THE PALEOCENE DINOSAURS OF THE OJO ALAMO SANDSTONE, SAN JUAN BASIN, NEW MEXICO AND COLORADO

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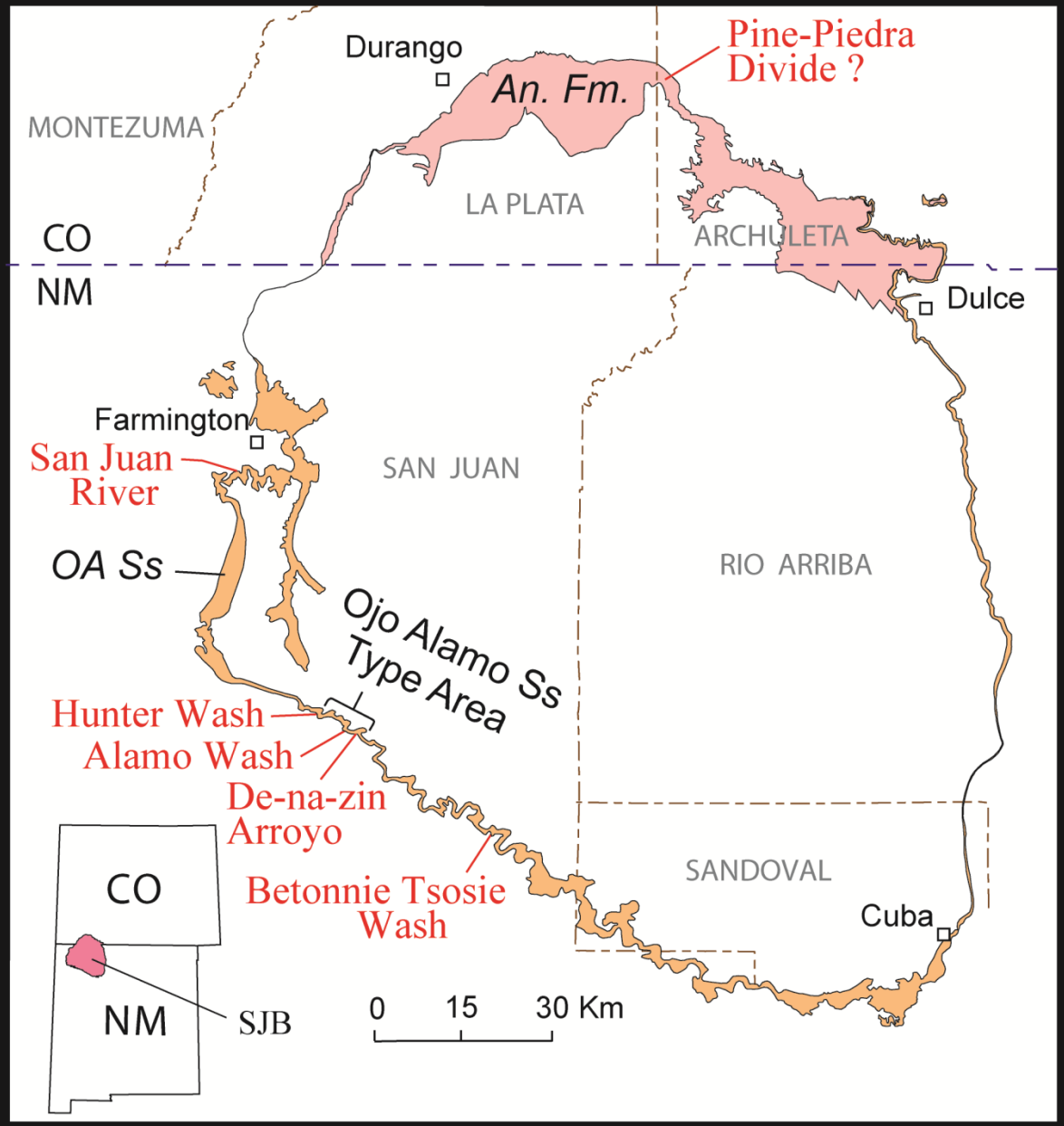
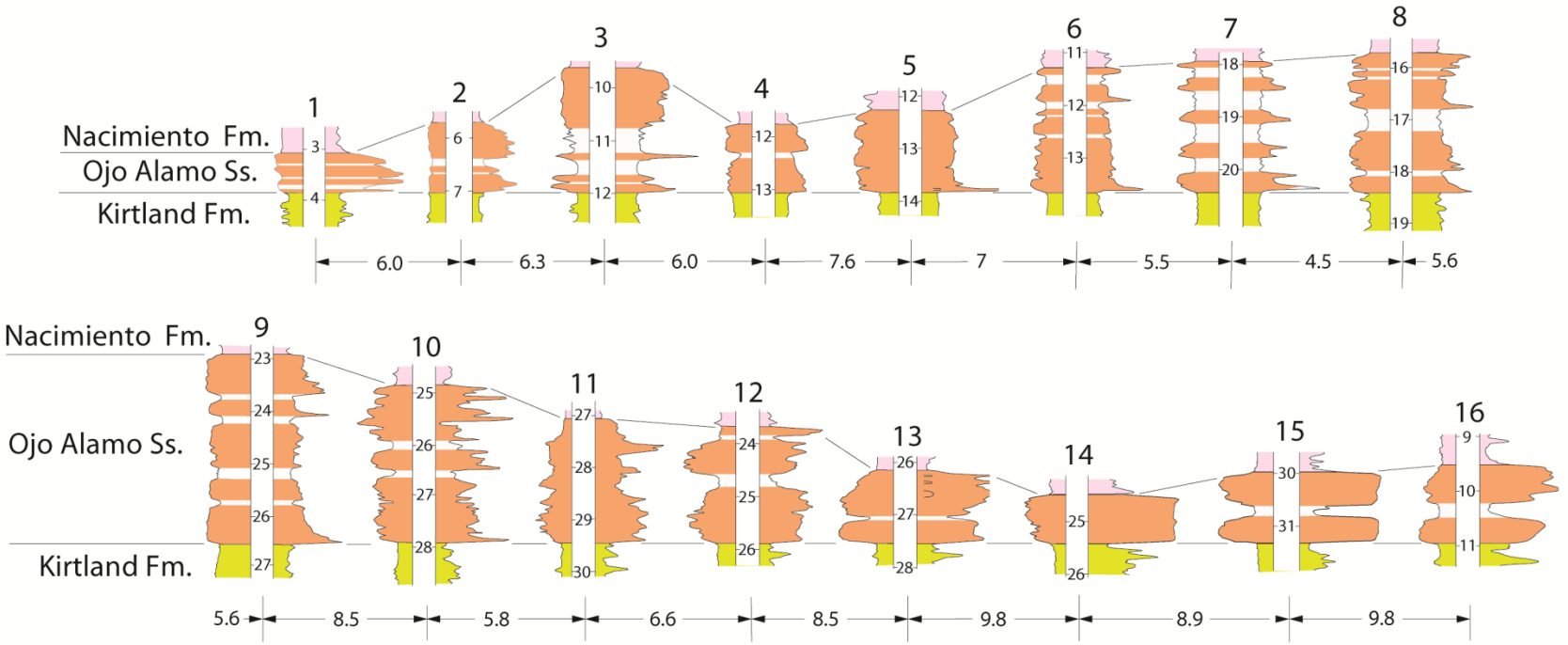
SAN JUAN BASIN INDEX MAP

