

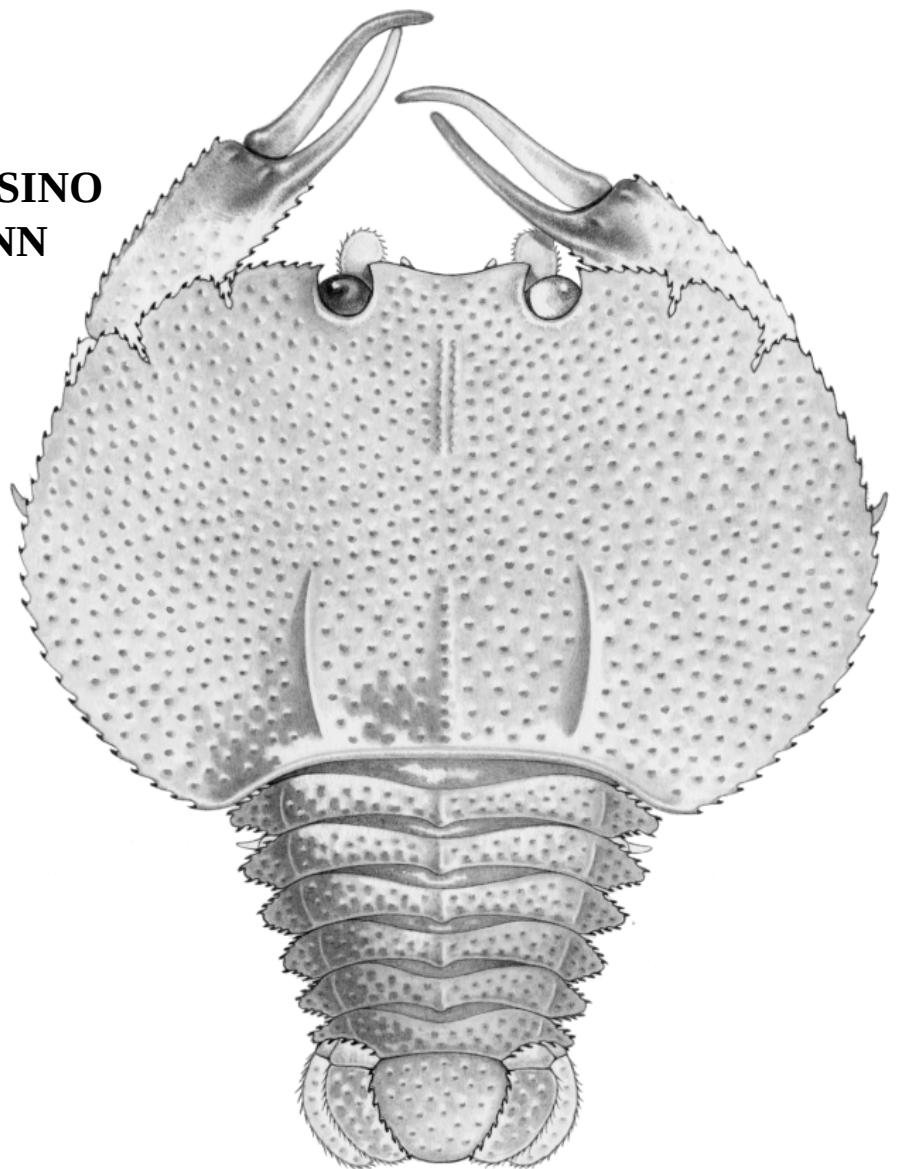
MEMORIE

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**3rd SYMPOSIUM ON MESOZOIC AND CENOZOIC
DECAPOD CRUSTACEANS
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Albian penaeoidea (Decapoda, Dendrobranchiata) from Chiapas, southern Mexico

A new fossiliferous plattenkalk facies locality known as El Chango has yielded numerous plant remains, fishes, and crustaceans. El Chango is located approximately 30 km southwest of Tuxtla Gutiérrez, Chiapas (Fig. 1). Laminar dolomites of variable thickness (2 to 60 cm) crop out in valleys of a karstic landscape. These deposits correspond to the base of the Sierra Madre Formation, defined as a 2,590 m sequence of Aptian to Santonian dolomites and limestones (Fig. 2), deposited mainly on shallow marine facies (Steele & Waite, 1986). Recently, another age equivalent locality has been reported to contain plant remains, insects, numerous and diverse crustaceans, as well as fishes (Vega *et al.*, 2006).

