Crops Before Corn

AN INVESTIGATION OF EASTERN AGRICULTURAL COMPLEX PLANTS AT THE TOM JONES SITE, ARKANSAS

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Corn, Beans, and Squash
Eastern Agricultural Complex

- Initial domestication ca. 4000 – 3000 BP
- Earliest occurrences found in upper South and lower Midwest
- Initial evidence of EAC from rock shelters, but difficult to prove that they were actually grown as crops in prehistory
Wild-Cultivated-Domesticated Spectrum

Activities

• No intervention
• Encourage/tend
  - Clearing out competing trees
  - Bringing water to plants during drought
  - Pruning plants
  - Burning
• Control reproduction
  - Transplanting
  - Collecting and planting seeds

Outcomes

• Cultivation - preparing a seed bed, garden, field, planting the seeds however, identical to wild plants
• Domestication - putting different selective pressures on plants and animals; generally genetic and/or phenotypic plants dependent on people
Eastern Agricultural Complex Plant Species

- Sumpweed (Iva annua)
- Sunflower (Helianthus annus)
- Maygrass (Phalaris caroliniana)
- Goosefoot (Chenopodium berlandieri)
- Knotweed (Polygonum erectum)
- Little Barley (Hordeum pusillum)
- Squash (Cucurbita pepo)
Squash and Gourds

• Bottle gourd (date?)
• Squash (4400 BP)
• Produce starchy seeds but not much flesh
• Rinds can be used as floats or containers
• Domestication marked by seed enlargement and increase in rind thickness
Sunflower and Sumpweed

- Sunflower (4300 BP)
- Sumpweed (3900 BP)
- Oily seeds
- Domestication marked by increase in seed size
Goosefoot and Erect Knotweed

- Goosefoot (3500 BP)
- Erect knotweed (2500 BP)
- Starchy seeds, Fall food source
- Seed coat thickness, larger perisperm
Goosefoot

Wild goosefoot

Domesticated goosefoot
Erect knotweed – two phenotypes
Longer/shorter
Thick/thin seed coat
Maygrass and Little Barley

- Maygrass (date?)
- Little barley (date?)
- Starchy seeds, Spring resources
- Geographic range, quantity

little barley

Maygrass
WHEAT
Middle East
Domesticated ~7,000 B.C.

Selection for tougher rachis to control harvesting
Why Switch to Corn Agriculture?

- Population growth?
- Nutrition?
- Efficiency of production/collection?
- Prestige?
- Spiritual/cultural beliefs?
Contour map of the Tom Jones Site
Area 7 Structure

- Nutshell n=390
- Maize n=912
- Bean n=3
- EAC Crops n=354
- Amaranth n=18
- Fleshy Fruits n=23

Mound B Structure

- Nutshell n=19
- Maize n=1760
- Bean n=5
- EAC Crops n=38
- Amaranth n=8

Relative Frequency by Count of Subsistence Plant Remains
(a) Domesticated goosefoot (b) Wild goosefoot

Domesticated goosefoot seed
(9) Tom Jones
Amaranth

Thin-seed coat amaranth seed

Close up of thick-seed coat amaranth seed

mm

a.

mm

b.