In Search of the First Americas

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Who were the first Americans?

When did they arrive in the New World?

Where did they come from?

How did they travel to the Americas & settle the continent?

A Brief History of Paleoamerican Archaeology

Prior to 1927 **People arrived late to the Americas ca. 6000 B.P.**

1927 Folsom Site Discovery, New Mexico

Geological Estimate in 1927
10,000 to 20,000 B.P.

Today--12,000 cal yr B.P.

Folsom Point

Blackwater Draw (Clovis), New Mexico

1934 Clovis Discovery

Folsom (Bison)

Clovis (Mammoth)

Ernst Antevs
Geological estimate
13,000 to 14,000 B.P.

Today 13,000 cal yr B.P.

1935-1990

Calico Hills

Pedra Furada

Search continued for sites older than Clovis.

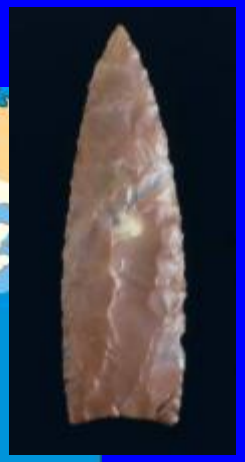
Most sites did not stand up to scientific scrutiny.

More Clovis sites were found across North America

The Clovis First Model became entrenched.

Tule Springs

Clovis First Model



Clovis were the first people to enter the Americas

-Originated from Northeast Asia

-Entered the Americas by crossing the Bering Land Bridge and passing through the Ice Free Corridor around 13,600 cal yr B.P. (11,500 ^{14}C yr B.P.)

-Clovis technology originated south of the Ice Sheets

-Distinctive tools that are widespread

-Within 800 years reached the southern tip of South America

-Big game hunters that killed off the Megafauna

Does this model still work?

What is Clovis?

- Culture
- Era
- Complex

Clovis is an assemblage of distinctive tools that were made in a very prescribed way.

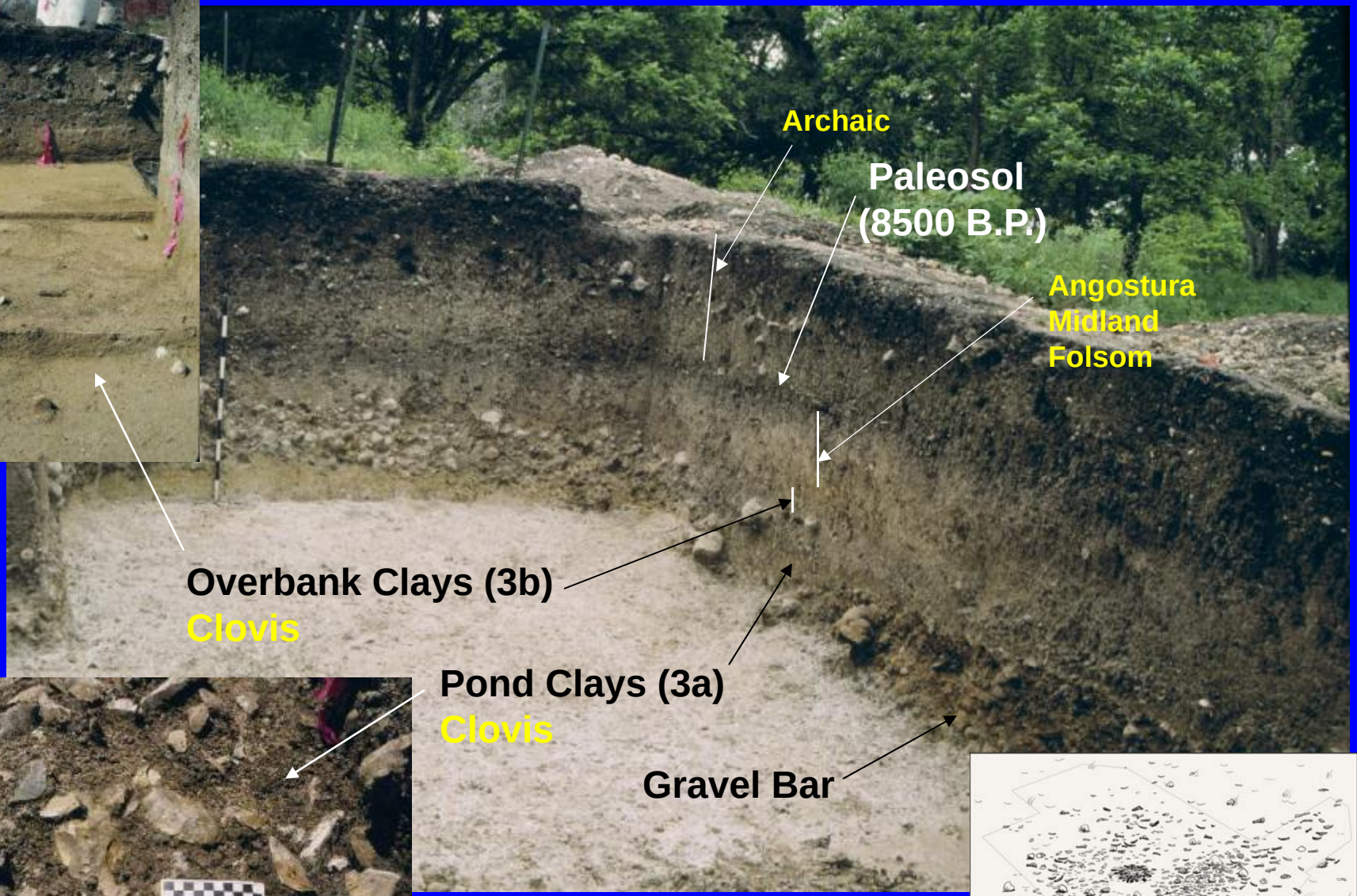
Blade technology

Biface technology

Ossesous technology

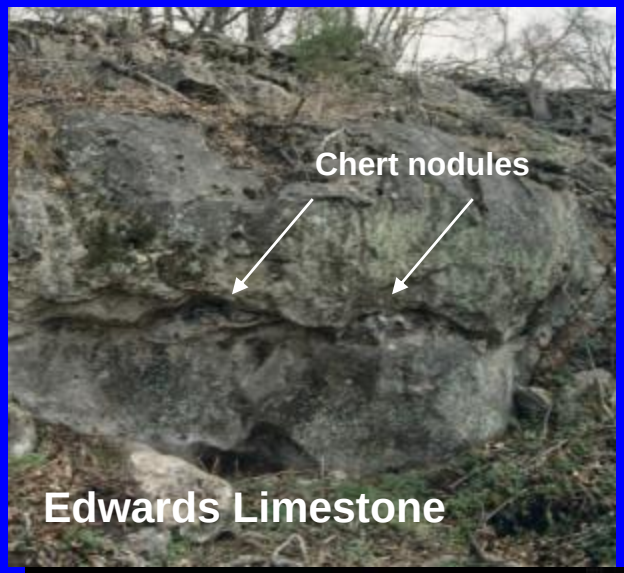
Gault Site, Texas 2000-2001

Clovis workshop (Biface & Blade Technologies)



12,920 ± 700 B.P. (UIC-981)
12,930 ± 730 B.P. (UIC-1015)
13,220 ± 740 B.P. (UIC-1004)
13,230 ± 760 B.P. (UIC-1249)