Fossils from El Chango include plant remains that resemble *Brachyphyllum?* sp., as well as other diverse leaves (Figs. 3A-3D). Fishes of different species and sizes are also found (Figs. 3E-3F), including macroseiid

fishes and other groups with affinities with Asian and south American forms (Ovalles-Damián *et al.*, 2006). Crustacean remains are rather scarce, and include possible dorippid crabs (Fig. 3G) and shrimps (Figs. 3H-3L), whose preservation is usually very poor, but the occurrence is significant because they represent the first fossil penaeoids described from Mexico.

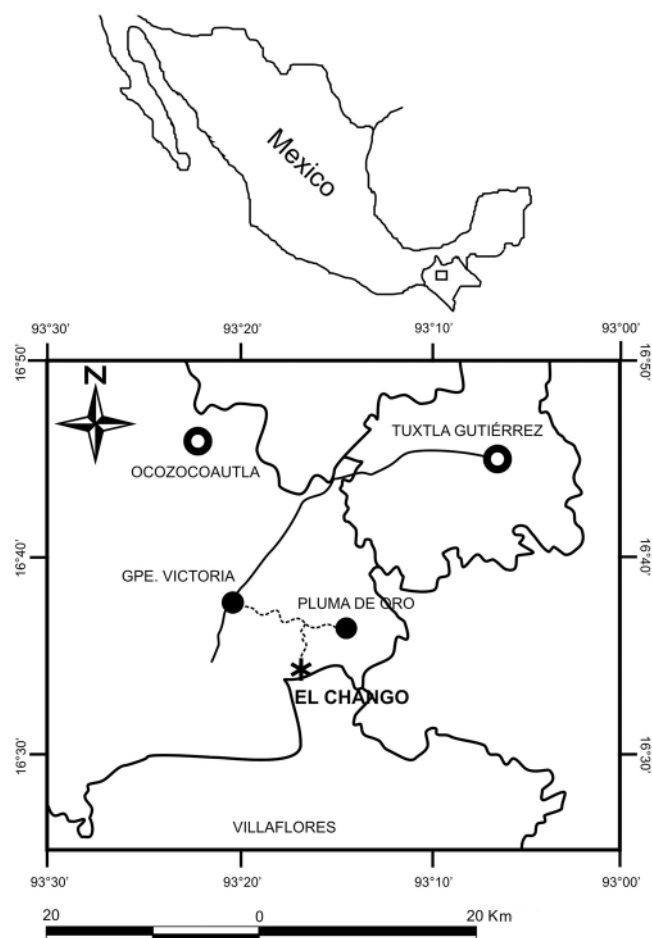


Fig. 1 - Location map of El Chango, Ocozocoautla County, Chiapas, southern Mexico.

