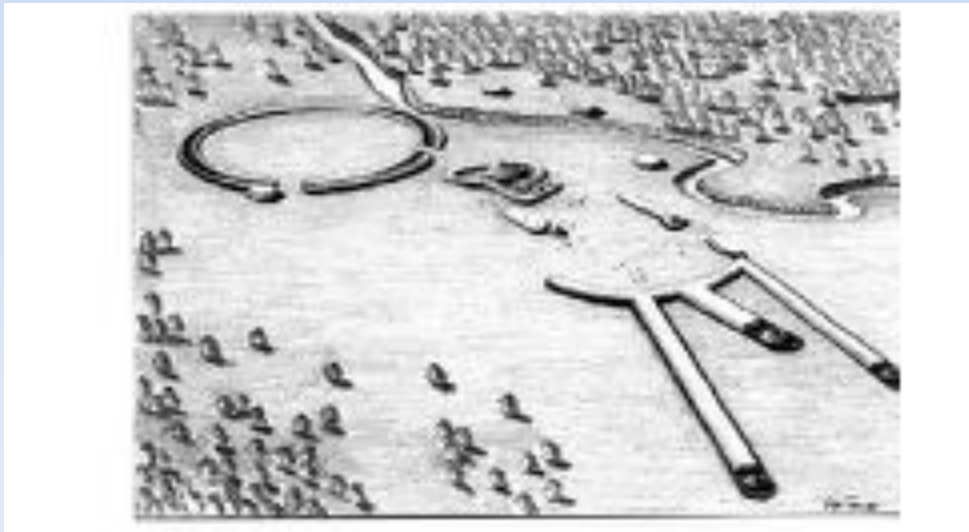
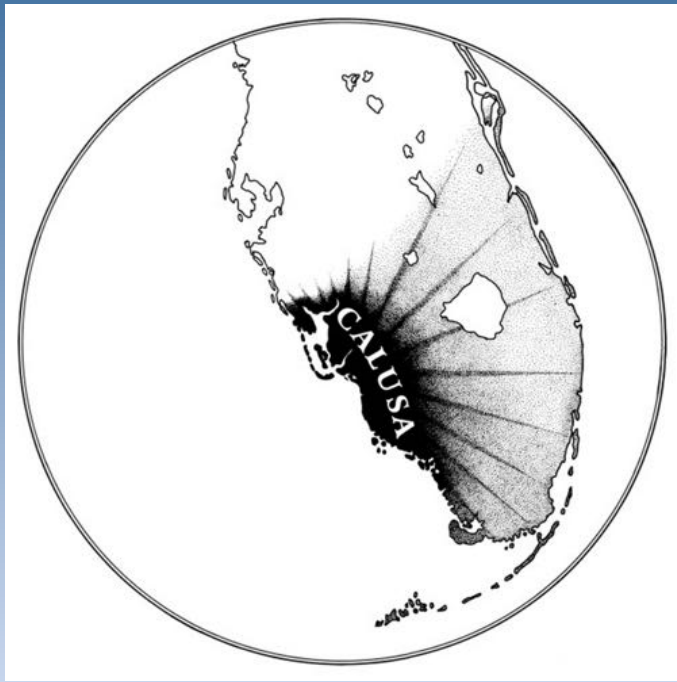




