

Inland Geological Society

June 2014

Newsletter of the Inland Geological Society

Volume 30 No. 6

This Meeting:
Wednesday,
June 4th

Time:
Social: 6:00pm
Dinner: 7:00pm
Lecture: 7:30pm

Location:
LSA Associates
1500 Iowa Ave
Suite 200
Riverside, CA
92507
(Map on Pg. 4)

Coming to
Dinner?
Please RSVP:
By Monday 6/2
(951) 784-2168
dixie.lass@att.net

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June Speaker:

Robert E. Reynolds
Redlands, CA

THE EL CASCO SUBSTATION FAUNA AND FLORA, NEW RECORDS FROM THE LATE BLANCAN NORTH AMERICAN LAND MAMMAL AGE SAN TIMOTEO FORMATION, RIVERSIDE COUNTY, CALIFORNIA

Abstract

The El Casco Substation Fauna and Flora was recovered during construction excavation in the San Timoteo Formation of southern California. The stratigraphic range of this formation provides critical data about the climatic, botanic, and zoologic transitions through three North American Land Mammal Ages (NALMA)—Hemphillian, Blancan and early Irvingtonian. The magnetostratigraphic signature of the El Casco Substation deposits suggests deposition at the end of the middle member of the San Timoteo Formation, around 1.7 Ma, just prior to a major unconformity. The five million year span of deposition (6.2–0.5 Ma) encompasses a period of time that contains mammalian radiations to North American from South America and Asia.

The El Casco Substation excavation yielded 77 taxa (65 animals and 12 plants). Twenty-six mammalian taxa are geographical and temporal range extensions. This

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exceptional assemblage from a single sedimentary interval has only 13 taxa in common with those reported previously from all five members of the entire San Timoteo Formation. Comparison of the 1.7 Ma Substation Fauna with the 1.4 Ma El Casco Fauna of Albright suggests a major faunal turnover that may represent the transition from the Blancan to the Irvingtonian North American Land Mammal Age in the southwest.

The Substation fauna contains eight genera of riparian and aquatic mollusks, stickleback fish, three salamanders, a frog, giant tortoise, pond turtle, lizards, and snakes. Ducks and rails support aquatic habitats. Small mammals include shrew and mole, temporal extensions for heteromyids and cricetids, and the earliest record of the microtine *Allophaiomys* sp. entering the southwestern United States. Large herbivores include deer, camelids, horse, giant sloths *Paramylodon* sp. and *Nothrotheriops* sp. Substation excavation recovered partial skeletons of the sabertoothed cats *Homotherium* sp. and *Smilodon gracilis*.

The environment of deposition, consisting of fine-grained sediments deposited in ponds or marshes, interfingering with gravels whose source was from the northeast, suggests that through going drainages were ponded by local compressional tectonics. This ponding may have heralded time-transgressive fold growth from the initial activity on the San Jacinto fault system.

Biography:

Mr. Robert Reynolds graduated from Pasadena City College and the University of California Riverside. He became the Curator of Earth Science (paleontology & mineralogy) at the San Bernardino County Museum in 1967, and set about interpreting the geologic history of the nation's largest county. Over a span of 32 years, he developed institutional collections of two million fossils and fifty thousand mineral specimens.

Moving to the LSA environmental firm in 1999, he continued programs to recover and curate fossils, with research interests focused on Miocene and Pliocene biostratigraphy of the Mojave Desert, southern California and the Basin and Range.

Mr. Reynolds is president of the Southern California Friends of Mineralogy, and actively convenes the California State University Fullerton Desert Symposium at the Zzyzx Desert Studies Center. Reynolds has published more than 200 papers on the paleontology, stratigraphy, and geomorphology of the Mojave Desert and environs. He volunteers for the California Bureau of Land Management (BLM) field offices in southern California to inventory paleontological resource localities within Federal lands administered by the BLM Ridgecrest, Barstow, Needles and Palm Springs Field Offices.

SPEAKERS WANTED

We are still looking for more speakers for future meetings.

Students of all levels are encouraged to participate!

Contact Jeff Fitzsimmons or Steve Mains to get your name in the schedule!

Upcoming Meetings/Events

Rock & Gem Shows—Various locations

Various rock and mineral shows will be throughout So. California. To find one near you, visit www.rockngem.com/showdates.asp

AEG—So. California Chapter Meeting



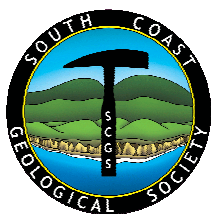
The meeting details for the next meeting for the AEG-Southern California Chapter is to be announced. For more info., visit the So. California Chapter at www.aegsc.org/calendar/.

AEG—Inland Empire Section



AEG—Inland Empire Section is offering a Short Course (topic to be determined) on **Saturday, May 31, 2014**. For more information, visit www.aegsc.org/chapters/inlandempire/index.php.

South Coast Geological Society Meeting



Ken Hudnut of the USGS will be presenting a talk on "Imaging Earthquake Surface Ruptures from M4.7 to M7.7" on **Wednesday, June 18, 2014** at the El Adobe Restaurant in San Juan Capistrano, CA. For more info., visit them on Facebook and/or www.southcoastgeo.org.



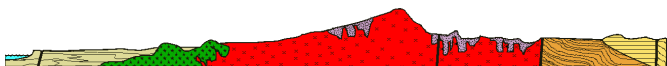
Los Angeles Basin Geological Society

Mr. Don Clarke, Professor at USC and consulting geologist, will speak about "Hydraulic Fracturing and Earthquakes: Ethically, How Do We Move Forward and Do the Right Thing?" at the next meeting on **June 26, 2014** at The Grand at Willow Street Conference Center in Long

San Diego Assoc. of Geologists and South Coast Geological Society Joint Meeting

Eric Dummond of Ice Cold Gold in Greenland will be presenting a talk on **Wednesday, June 18, 2014**. For more info, visit www.sandiegogeologists.org

San Diego Assoc. of Geologists Field Trip



Rob Anders of the USGS will be presenting a talk on "San Diego Coastal Aquifer Geochemistry" on **Wednesday, July 16, 2014**. For more info, visit www.sandiegogeologists.org

San Diego Assoc. of Geologists Field Trip



Monte Marshall will be presenting a talk on **Wednesday, August 20, 2014**. For more info, visit www.sandiegogeologists.org

GRA 14th Biennial Symposium on Managed Aquifer Recharge

Groundwater Resources Association of California will be holding their 14th Biennial Symposium on Managed Aquifer Recharge on **July 31 and August 1, 2014** at the Doubletree Hotel in Orange, CA. For more info, visit www.grac.org/bsarc14.asp

IGS Meeting Schedule

July 8, 9, or 10, 2014 (TBD)

TBD

August 7, 2014 (Thursday)

Thomas Deane, Deane Consulting, Inc.
Effects of Debris Flow and Superposition of Seasonal Spring Flow on Multi-Year Variable Spring Base Flow Conditions at Ruby Springs, OMYA Inc.'s White Knob Mine, Lucerne, CA

IGS MEETING LOCATION:

**LSA Associates, Inc.
1500 Iowa Ave, Suite 200
Riverside, CA 92507**

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