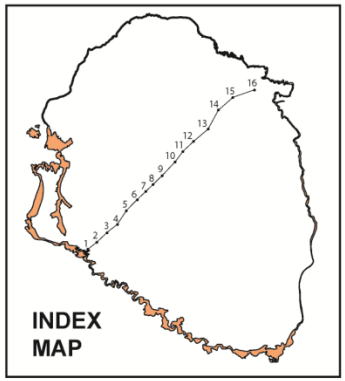
PALEOCENE OJO ALAMO SS AND ANIMAS FM DINOSAUR-BONE LOCALITIES IN RED



OJO ALAMO SANDSTONE/KIRTLAND FORMATION CONTACT AT OUTCROP SOUTH OF SAN JUAN RIVER NEAR FARMINGTON, NEW MEXICO

GEOPHYSICAL-LOG SECTION SHOWING OJO ALAMO SANDSTONE ACROSS SJ BASIN





EVOLUTION OF AGE OF OJO ALAMO SS

- Barnum Brown,1910 - OA is Cretaceous because of dino bones
- Bauer, 1916 - OA is Cretaceous because of dino bones
- Reeside, 1924 - OA is "Tertiary (?)" based on fossil leaves (First tacit suggestion that OA dinos are Paleocene)
- Anderson, 1960 - OA is Paleocene based on palynomorphs
- Baltz, Ash, & Anderson - 1966, OA is Cretaceous and Paleocene; dinosaur-bearing lower part is Cretaceous, upper part is Paleocene
- Fassett, 1982 - OA is probably Paleocene based on palynology
- Fassett, Lucas, & O'Neil, 1987 - OA is Paleocene based on palynology
- Fassett and Lucas, 2000 - OA is Paleocene based on palynology
- Fassett, Zielinski, & Budahn, 2002 - OA is Paleocene based on palynology and paleomagnetism; trace-element abundances in Cretaceous and Paleocene dino bones prove that Paleocene bones were not reworked from underlying Cretaceous rocks
- Fassett, 2009 - OA is Paleocene based on palynology and paleomagnetism; geochemical data base for dino bones expanded

Direct U-Pb dating of Cretaceous and Paleocene dinosaur bones, San Juan Basin, New Mexico