1. Clovis Biface Technology



Discarding worn-out points

Biface reduction through overshot flaking & enthinning

Making new points & knives

Hogeye Site, Texas

2010 75 miles east of Gault

Clovis Cache

52 Bifaces

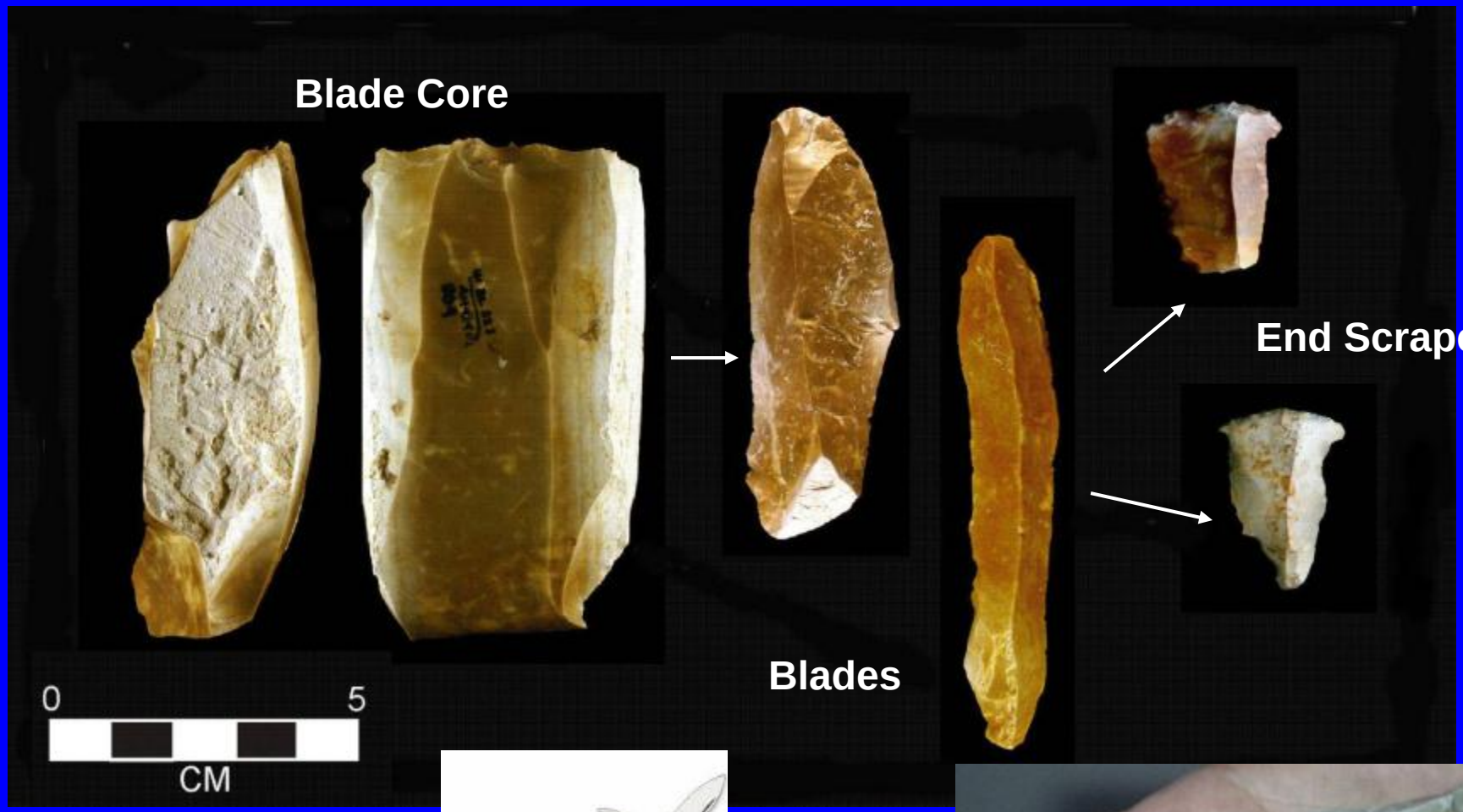
34 Preforms **14 Points**

0 5cm

5 Thin knives

0 5cm

2. Clovis Blade Technology



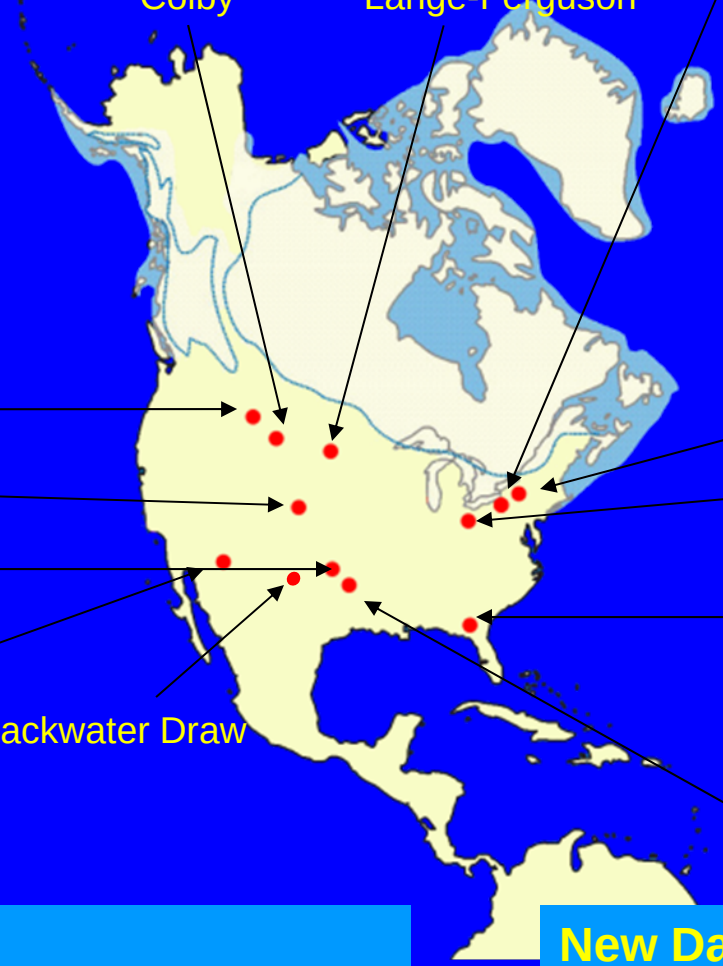
3. Clovis Osseous Technology

Bone, antler, and ivory

Points

Rods & Foreshafts

What is the Geographic Distribution of Clovis? How old is Clovis?



Dated Clovis Sites
(n = 13)

Old Dating
11,500 – 10,900 ^{14}C yr B.P.
13,400 – 12,700 cal yr B.P. (700 yr)

→

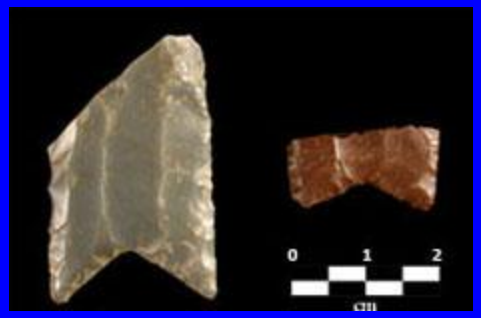
New Dating
11,100 – 10,700 ^{14}C yr B.P.
13,000 – 12,600 cal yr B.P. (400 yr)
(12,700-12,900 cal yr B.P.)