Reconstructed house on shell midden, FMNH

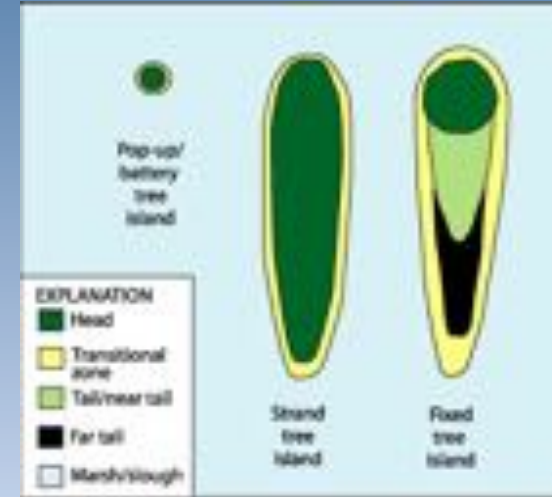


Calusa art from Key Marco submerged contexts

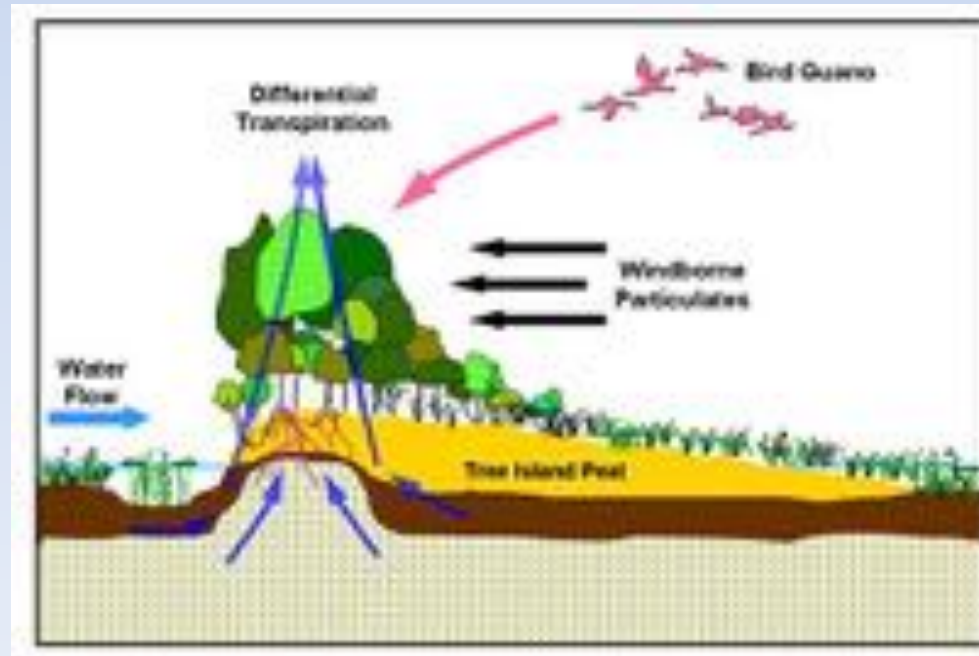