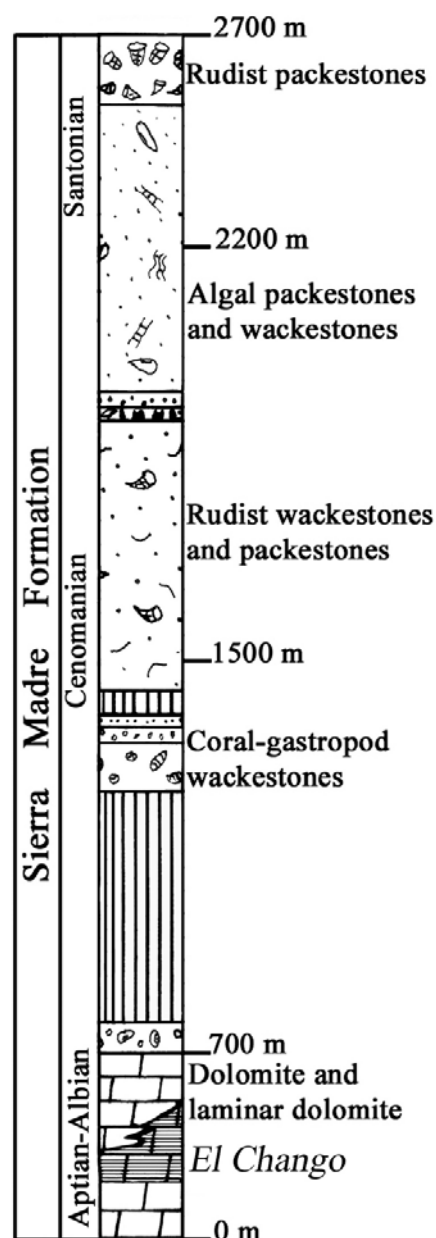


Fig. 2 - Stratigraphic section of the Sierra Madre Formation, showing relative position of deposits that crop out at El Chango.