Is Clovis found in Siberia or Alaska?

Serpentine Hot Springs and Raven Bluff Sites, Alaska

Fluted Spear Points--12,000 cal yr B.P.

--Not Clovis
--Made differently



Are there Clovis-age sites in South America and are they Clovis?

Fishtail Points

or

Unifacial flake tools

Quebrada Jaguay
ca. 13,000 cal yr B.P.

Quebrada Santa Julia
13,000 cal yr B.P.

Piedra Museo 12,900 cal yr B.P.

Cerro Tres Tatas 12,900 cal yr B.P.
Cuevo Casa del Minero 12,900 cal yr B.P.

What Does this all Mean?

Alaskan Fluted Point Sites
11,900 cal yr B.P.
(10,150 ^{14}C yr B.P.)

Clovis
13,000 – 12,600 cal yr B.P.

Quebrada Jaguay
ca. 13,000 cal yr B.P.
(ca. 11,000 14C yr B.P.)

Quebrada Santa Julia
13,000 cal yr B.P.
(11,025 ± 45 ^{14}C yr B.P.)

Piedra Museo 12,900 cal yr B.P.
(10,960 ± 45 ^{14}C yr B.P.)

Cerro Tres Tatas 12,900 cal yr B.P. (10,935 ± 35 ^{14}C yr B.P.)

Cuevo Casa del Minero 12,900 cal yr B.P.
(10,985 ± 40 ^{14}C yr B.P.)

Evidence

--North and South America were both occupied at the same time.

--Alaskan fluted points 1000 years later than Clovis.

Conclusion

--Clovis does not represent the earliest occupation of the Americas.

--Need a new model to explain the peopling of the Americas

--Rethink Clovis

Pre-13,000 cal yr B.P. Sites

Evidence is limited

Meadowcroft Rockshelter, PA
13,400 to 15,200 cal yr B.P.

Paisley Caves, OR
14,100 cal yr B.P.

Schaefer & Hebior, WI
14,200 & 14,800 cal yr B.P.

Page-Ladson, FL
14,400 cal yr B.P.

Monte Verde, Chile
14,600 cal yr B.P.

Pre-13,000 cal yr B.P. Sites

Debra L. Friedkin Site, TX
15,500 cal yr B.P.

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13,400 to 15,200 cal yr B.P.

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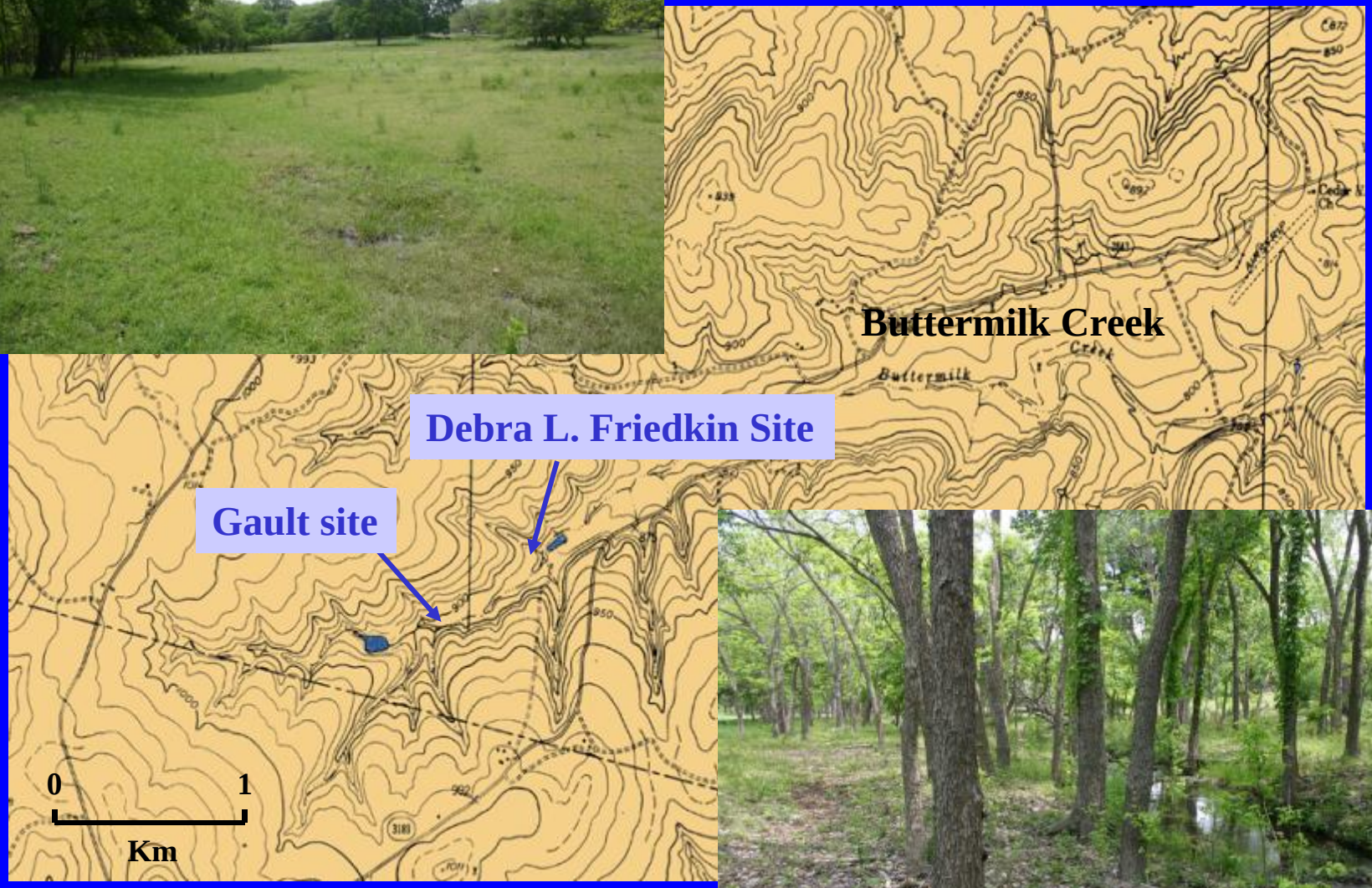
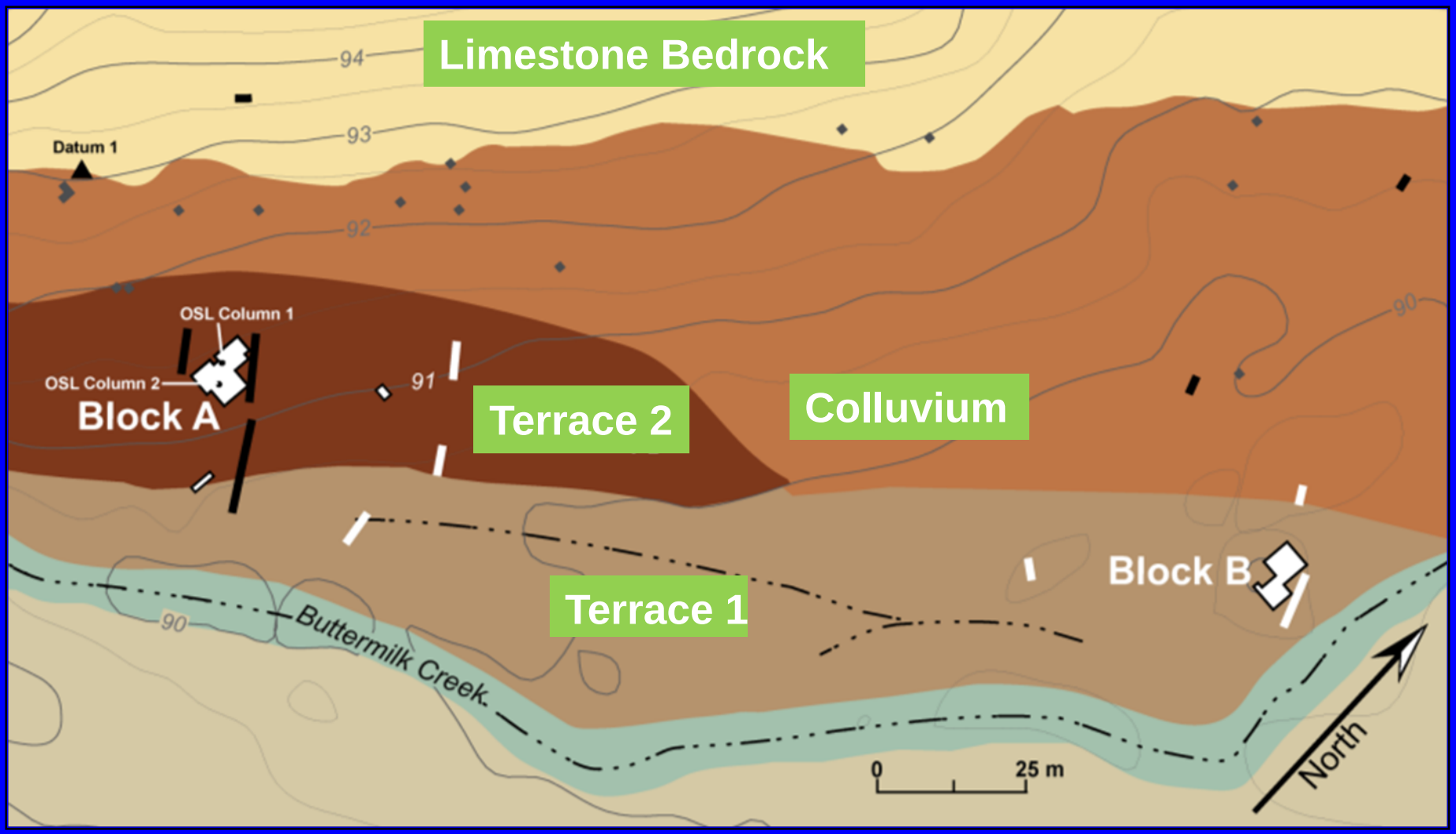
14,600 cal yr B.P.