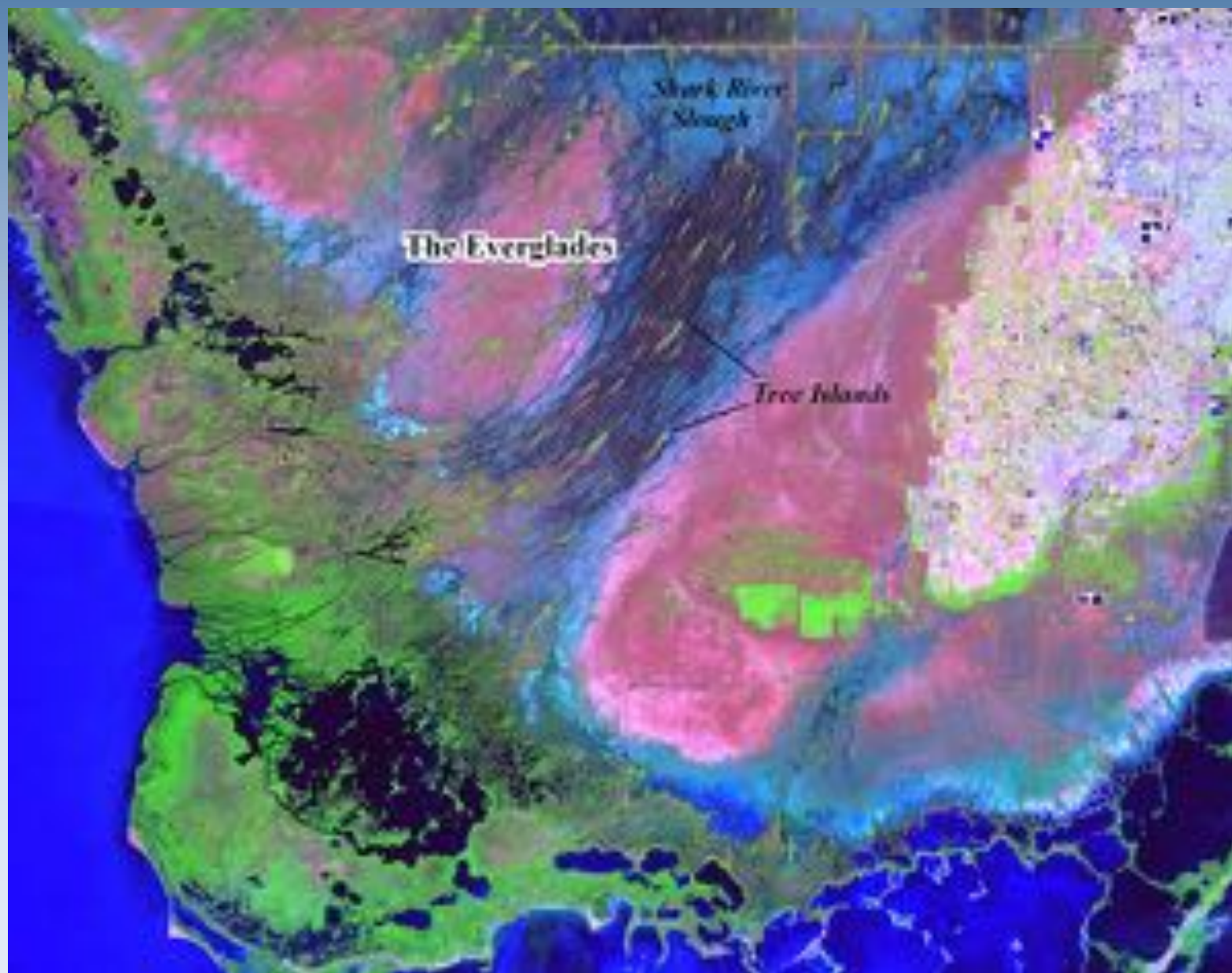
The Calusa were trading with inland sites near Lake Okeechobee, with the Everglades, and Keys