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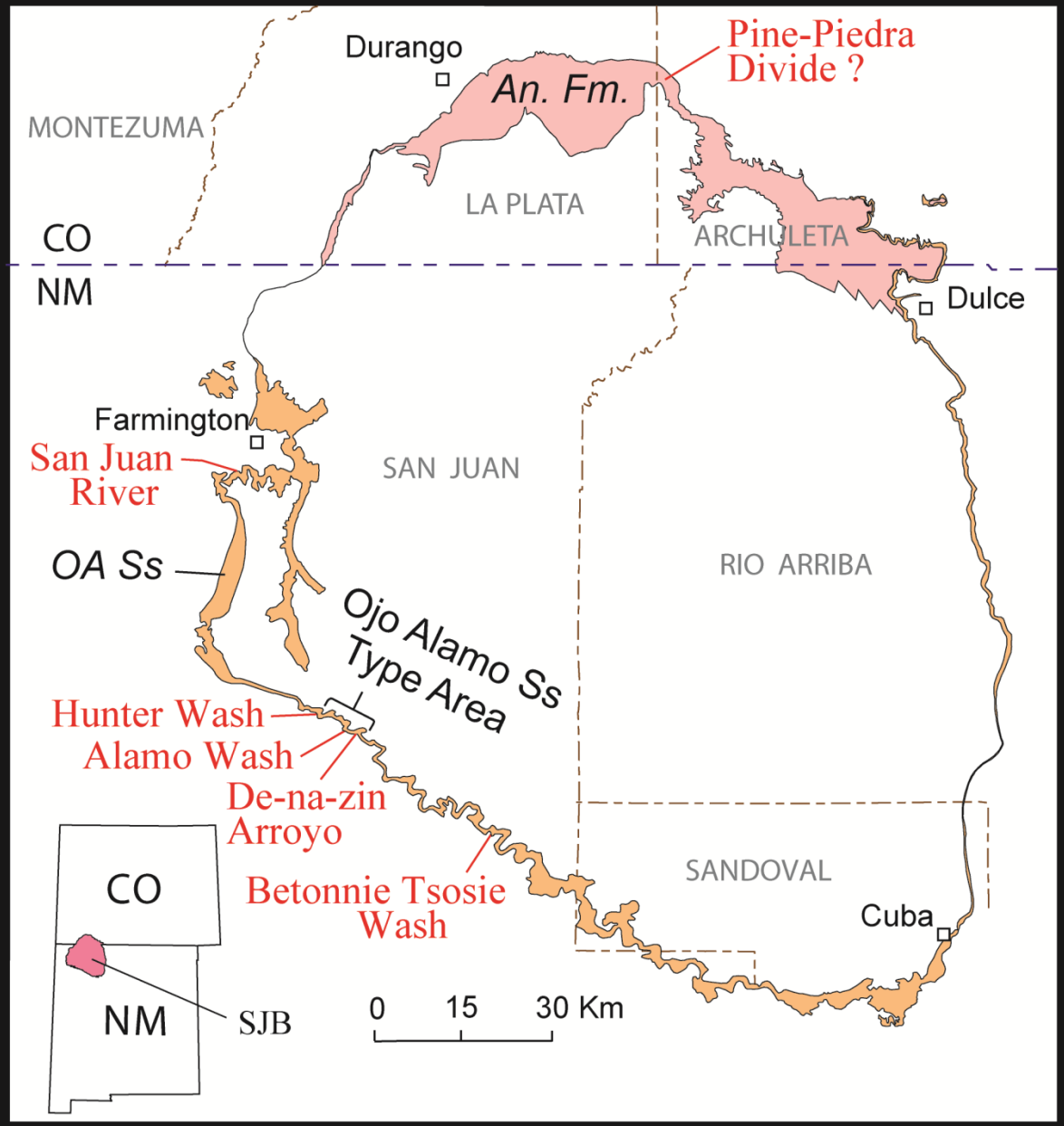
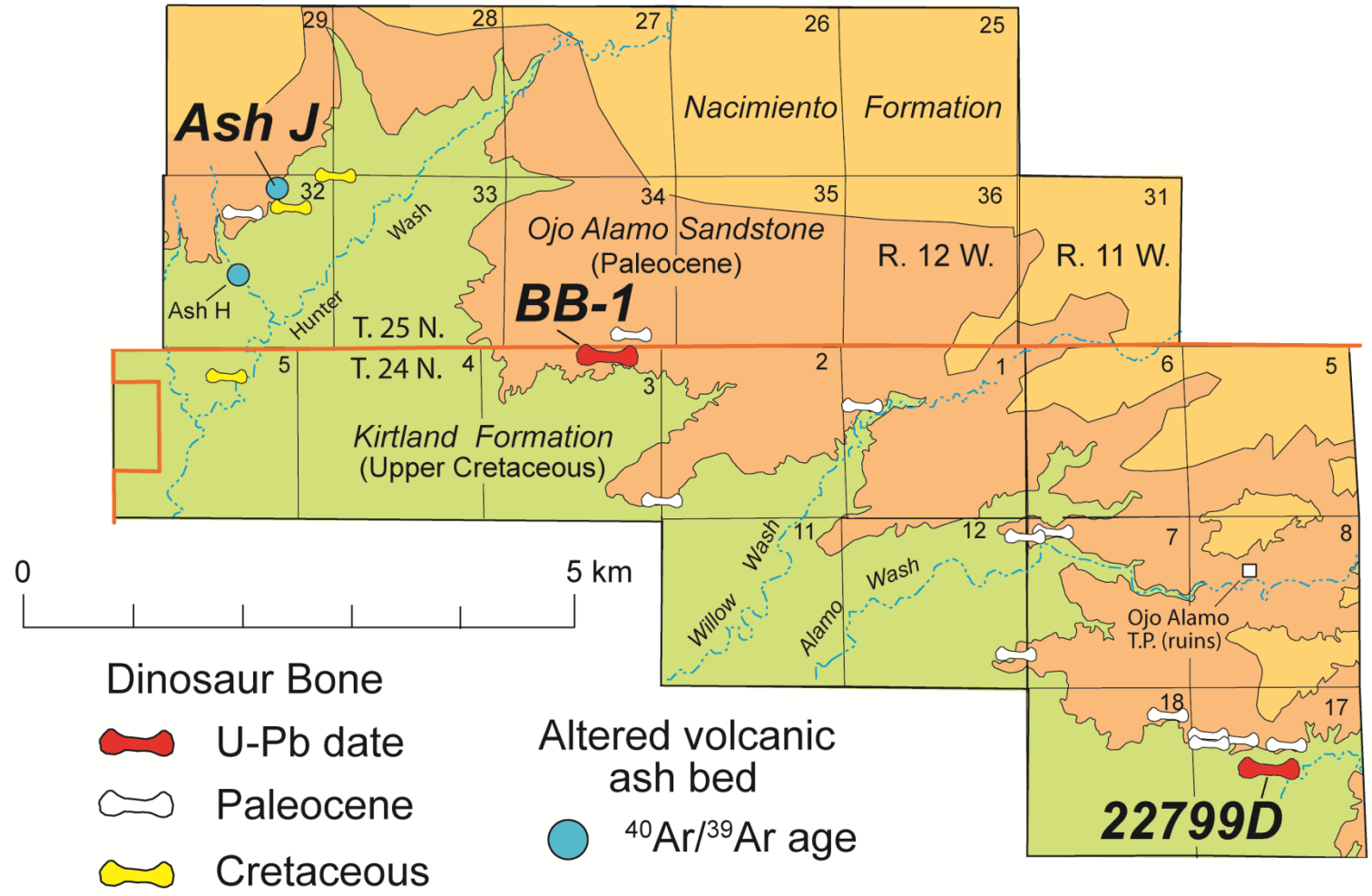