Debra L. Friedkin Site

2006-2011




Limestone Bedrock
94
93
92
91
90
Datum 1
OSL Column 1
OSL Column 2
Block A
Terrace 2
Colluvium
Terrace 1
Block B
Buttermilk Creek
0
25 m
North

Block A Floodplain (T-2)

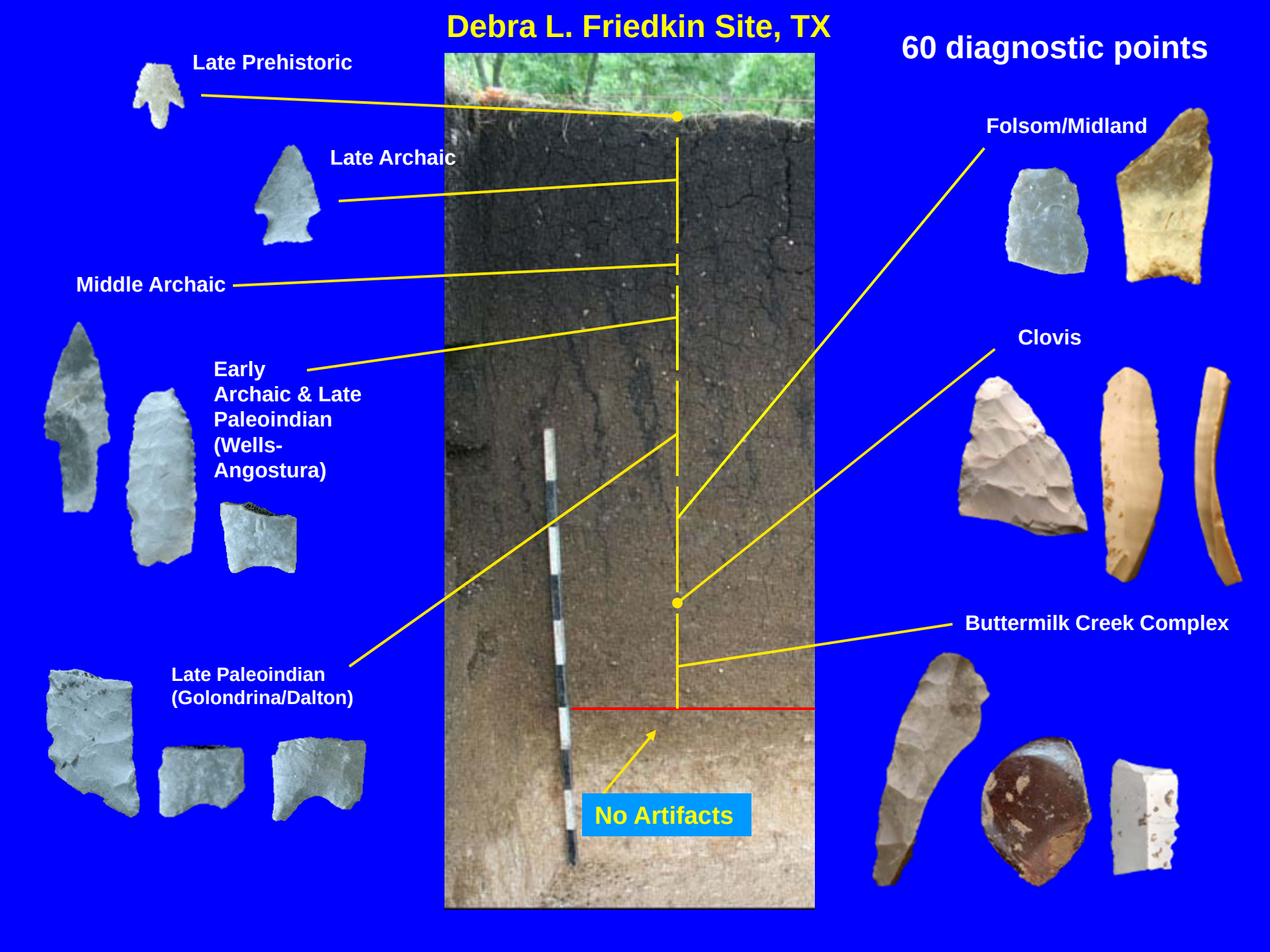
2006-present

65 m^2

Camp and activity areas

Debra L. Friedkin Site, TX

60 diagnostic points



Buttermilk Creek Complex

16,000 Artifacts

54 tools

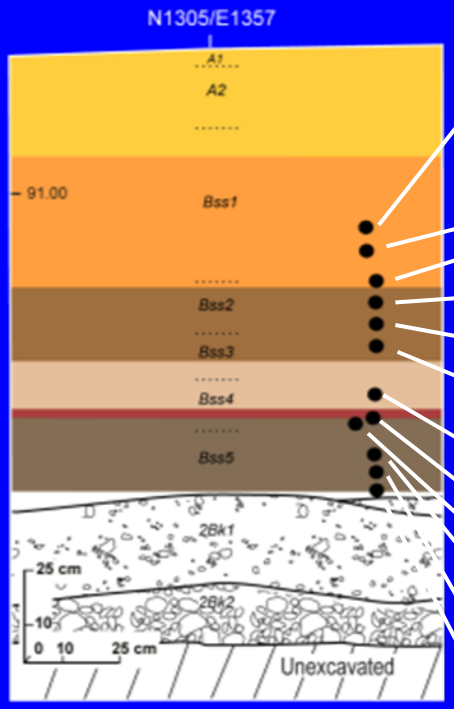
Bifaces
Discoidal core
Expedient tools
Hematite
Blades
Bladelets
Radially broken tools
Burins

13,200 to 15,500 cal yr B.P.

Is the age secure?

Luminescence Dating

Dr. Steve Forman
University of Illinois

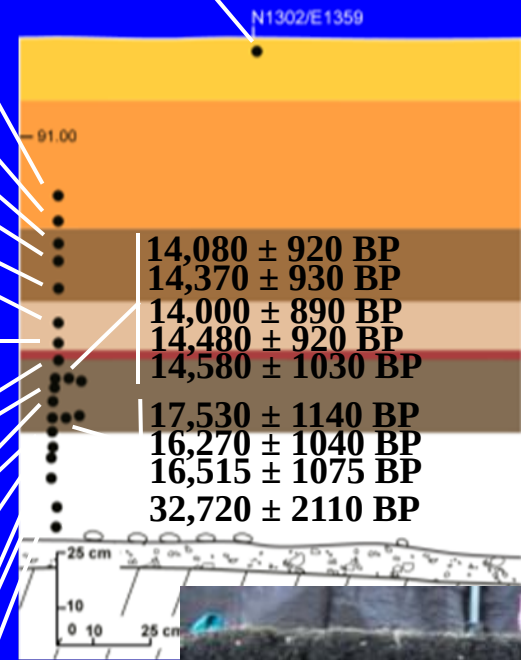


8070 ± 520 BP/
8490 ± 560 BP

9215 ± 620 BP
9250 ± 600 BP
10,480 ± 675 BP
12,910 ± 830 BP
12,690 ± 955 BP
12,240 ± 800 BP/
12,925 ± 845 BP
14,350 ± 910 BP
15,270 ± 960 BP
15,210 ± 960 BP
16,400 ± 1040 BP/
15,800 ± 1080 BP
16,170 ± 1030 BP

1000 ± 70 BP

7160 ± 470 BP/
7030 ± 470 BP
8160 ± 540 BP
7600 ± 500 BP
9405± 610 BP
9930 ± 640 BP
11,870 ± 760 BP
12,000 ± 770 BP/
12,100 ± 860 BP
14,070 ± 910 BP
15,730 ± 1010 BP
14,710 ± 940 BP
18,930 ± 1210 BP