Tree island formation









Schwadron 2006





Coptic Church Site



**Grossman
Hammock Site**





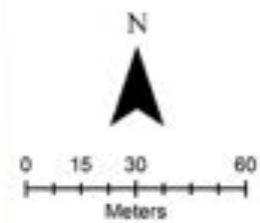
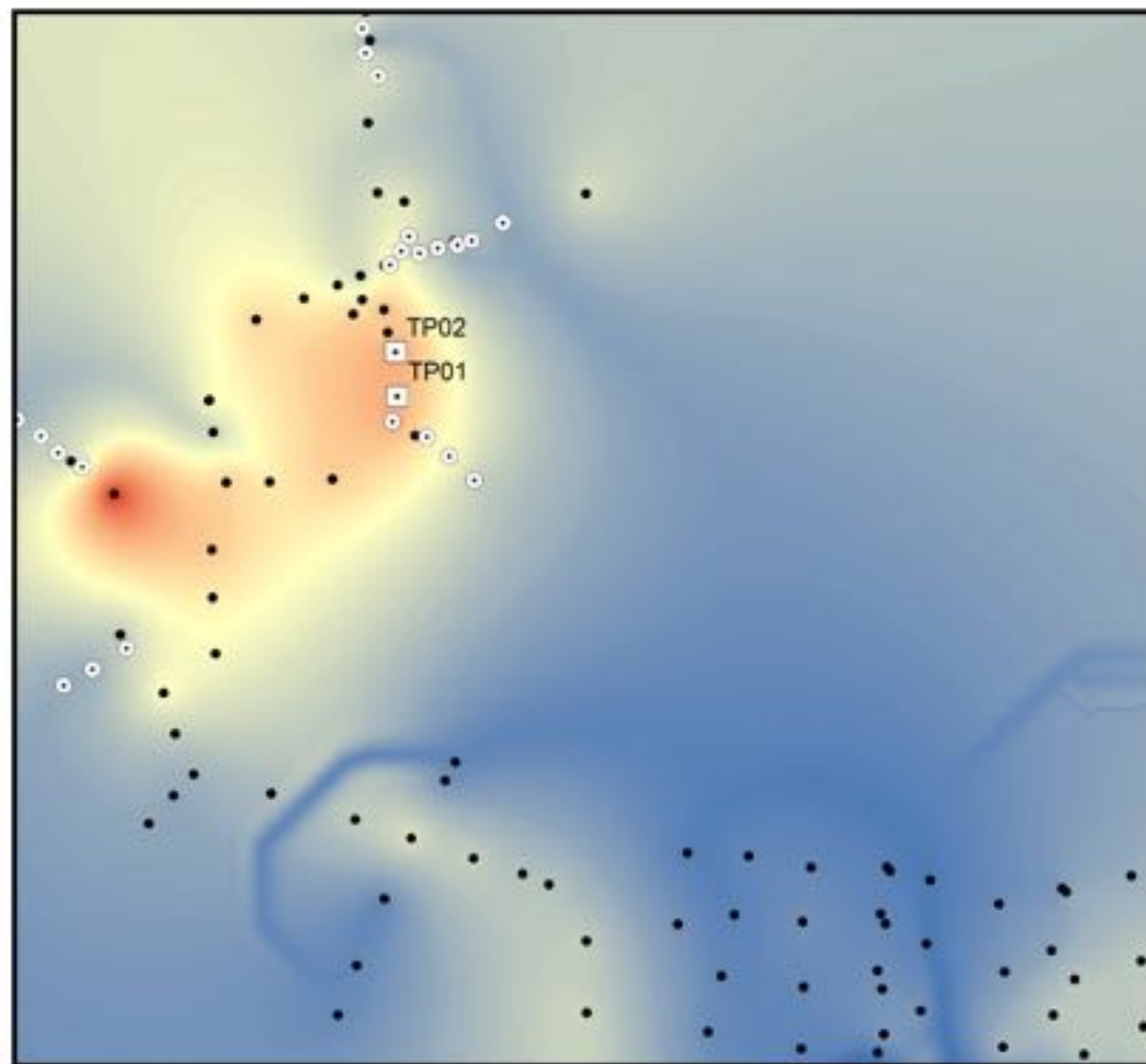












Legend

- Test Pits
- Shovel Tests
- Topographic Points

Interpolation







Test Pit # 2







8DA1085 Ceramics
Opa-Locka Incised/ Glades IIa



8DA1085 Worked bone



8DA1085 Shark Teeth

Test Pit 1

Category	Count	%	WT. (g)	%
Fish	543	20.77%	153	19.97%
Amphibian	8	0.31%	2	0.26%
Utd. Reptile	75	2.87%	32	4.18%
Snake	1063	40.67%	232	30.29%
Turtle	895	34.24%	329	42.95%
Mammal	10	0.38%	12	1.57%
Bird	20	0.77%	6	0.78%
TOTAL	2614	100	766	100

Test Pit 2

Category	Count	%	Weight (g)	%
Fish	1041	21.31%	396	16.80%
Amphibian	16	0.33%	4	0.17%
uid. Reptile	385	7.88%	224	9.50%
Snake	1341	27.46%	498	21.13%
Turtle	1952	39.97%	1101	46.71%
Mammal	121	2.48%	114	4.84%
Bird	28	0.57%	20	0.85%
TOTAL	4884	100	2357	100