OJO ALAMO SANDSTONE TYPE AREA



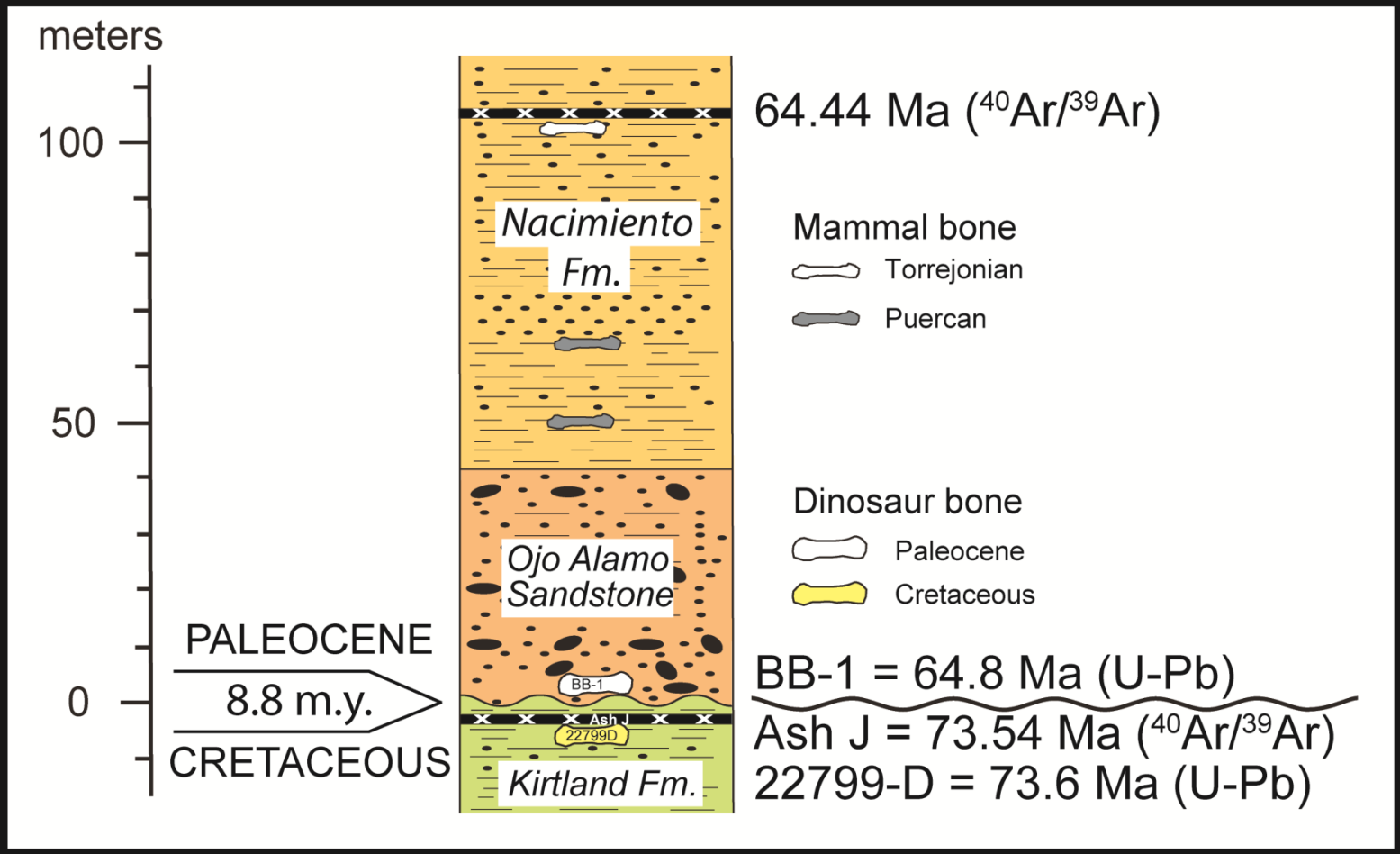
LASER ABLATION U-PB METHODS WERE USED BY LARRY HEAMAN AND TONY SIMONETTI AT THE UNIVERSITY OF ALBERTA TO DATE DINOSAUR BONES BB-1 AND 22799-D