20,565 ± 1325 BP/
20,490 ± 1305 BP
22,710 ± 1450 BP/
23,150 ± 1600 BP
25,185 ± 1640 BP
26,090 ± 1670 BP/
27,650 ± 1800 BP



14,080 ± 920 BP
14,370 ± 930 BP
14,000 ± 890 BP
14,480 ± 920 BP
14,580 ± 1030 BP
17,530 ± 1140 BP
16,270 ± 1040 BP
16,515 ± 1075 BP
32,720 ± 2110 BP

60 OSL Ages

Aeolian quartz & feldspar

OSL Dating

- 60 ages in correct stratigraphic order
- Ages agree with age of diagnostic artifacts

Late Prehistoric
1000 ± 70 B.P.

Late Archaic

Middle Archaic

Late Paleoindian--Early Archaic (Wells-Angostura)
7030 ± 470 B.P.
7160 ± 470 B.P.
7600 ± 500 B.P.
8070 ± 520 B.P.
8160 ± 540 B.P.
8490 ± 560 B.P.
9215 ± 620 B.P.
9250 ± 600 B.P.

Late Paleoindian (Golondrina/Dalton)
9405 ± 610 B.P.
9930 ± 640 B.P.
10,480 ± 675 B.P.

Folsom/Midland
11,870 ± 760 B.P.
12,000 ± 770 B.P.
12,100 ± 860 B.P.
12,240 ± 800 B.P.
12,925 ± 845 B.P.

Clovis
13,090 ± 830 B.P.
13,780 ± 885 B.P.

Buttermilk Creek Complex
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14,580 ± 1030 B.P.
15,110 ± 960 B.P.
15,210 ± 960 B.P.
15,270 ± 960 B.P.
15,730 ± 1010 B.P.
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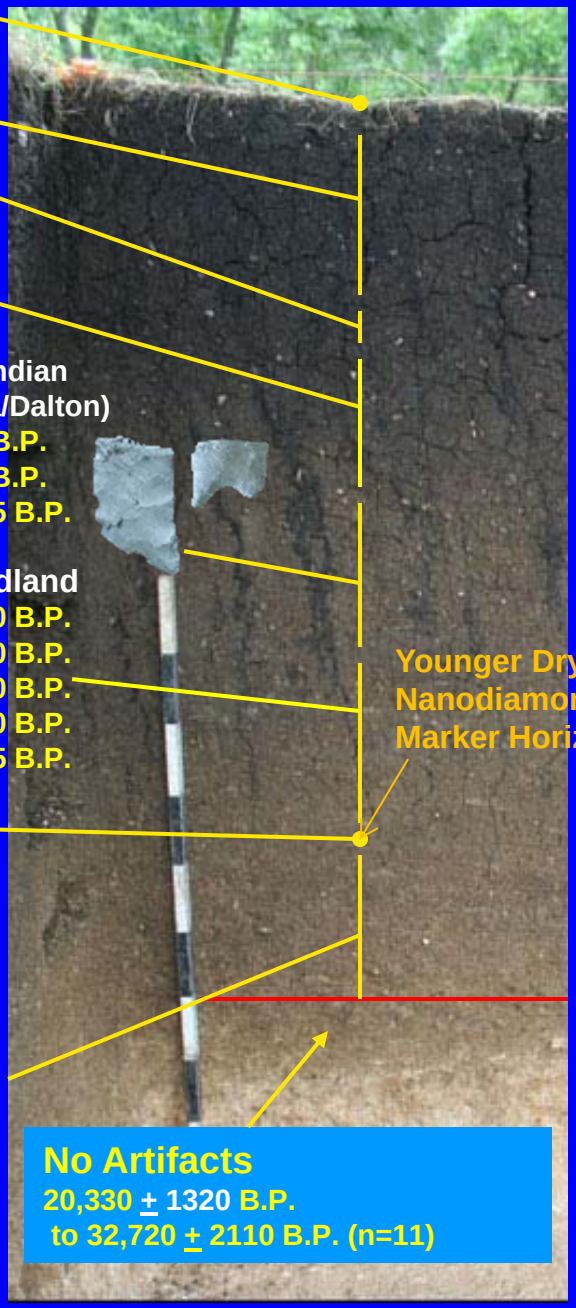