Composite

Category	Count	%	WT. (g)	%
Fish	1584	21.13%	549	17.58%
Amphibian	24	0.32%	6	0.19%
uid. Reptile	460	6.13%	256	8.20%
Snake	2404	32.06%	730	23.37%
Turtle	2847	37.97%	1430	45.79%
Mammal	131	1.75%	126	4.03%
Bird	48	0.64%	26	0.83%
TOTAL	7498	100	3123	100

CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-23.3 lab. mult=1)

Laboratory number: Beta-286429

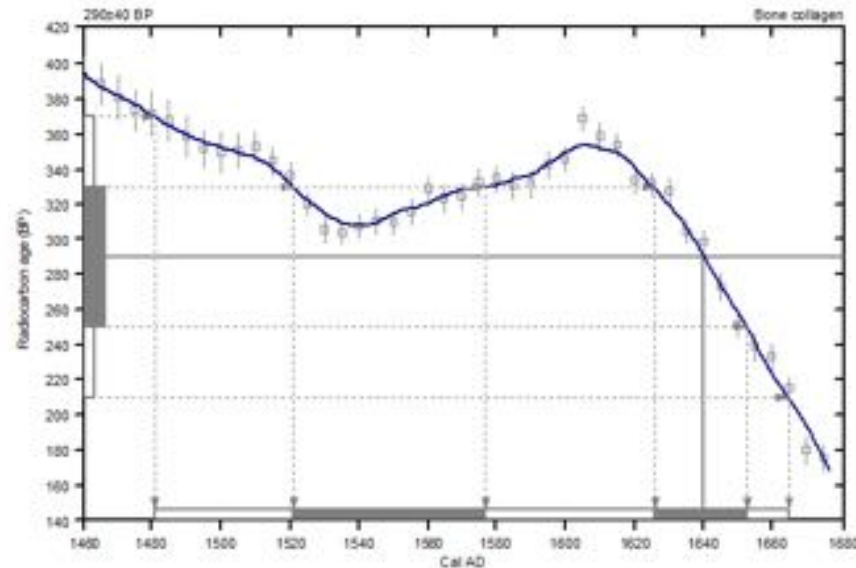
Conventional radiocarbon age: 290 ± 40 BP

2 Sigma calibrated result: Cal AD 1480 to 1660 (Cal BP 470 to 280)
(95% probability)

Intercept data

Intercept of radiocarbon age
with calibration curve: Cal AD 1640 (Cal BP 310)

1 Sigma calibrated results: Cal AD 1520 to 1580 (Cal BP 430 to 370) and
Cal AD 1630 to 1650 (Cal BP 320 to 300)



References:

Database used

INTCAL94

Calibration Database

INTCAL94 Radiocarbon Age Calibration

IntCal94: Calibration Issue of Radiocarbon (Volume 46, no 1, 2004)

Mathematics

A Simplified Approach to Calibrating C14 Data

Talbot, A. S., Vogel, J. C., 1993, Radiocarbon 35(2), p317-322

Beta Analytic Radiocarbon Dating Laboratory

4085 S.W. 74th Court, Miami, Florida 33155 • Tel: (305) 667-5167 • Fax: (305) 663-0904 • E-Mail: beta@radiocarbon.com

AD 1480-1660, 2 sigma range



Lessons for Restoration Science

- *persistent human occupation and modification of the Everglades documented throughout its existence (6000 BP-present)**
- *80-90% of tree islands in the Everglades have evidence of human occupation**
- *human deposition of organic material with high phosphoric context likely contributed to tree island formation**
- *modern Western preconceptions about the challenges of living in tropical environments have hindered scientific research on human occupation of tree islands**
- *sea level rise will destroy this heritage**
- *restoration to when?**



Thank You



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