BB-1 = 64.8 ± 0.9 MA

22799-D = 73.6 ± 0.9 MA

NOTE: K-Pg boundary is 66.0 Ma

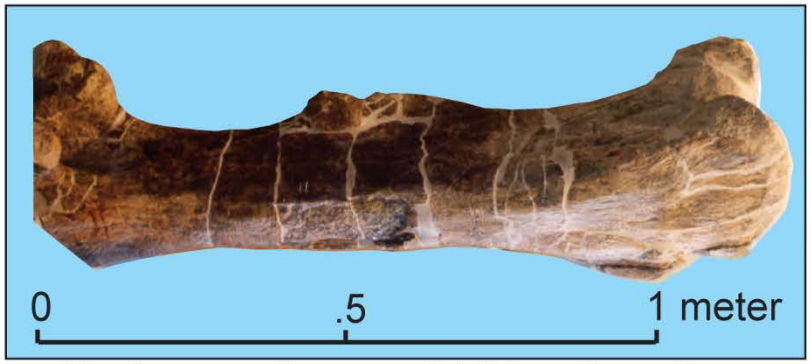
COMPOSITE STRATIGRAPHIC COLUMN SOUTHERN SAN JUAN BASIN



Important Note: $^{40}Ar/^{39}Ar$ ages shown are recalibrated per Kuiper et al. (2009): revised K-Pg boundary is 66 Ma

PALEOCENE DINOSAUR BONES, SAN JUAN BASIN

Sauropod femur (BB-1) - OASS Type Area
(Photo by Jim Fassett)



Hadrosaur femur - SJ River Locality
(Photo by Spencer Lucas)

34 Skeletal Elements - OASS Type Area
(Photo from Spencer Lucas)

Sauropod femur - OASS Type Area
(Photo from Robert Sullivan)