Younger Dryas Nanodiamond Marker Horizon

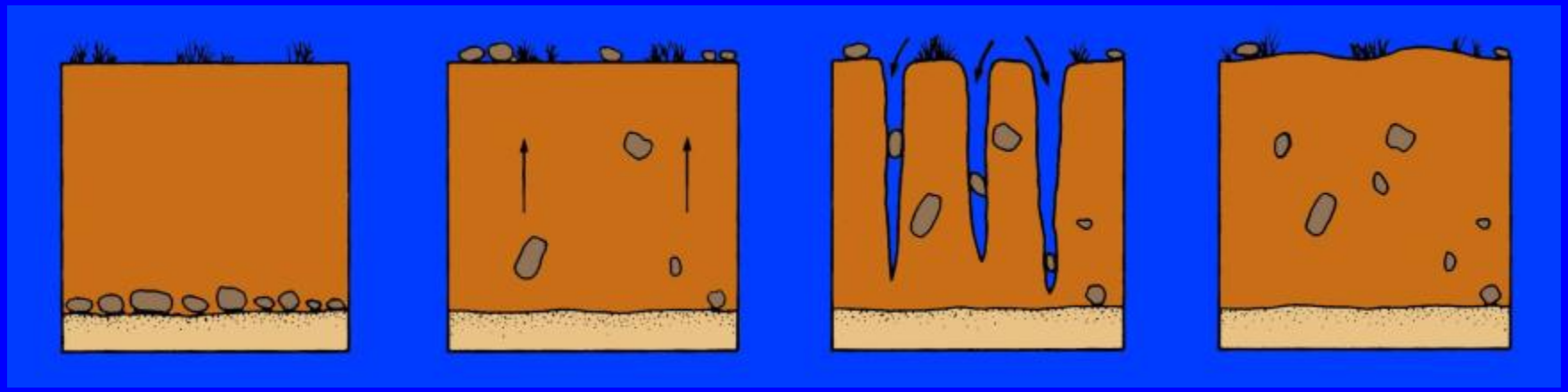
No Artifacts
20,330 ± 1320 B.P.
to 32,720 ± 2110 B.P. (n=11)

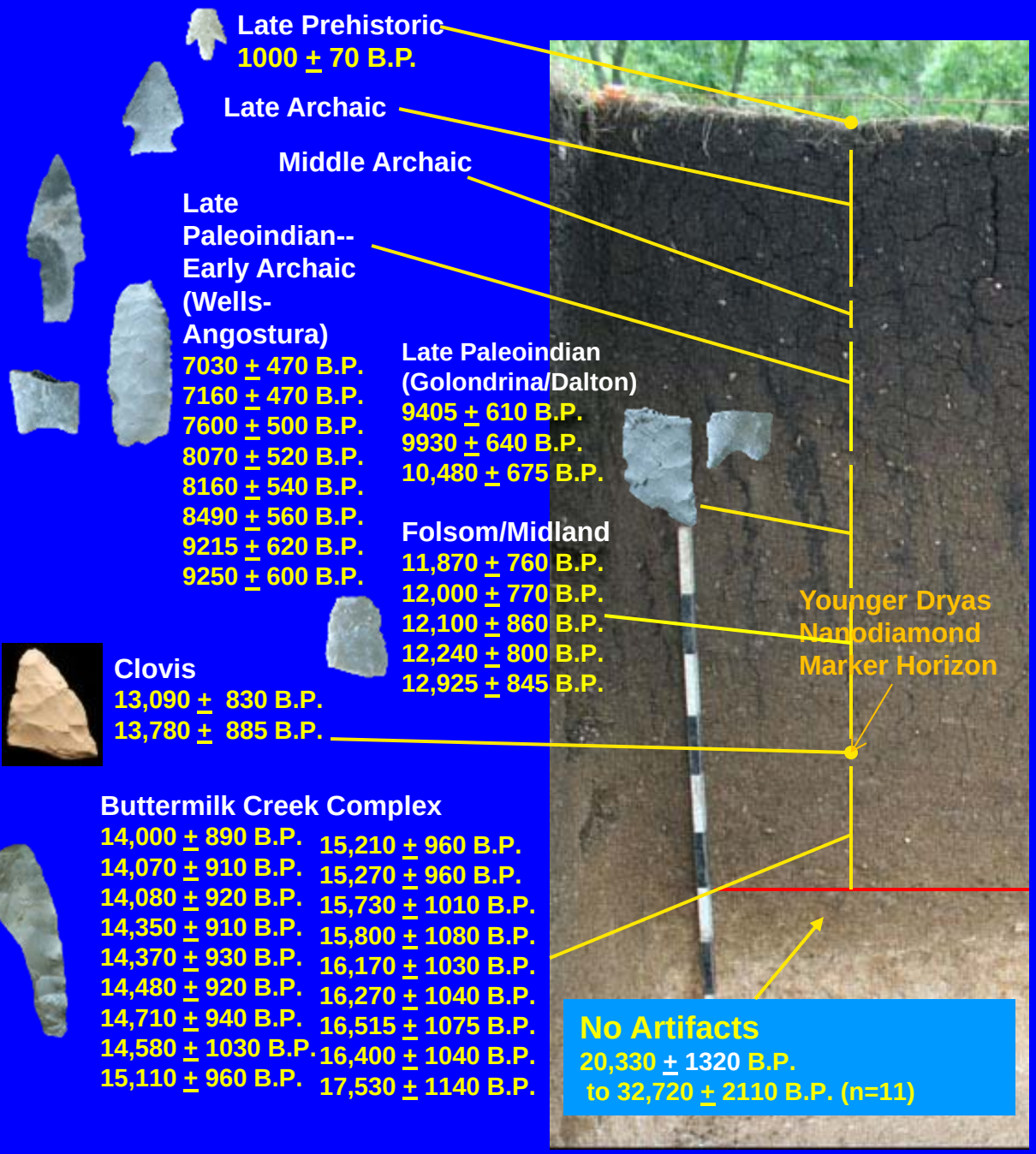
Are the pre-13,000 year old artifacts in a secure geological context?

Site Formation Processes

Floodplain clays with no clear stratigraphy and vertic properties

Trampling





- Diagnostic artifacts and technologies are in stratigraphic order
- Dates in stratigraphic order & correlate over distance
- Dates correlate with known age of Archaic and Paleoindian periods
- Technological Refits
- Magnetic studies
- Soil properties
- Nanodiamond marker horizon
- Correlation of geology
- No in situ artifacts in the 20,000 to 32,000 yr old deposits

Pre-13,000 cal yr B.P. Sites

Debra L. Friedkin Site, TX
15,500 cal yr B.P.

Manis, WA
13,800 cal yr B.P.

Paisley Caves, OR
14,100 cal yr B.P.

