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AN EARLY EOCENE PHARETRONID SPONGE FROM THE BATEQUE FORMATION, BAJA CALIFORNIA SUR, MEXICO

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ABSTRACT—*Elasmostoma bajaensis* n. sp., a pharetronid calcareous sponge, is described from the lower Eocene (P8 or P9 Zone) portion of the Bateque Formation, Baja California Sur, Mexico. This is the first Tertiary record of this genus and its first Western Hemisphere occurrence. *Elasmostoma* has been previously reported only from Jurassic and Cretaceous strata of Western Europe.

INTRODUCTION

COMPLETE CALCAREOUS sponges are a rarity in lower Tertiary strata, and the presence of many well-preserved specimens of an early Eocene species in Baja California Sur, Mexico, is especially noteworthy. About 30 specimens of the calcareous sponge *Elasmostoma bajaensis* n. sp. were found in the early Eocene portion of the Bateque Formation, about 75 km southwest of San Ignacio (Figure 1).

The base of the Bateque Formation is not exposed in the study area, and the formation is unconformably overlain by Miocene volcanics of the San Isidro Formation. For a generalized geologic map of the area, see McLean et al. (1985). In the vicinity of the sponge locality, the Bateque Formation is 190 m thick. It consists mostly of very fine sandstone interbedded with fossiliferous lenses. The sponges were found between 80 and 120 m above the bottom of the section at California State University, Northridge (CSUN), locality 1220a. The locality is on the south side of a minor canyon, at an elevation of 120 m and about 850 m southeast of the mouth of the canyon, on the west side of Mesa La Salina, at 1.25 km southeast of the intersection of 113°00′W and 26°45′N, San Jose de Gracia quadrangle map (number G12A64), Baja California Sur, issued in 1983 under the authority of the Direccion General de Geografia.

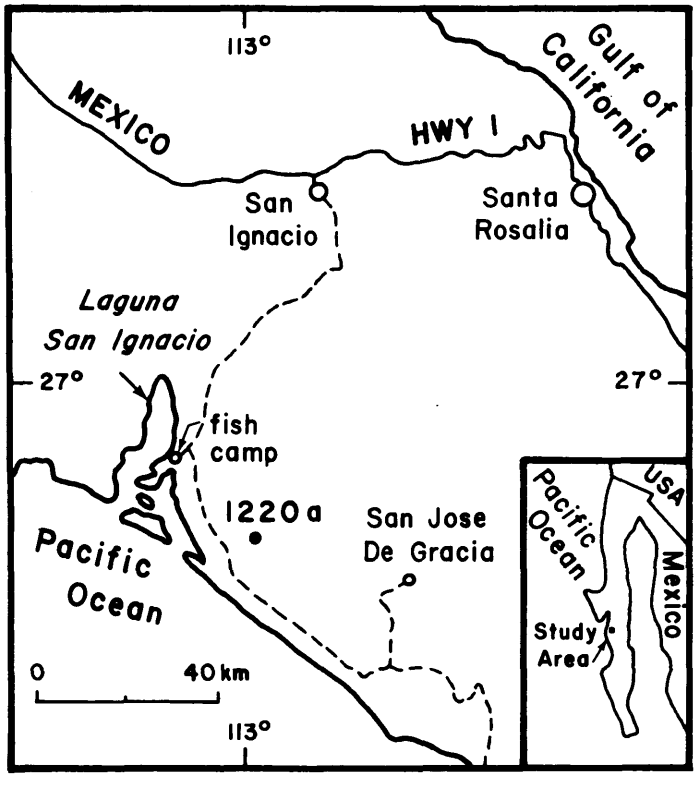

FIGURE 1—Index map to California State University, Northridge (CSUN), collecting locality 1220a, Bateque Formation, Baja California Sur, Mexico. =LACMIP 16224

The sponge specimens are remarkably well preserved, unabraded, and all are three dimensional. Many are complete and all are free of matrix. The specimens form a growth series, ranging from 9 to 45 mm in height. One specimen was found attached to a larger sponge. The absence of indications of significant transport suggests that the specimens were recovered virtually in situ. Modern calcareous sponges are most commonly found in shallow tropical waters (Rigby, 1987), and a similar environment for the Bateque sponges is supported by the presence of associated specimens of stromatolites, coralline algae, discocyclinid foraminifera, colonial scleractinians, encrusting bryozoans, thick-shelled gastropods and bivalves, and sea urchin spines.

The sponge-bearing portion of the Bateque Formation contains the planktonic foraminifera *Morozovella aragonensis* and *M. a. caucasica*. M. V. Filewicz and R. W. Fulwider (personal commun.) assigned these species to the early Eocene *Globorotalia aragonensis* or *G. pentacamerata* Zone of Stainforth et al. (1975), which are equivalent to the P8 or P9 planktonic foraminifera Zone as used by Berggren et al. (1985).

The type specimens of the sponge are deposited in the Los Angeles County Museum of Natural History, Invertebrate Paleontology (LACMIP) collections.

SYSTEMATIC PALEONTOLOGY

Class CALCAREA Bowerbank, 1884
Order LITHONIDA Vacelet, 1981
Family ELASMOSTOMATIDAE de Laubenfels, 1955
Genus ELASMOSTOMA Fromentel, 1860

Type species.—By original designation, *Elasmostoma frondescens* Fromentel, 1860, p. 42. Lower Cretaceous (Neocomian), France.

ELASMOSTOMA BAJAENSIS n. sp.
Figure 2.1–2.9

Diagnosis.—An *Elasmostoma* with ostia almost always confined to the convex side; these ostia commonly have a raised border that encloses a single opening or clusters of two to five (rarely more) openings.

Description.—Small to medium size (up to 45 mm height and 32 mm in diameter, walls up to 2.25 mm thick), ear-shaped to vase-shaped with deep spongocoel extending to near base of the sponge; rigid skeleton consists of fused spicules, ostia-bearing