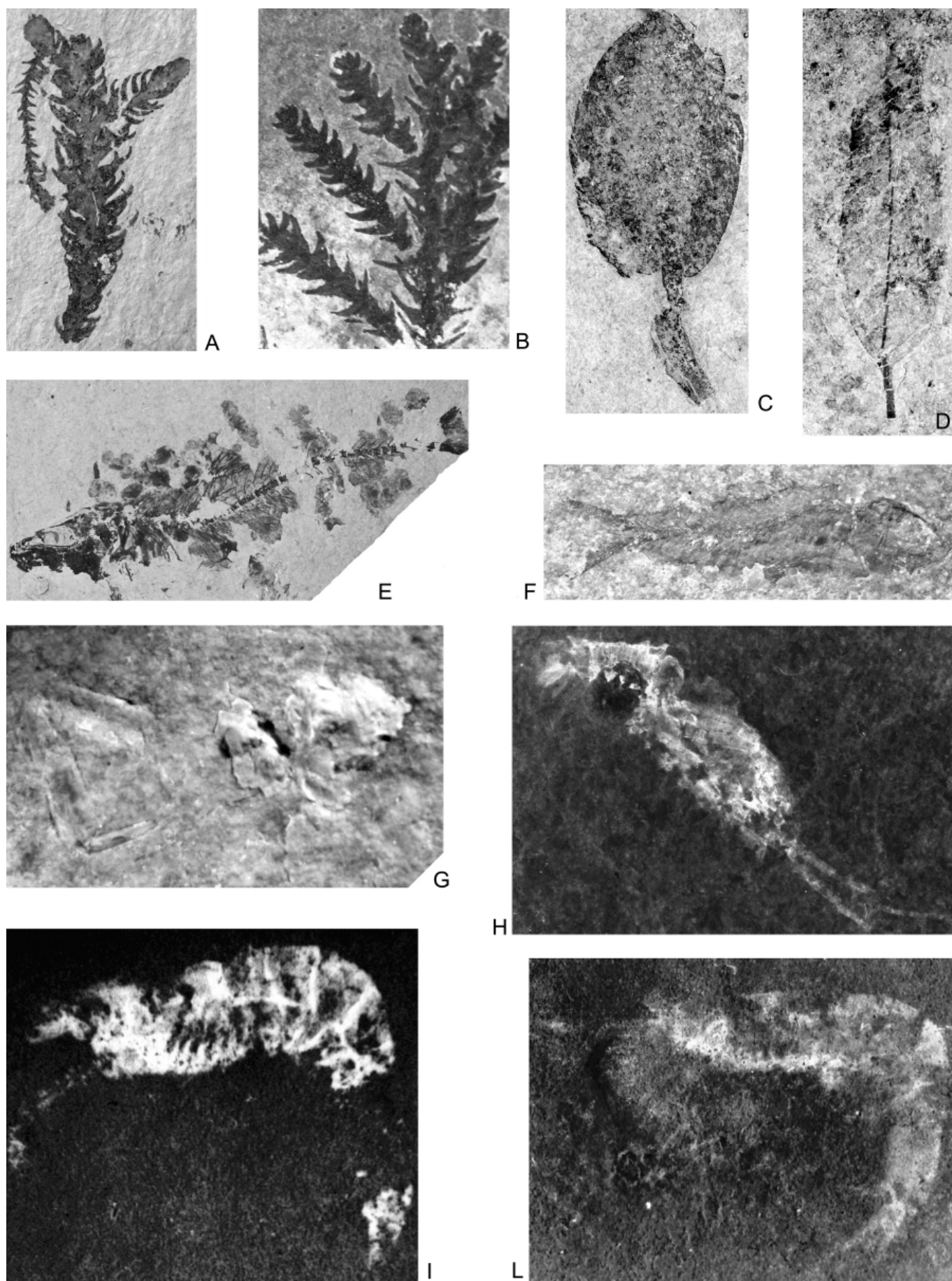


Fig. 3 – A-B) *Brachyphyllum?* sp., X 2.0. C-D) Unidentified plant remains, X 0.5. E-F) Unidentified fishes. E) X 0.3; F) X 5.0. G) Dorippid? crab, hypotype IHNFG-2928, X 4.0. H-L) Unidentified crustaceans. H) Hypotype IHNFG-2929, X 5.0. I) Lost specimen, X 5.0 (scale in original photograph). L) Hypotype IHNFG-2930, X 5.0.

This locality is similar in age and lithology to the one found near Profeti, Italy, from where palaeomonids and carideans have been reported (Bravi & Garassino, 2000).

Specimens are deposited in the paleontological collection of the Museo de Paleontología Eliseo Palacios Aguilera, Instituto de Historia Natural y Ecología, Tuxtla Gutiérrez, Chiapas, under acronym IHNFG.

Systematic paleontology

Superfamily Penaeoidea Rafinesque, 1815

Family Penaeidae? Rafinesque, 1815

Description. Rostrum short, probably reaching distal portion of first antennular article. Dorsal surface of rostrum with seven regularly spaced teeth, decreasing in size anteriorly; posterior-most teeth above posterior margin of orbit. Tip acute, simple. Ventral surface of rostrum smooth, devoid of teeth. Carapace smooth, globose; dorsal surface devoid of teeth beyond rostral ones. Antennal angle with well defined spiniform projection. Pterygostomian angle undefined. Ventral margin broadly rounded. Posterior margin simple, straight. Abdomen smooth without obvious notches or grooves. First abdominal somite shortest, 0.6 times the length of second somite; posterolateral margin of pleuron overlapping second somite, ventral margin rounded. Second somite approximately rectangular, posterior margin of pleuron slightly concave. Third somite longer than first two, ventral margin rounded; interlocking midlateral hinge present on posterolateral margin of pleuron. Fourth somite of about same length as third one, similar in shape; interlocking midlateral hinge present on posterolateral margin of pleuron. Fifth somite shorter than fourth, pleuron approximately rectangular; interlocking midlateral hinge present on posterolateral margin of pleuron. Sixth somite the longest; dorsal, ventral, and posterior margins of pleuron straight. Telson shorter than uropods. Eyes well developed, cornea spherical. Antennule with peduncle shorter than scaphocerite, antennular flagellum long, about 4 times as long as total

length of organism. Scaphocerite 1.4 times as long as antennular peduncle. Pereopods slender, ischia and carpi of all five pairs very similar in width and length.

Material. One specimen, hypotype IHNFG-2931 (Fig. 4).

Measurements. Carapace length = 41.7 mm, width = 11.1 mm.