TEN FOOT BONES OF *ALAMOSAURUS SANJUANENSIS* FROM PALEOCENE OJO ALAMO SS, SAN JUAN BASIN

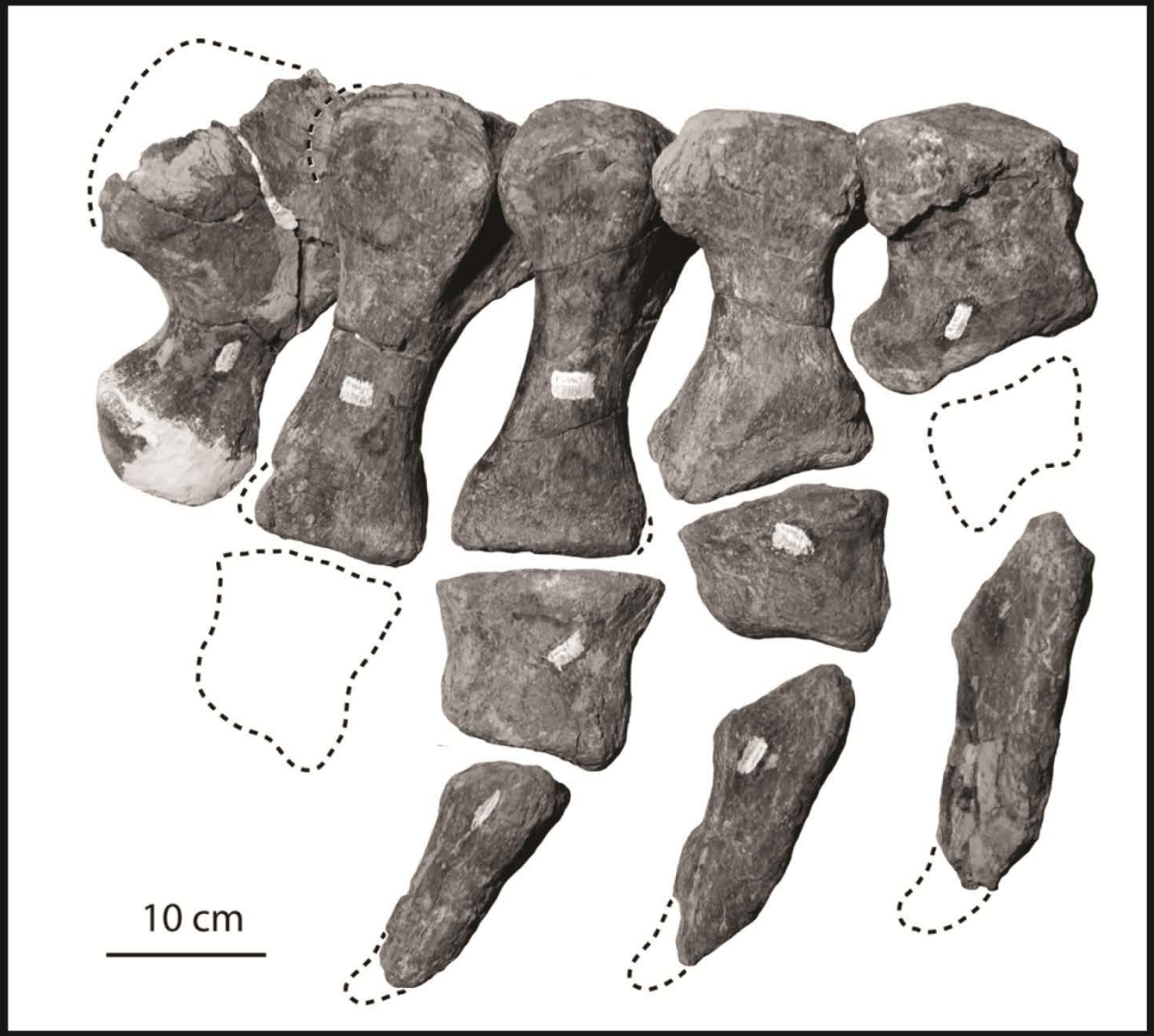


Figure 1 of D'emic, Wilson, Williamson, Sept. 2011

IN CONCLUSION

Three independent lines of evidence support the Paleocene age of the Ojo Alamo Ss and its contained dinosaur fossils:

1. Palynologic data from five principle areas - 54 species of palynomorphs including two Paleocene index palynomorphs
2. Paleomagnetic data from six localities
3. A U-Pb age of 64.8 Ma for a dino bone from the Ojo Alamo Sandstone.

Evidence for a Cretaceous age for the Ojo Alamo Sandstone dinosaurs = NONE

"Good news, I hear the paradigm is shifting."

IN SITU GEOCHEMICAL SR ISOTOPIC AND U-PB DATING OF DINOSAUR BONE: A RECORD OF FOSSILIZATION AND FLUID-FLOW HISTORY IN THE SAN JUAN BASIN, NEW MEXICO

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