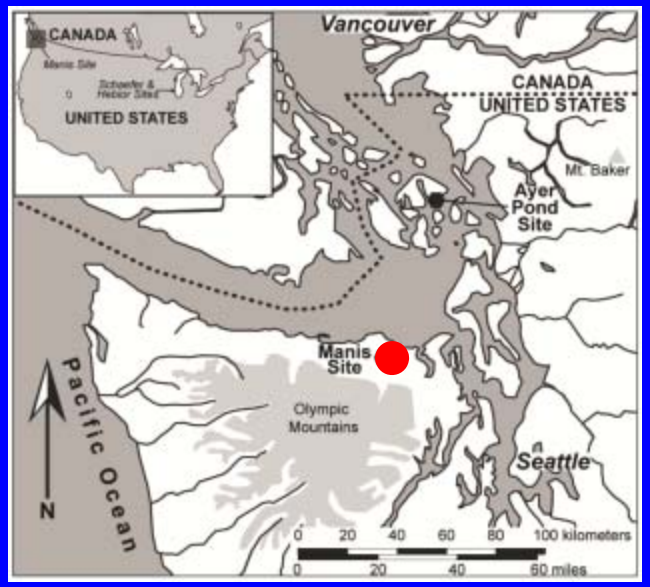
Meadowcroft Rockshelter, PA
13,400 to 15,200 cal yr B.P.

Schaefer & Hebior, WI
14,200 & 14,800 cal yr B.P.

Page-Ladson, FL
14,400 cal yr B.P.

Monte Verde, Chile
14,600 cal yr B.P.

Manis Site, Washington

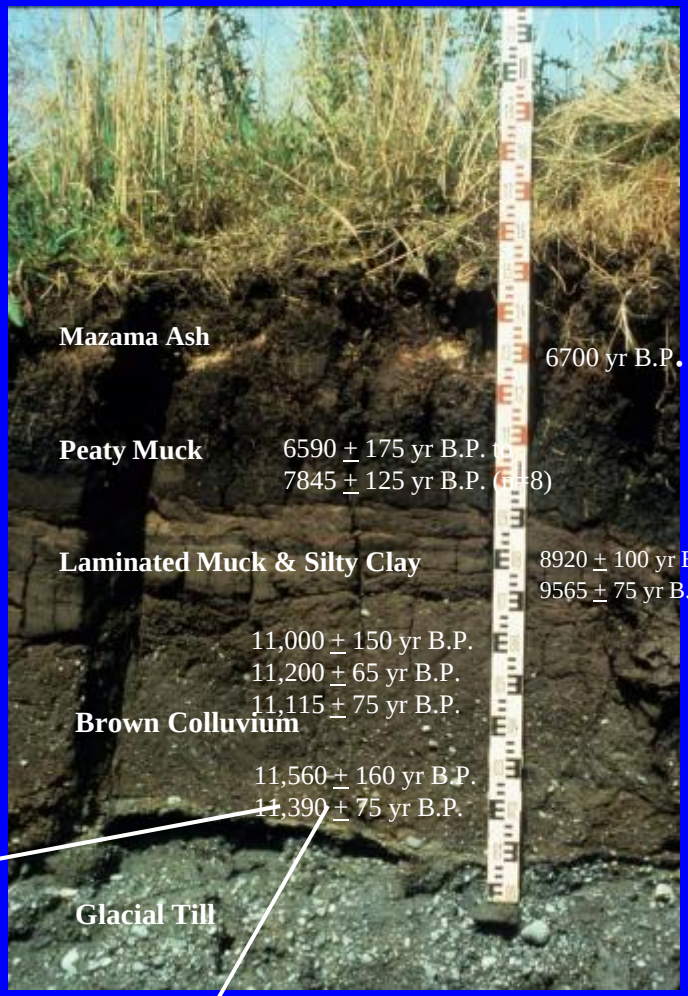


Carl Gustafson

Washington State University

Mastodon kill site

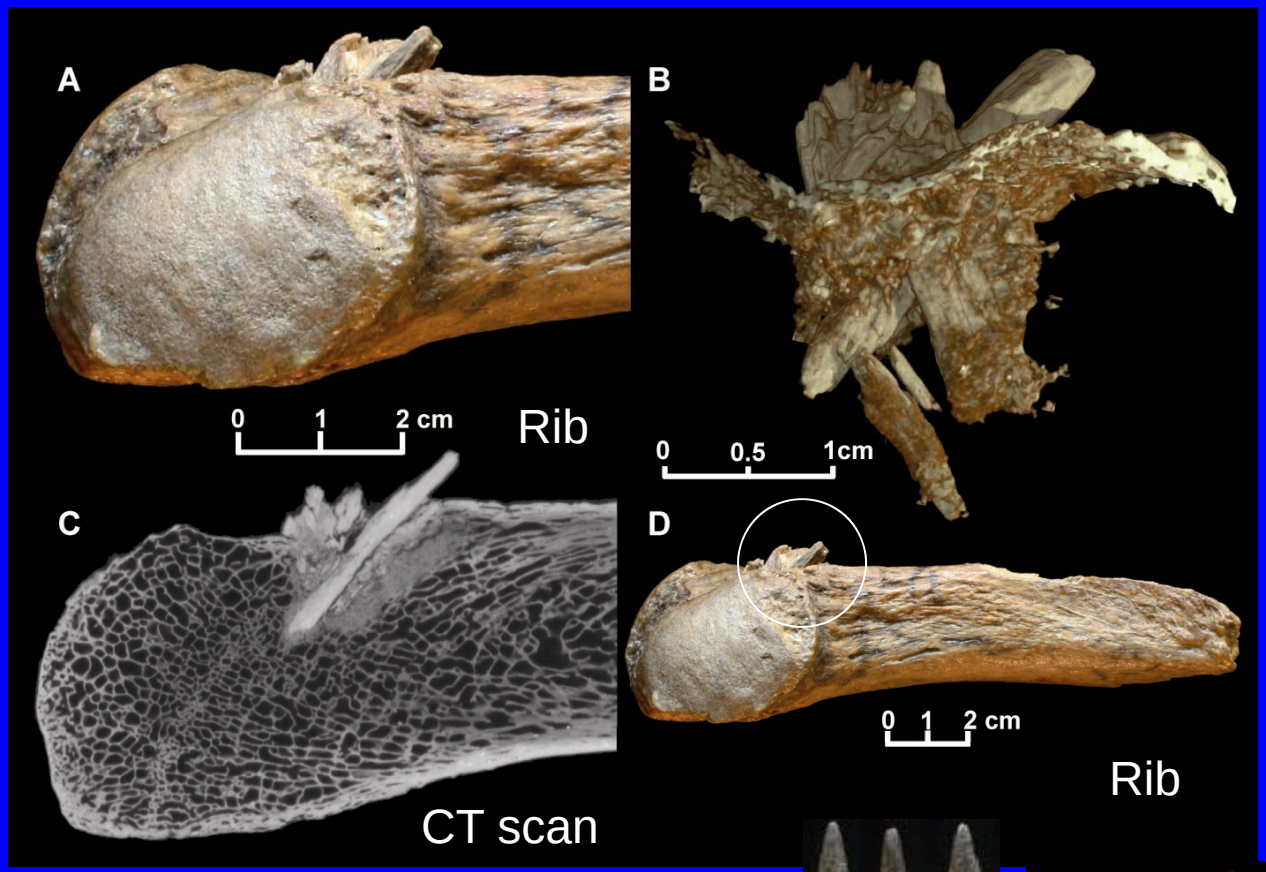
1977-1979



11,850 ± 60 ^{14}C yr B.P.

12,100 ± 310 ^{14}C yr B.P.

