

much wider than long, and posteriorly narrowing posterolateral margins. Much better-preserved specimens will be needed, however, to test whether or not *Carinocarcinoides* is indeed present in North America. Currently, species are known only from Oligocene of Japan (Karasawa and Fudouji 2000).

#### PALEOECOLOGY

The decapod fauna from the Tepetate Formation is much less robust than that of the Bateque Formation (Table 1). Of the nine species known from the Tepetate Formation, seven are shared with the Bateque Formation fauna, including *Paguristes mexicanus*, *Lophoranina bishopi*, *Calappilia hondoensis*, *Lobonotus mexicanus* and three unnamed species of hermit crabs and callianassid shrimp. The species known only from the Tepetate fauna include *Eriosachila bajaensis*, *Levicyclus tepetate* Schweitzer et al., 2002, *Montezumella tubulata* Rathbun, 1930, *Amydrocarcinus dantei*, *?Carcinoplax* sp., and *Longusorbis eutychi* new species this volume.

In attempting to discern a pattern of distribution that would explain the differences in faunal diversity and faunal composition between the two formations, only two observations seem relevant. Seven of the taxa uniquely occurring in the Bateque Formation are species of mudshrimp and hermit crabs; only two species of hermit crab and two taxa of callianassids occur in both formations. The large number of these taxa in the Bateque Formation may indicate deposition of the sediment in an environment that was particularly conducive to their lifestyle. Alternatively, it is certainly possible that, because these taxa are almost entirely represented by isolated claws, a certain amount of taxonomic “splitting” may have occurred. This latter possibility is considered unlikely because the authors have studied mudshrimp and hermit crabs in several other rock units and, although it is not possible to assign specimens to genera with confidence in all cases, patterns of morphology that clearly distinguish species can be discerned. Every attempt has been made to recognize what seem to be legitimately different species-level taxa.

No other taxonomic pattern clearly distinguishes the faunas in the two formations. Among the Brachyura, four species of burrowing forms within the Raninidae are known from the Bateque Formation, whereas only one of those, *Lophoranina bishopi*, occurs in both formations. The remainder of the crabs are epifaunal, benthic creatures, many of which are xanthoid crabs that are common in warm water settings. Thus, no obvious ecological patterns are evident.

The one striking difference in the faunas is related to size of the individuals that were collected. Most of the species reported from the Bateque Formation were represented by very tiny specimens that were discovered serendipitously in which surface collecting had yielded

little. The rocks in that area were infused with salt from evaporation of seawater, the fossils were extremely fragile, and specimens undoubtedly disintegrated upon exposure at the surface. The numerous specimens that were collected from that locality, WP 32, were discovered by digging below the surface to expose fossils that had not been subjected to surface weathering. The shallow quarrying revealed a large number of specimens that could then be wrapped in tissue and preserved for study. Very little additional preparation was possible because of the delicate nature of the material. Because of this fortuitous discovery, the faunal list of the Bateque Formation was greatly expanded. Thus far, no such discovery has been made in the Tepetate Formation.

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