Remarks. The present specimen is placed in the Penaeoidea based on its general shape, a pleuron of the first abdominal somite that overlaps that of the second one, and five pereopods of apparently the same thickness. Unlike modern species of penaeidae, the rostral teeth in the Chiapas shrimp are all restricted to the anterior-most portion of the rostrum anterior to the posterior margin of the orbit. In modern penaeidae, there is always an epigastric tooth, posterior to the orbit, or a series of teeth that reach the posterior half of the carapace along a mid-dorsal carina (Pérez-Farfante & Kensley, 1997). We compared our material with Jurassic and Cenomanian penaeoideans from Solnhofen and Lebanon (Schweigert, 2001; Schweigert & Garassino, 2004; Garassino, 1994). Those penaeoideans are different from the Mexican specimen in having rostra of different shape and length. The Chiapas shrimp is similar in body proportions to the extant *Farfantepenaeus* and *Litopenaeus*, some of whose species inhabit Mexican waters. The first abdominal somite is short, the rostrum lacks ventral teeth, unlike modern penaeidae. Future field work may produce more and best preserved specimens, in order to define if this form represents a new genus.

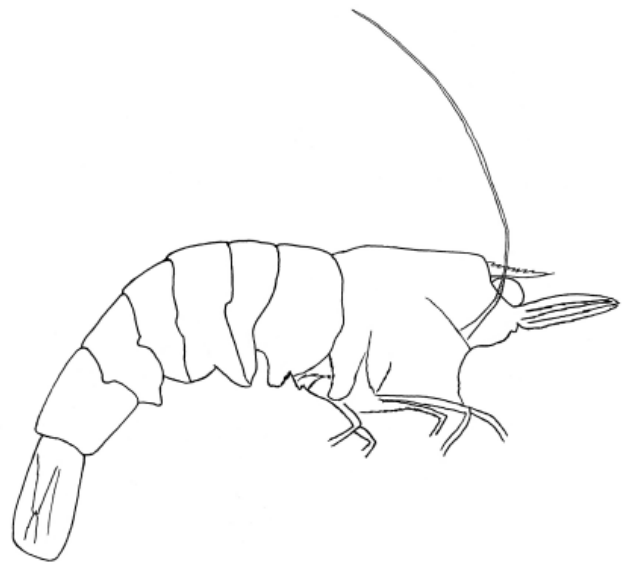
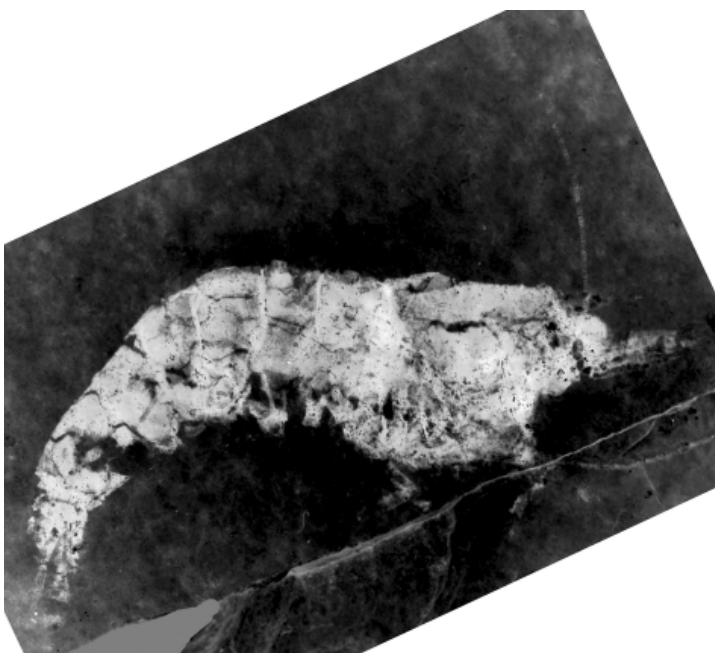


Fig. 4 – Penaeidae? Hypotype IHNFG-2931, X 2.5. Photo and line drawing.

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