Manis Site, WA

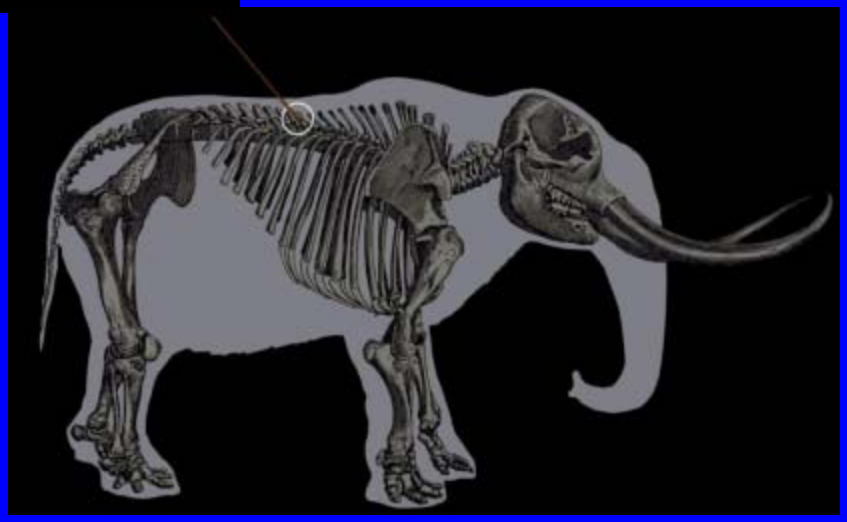


Key artifact: ***Bone Projectile Point embedded in 14th right rib***

Made of Mastodon bone

13,800 yr B.P.

Bone Point 25-30 cm long



Pre-13,000 cal yr B.P. Sites

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14,400 cal yr B.P.

Monte Verde, Chile
14,600 cal yr B.P.

Towards a New Model

Modern and Ancient Genetic Data

First Americans originated from a single source population in central Asia

Migration from this population south of the Ice Sheets ca. 16,000 cal yr B.P.

Anzick, Montana
Clovis
12,700 cal yr B.P.

Routes

Interior Ice Free corridor and Coastal Route viable

Towards a New Model—pre-13,000 cal yr B.P. Sites

Debra L. Friedkin Site, TX
15,500 cal yr B.P.

Manis, WA
13,800 cal yr B.P.

Paisley Caves, OR
14,100 cal yr B.P. ?

Meadowcroft Rockshelter, PA
13,400 to 15,200 cal yr B.P.

Schaefer & Hebior, WI
14,200 & 14,800 cal yr B.P.

Page-Ladson, FL
14,400 cal yr B.P.

Monte Verde, Chile
14,600 cal yr B.P.

People were in North America before Clovis by 15,500 cal yr B.P.

Widespread

Biface, Blade, Bladelet, and Osseous Technologies

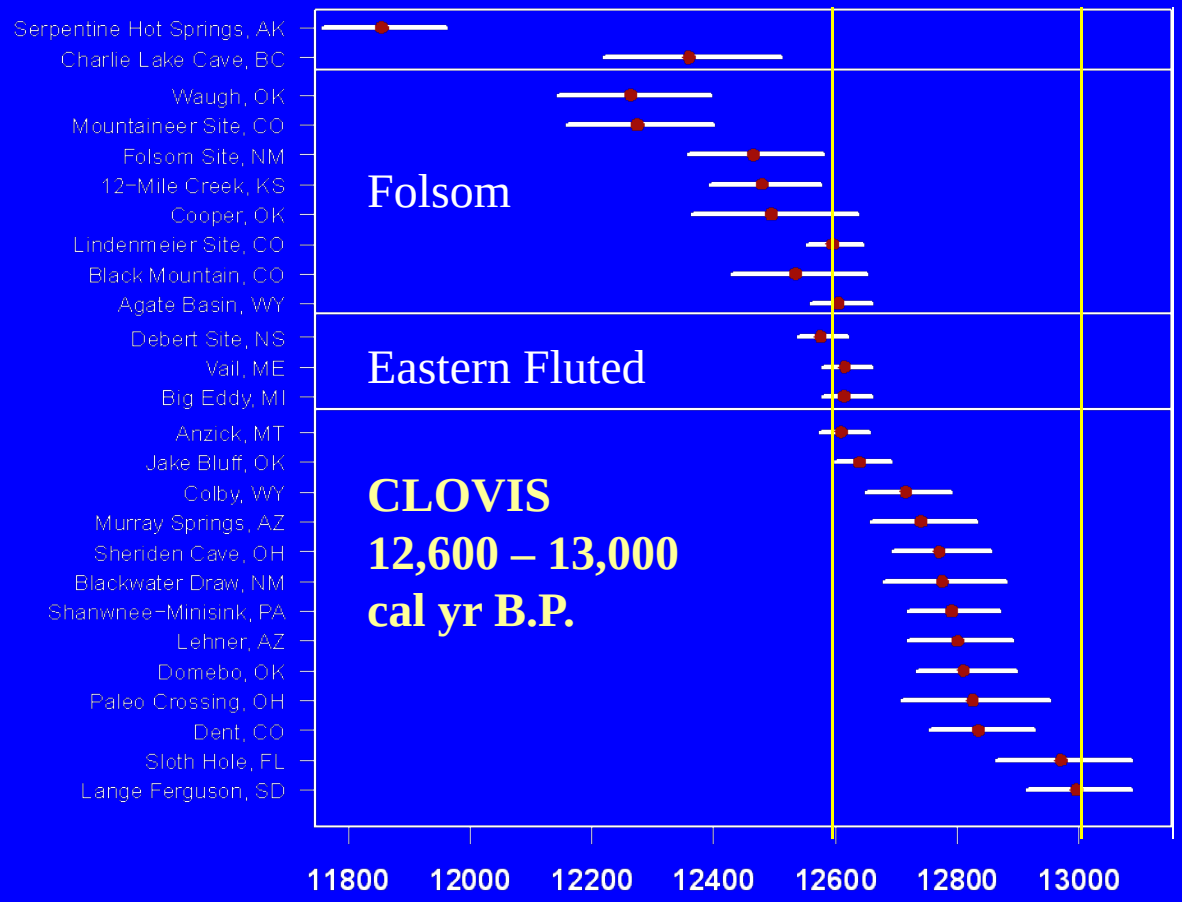
Towards a New Model—What about Clovis?

- Clovis--Biface, Blade, and Osseous Technologies
- Clovis originated south of the continental Ice Sheets
- Pre-Clovis assemblages with Biface, Blade, Bladelet, and Osseous Technologies
- Clovis originated as a distinctive complex about 13,000 cal yr B.P.

  Clovis Fluorescence 12,700 to 12,900 cal yr B.P.

Where did Clovis emerge?
Why did Clovis emerge?

They saw a lot of change
Points transcend function



Towards a New Model—Extinction of Megafauna

- Megafaunal population collapsed starting 14,800 to 13,700 cal yr B.P.
- Disappeared at 12,700 cal yr B.P.
- Three pre-Clovis kill sites—Manis (13,800)
  Schaefer (14,200)
  Hebior (14,800)
- Hunting pressures began before Clovis (15,500-14,800 cal yr B.P.)
- Weapons

Manis—osseous weapons

Clovis lithic weapon 13,000 cal yr B.P.
(12,900-12,700 cal yr B.P.)

Sporormiella
(dung fungus)

Conclusion

Challenges

- Find more sites
- More DNA work
- More Clovis
- South America
- Ice Free Corridor
- Mesh all data sets

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