

A massive subtidal aggregation of hermit crabs in Surprise Atoll lagoon, New Caledonia

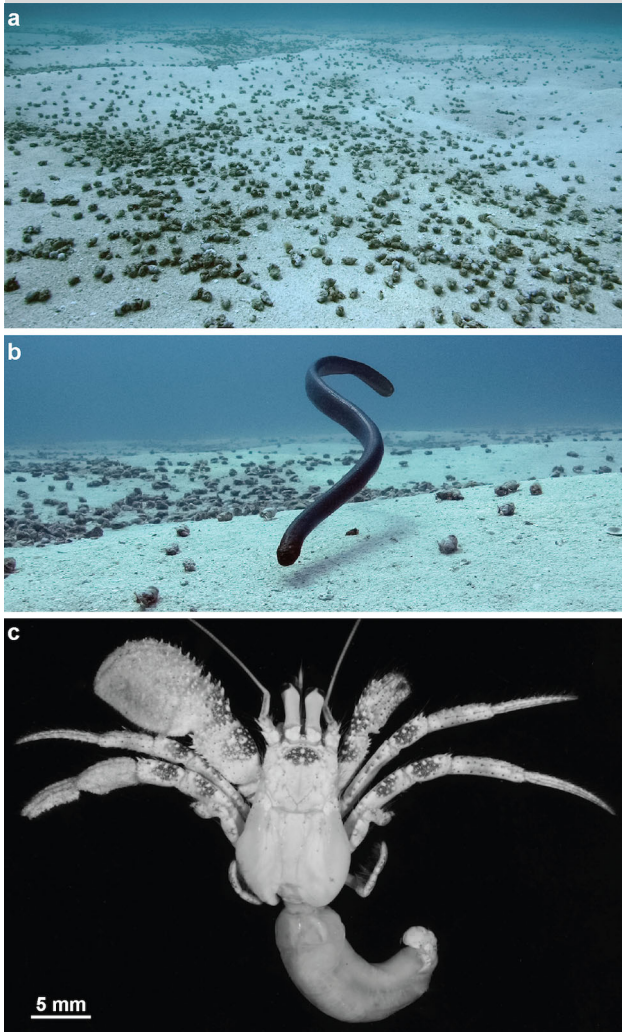


Fig. 1 **a,b** Massive aggregation of *Dardanus scutellatus* at 15 m depth at Surprise Atoll. **c** One of four *D. scutellatus* collected from the event and accessioned at the Florida Museum of Natural History (Catalog number UF39388, specimen ‘‘A’’ pictured). Morphological identification was confirmed with CO1 DNA barcode data (GenBank KM374668 and KM374669 for UF39388 specimens ‘‘A’’ and ‘‘B’’, respectively)

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Many hermit crab species can form large aggregations, sometimes numbering thousands of individuals (e.g., Gherardi and Vannini 1992). Research suggests that such clustering behavior can reduce predation risk and positively influence feeding, reproduction, and shell exchange. While clustering is well documented among lineages inhabiting terrestrial and intertidal zones, it remains poorly studied at subtidal depths where the greatest hermit crab diversity exists. The limited work that has examined this behavior across multiple habitats found clustering to be rare or entirely absent among species occupying subtidal depths (including in six *Dardanus* species; Barnes and Arnold 2001, but see Ramsay et al. 1997). Here, we report clustering behavior in the subtidal hermit crab species *Dardanus scutellatus* (H. Milne Edwards, 1848) that formed a massive aggregation of tens of thousands of individuals from 10 to 15 m depth (Fig. 1). Observations were made at approximately 0830 hrs, November 24, 2013 in the remote Surprise Atoll of Entrecasteaux Reef (New Caledonia), on a gently sloping lagoon bottom of sand-covering pavement near 18.4775°S, 163.0835°E. Though our survey was very limited (<25 min, covering approximately 250 m), we did not visually locate the end of this cluster. We also saw no obvious signs of a significant food source that might have attracted these crabs. No other benthic fauna was observed, but sea snakes swam through the area. To our knowledge, such a large subtidal aggregation has never been formally reported, although scientific divers recorded a similar event 15 December 2009 in a similar habitat on Beautemps-Beaupré Atoll (Laboute, pers. comm.). The novelty of this observation emphasizes that our knowledge of clustering behavior in hermit crabs remains incomplete.

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