

## Trace fossils from the Cenozoic of southeastern coastal Jamaica

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The eastern side of Port Morant Harbour, southeastern coastal Jamaica, exposes three Cenozoic lithostratigraphic units of Pliocene to Pleistocene age, and each of which, for varying reasons, is of interest ichnologically. The oldest (Pliocene) unit comprises the Bowden Formation, a 5 m succession of basal? turbiditic conglomerates, historically referred to as the Bowden shell bed and the most fossiliferous sequence in Jamaica, overlain by an estimated 145 m of deep-water silty and sandy 'marlstones' with thin and sporadically developed pebbly sandstone horizons. Disconformably overlying this sequence is a Lower Pleistocene unit referred to as the Old Pera beds, a shallow-marine, siliciclastic, storm-dominated sequence, at least 30 m thick. Unconformably overlying the Old Pera beds is the Upper Pleistocene Port Morant Formation that consists of approximately 10 m of muddy, calcareous and highly fossiliferous, fine-to-coarse-grained sandstones with a basal boulder conglomerate unit and sporadic pebble conglomerate horizons, and interpreted as lagoonal in origin.

Each sequence is characterized by a distinctive suite of trace fossils. The Bowden shell bed contains at least 45 benthic mollusc species that exhibit predatory gastropod borings referable to the ichnotaxa *Oichnus simplex* and *O. paraboloides*, produced respectively by mucricids and naticids. A resedimented limestone clast in the shell bed contains rather unique examples of the bivalve borings *Gastrochaenolites* cf. *cluniformis* preserving their producer (*Rocellaria* (*Gastrochaena*) *hians*). The overlying 'marlstones' contain the soft-sediment ichnotaxa *Chondrites*, *Circulichnis montanus*, *Ophiomorpha*,

*Palaeophycus tubularis*, *Palaeophycus? heberti*, *Phycosiphon incertum*, *Planolites*, *Skolithos*, *Taenidium cameronensis*, *Teichichnus rectus* and *Thalassinoides*, and the bivalve wood boring *Teredolites longissimus*. Collectively, these ichnotaxa support the interpretation that the Bowden Formation was deposited in relatively deep-water conditions.

The Old Pera beds exhibit a relatively low diversity of ichnotaxa but do include *Thalassinoides*, *Ophiomorpha*, *Skolithos* and rare *Chondrites*. Of particular interest, however, is the locally abundant occurrence of *Bichordites monastiriensis*, an ichnospecies produced by spatangoid echinoids, and previously recorded from only two other locations, one in Tunisia and the other in northern Italy.

Finally, the Port Morant Formation preserves both soft-sediment ichnotaxa and those produced by bioerosion. The former include *Thalassinoides paradoxicus*, *Ophiomorpha nodosa* and rare *Palaeophycus tubularis*, and the latter, *Caulostrepsis* cf. *contorta*, *C. cretacea*, *C. taeniola* and *Clioniodes thomasi* (all produced by spionid polychaete annelids); *Entobia ovula* (produced by sponges); *Gastrochaenolites* cf. *cluniformis* and *G. cf. torpedo* (many still preserving their bivalve producers, respectively *Rocellaria* (*Gastrochaena*) *hians* and *Lithophaga artillarum*); *Meandropolydora* cf. *sulcans* (produced by polychaetes); and *Oichnus simplex* and *O. paraboloides*. Such a diverse assemblage of bioerosional ichnotaxa has not previously been reported from Jamaica.