

Validation of *Strigopagurus fragarchela* (Crustacea: Anomura: Diogenidae), a distinctive hermit crab from the continental shelf off south-east Queensland, Australia

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ABSTRACT

The distinctive diogenid hermit crab, *Strigopagurus fragarchela*, was recently described from material from coastal shelf waters off south-east Queensland, Australia by Davie & McNamara (2024) in Volume 65 of *Memoirs of the Queensland Museum Nature*. Unfortunately, because the journal is an electronic-only publication and the work did not include a ZooBank registration number, the name is not available for nomenclatural purposes. The present note validates the name *Strigopagurus fragarchela* by fulfilling the requirements of the current zoological code.

The name *Strigopagurus fragarchela* was established for a new species of diogenid hermit crab from south-east Queensland by Davie & McNamara (2024) in the *Memoirs of the Queensland Museum Nature* 65: 110–123: ISSN 2204-1478, doi.org/10.17082/j.2204-1478.65.2024.2024-04. Unfortunately, the name is unavailable according to the International Code of Zoological Nomenclature (Code) because that journal is now an electronic-only publication, and a ZooBank registration number (LSID) was not included. The present note serves to validate the name *Strigopagurus fragarchela* by fulfilling the requirements of the Code (ICZN 1999, 2012). Davie & McNamara (2024) provided a full description and extensive figures, and this work should be consulted in combination with the present short note.

Type material is deposited in Queensland Museum, Brisbane.

Abbreviations: CSIRO: Commonwealth Scientific and Industrial Research Organisation; DAF: Department of Agriculture and Fisheries, Queensland; DPI: Department of Primary Industries, Queensland; P2, P3: pereopod 2, pereopod 3; QM: Queensland Museum; SEQ: south-east Queensland; sl: shield length.

TAXONOMY

Infraorder Anomura MacLeay, 1838

Superfamily Paguroidea Latreille, 1802

Family Diogenidae Ortmann, 1892

***Strigopagurus fragarchela* sp. nov.**

<http://zoobank.org/urn:lsid:zoobank>.

org:act:C35E3977-C7DB-42AF-9FA1-6847000071C1

Strigopagurus fragarchela Davie & McNamara, 2024: 112–116; figs 1, 2, 3F, H, 4E, J, 5K–L, 6N–O [name unavailable].

Material examined: *Holotype*: QM-W29653, male (sl 13.9 mm), c. 10 km off Cape Moreton, SEQ, 27°S, 153°30'E, trawl 146 m, commercial trawler bycatch, June 2020.

Paratypes: QM-W29645, male (sl 23.6 mm), 30 km east of Point Lookout, North Stradbroke Island, SEQ, 27°24'S, 153°51'E, trawl 260 m, G. Smith (DPI, Fisheries), 25/09/1982. QM-W27160, female

(sl 12.9 mm), male (sl 17.5 mm) [both with missing or partially missing pleons]; eastern Qld, DPI, Fisheries, 2000 [no precise locality or date recorded]. QM-W29674, 2 females (sl 12.4; 14.0 mm), c. 50 km ENE of Mooloolaba, SEQ, 26°37'12"S, 153°39'E, trawl 165 m, Southern Seabed Biodiversity Team (CSIRO, QM, DAF), 17/10/2022. QM-W29601, 2 females (sl 10.8; 10.4 mm) 7 males (sl 9.2; 10.1; 10.5; 10.6; 10.7 [some legs broken and pleon detached] 11.9; 14.0 mm), c. 10 km off Cape Moreton, SEQ, 27°S, 153°30'E, trawl 146 m, commercial trawler bycatch, June 2020. QM-W29761, 1 male (sl 15.4 mm), ESE of Point Lookout, North Stradbroke Island, SEQ, 27°30'S, 153°43'12" East, trawl 120 m, Southern Seabed Biodiversity Team (CSIRO, QM, DAF), 17/10/2022 [DNA sample taken and preserved in 100% ethanol].

Diagnosis: Cephalothorax depressed dorsoventrally; shield length subequal to breadth; anterolateral margins convergent anteriorly; posterior margin narrowly truncate, with short median longitudinal suture; rostrum obtuse, rounded, slightly exceeding obtuse unarmed lateral projections. Ocular peduncles equal in length, long and slender, 0.7 times as long as shield, c. 4.5 times longer than corneal width; ocular acicles proximally inflated, smooth, narrowly separated basally; distal projection narrowly triangular, sharply pointed, mesial margins nearly straight, sometimes with short subdistal accessory spine. Antennular peduncles moderately long. Ultimate segment reaching slightly beyond cornea, c. 0.4 times as long as shield, and about 1.5 times length of penultimate segment; antennal peduncles reaching to about three-quarters length of ocular peduncles; antennal acicle reaching proximal two-thirds of ocular peduncle, terminating in acute spine; mesial margin armed with row of 8–9 small spines, lateral margin with 2–3 small spines over distal half. Chelipeds subequal, identical in armature and ornamentation. Outer face of palm with sparse, regular, short sharp spines, each placed near leading edge of raised scutella; each scutellum distally convex, with small spinules or sharp granules along edge. Stridulatory apparatus present on proximo-dorsal surface of dactyl and on upper face of palm; ridges on palm consisting of primary large broad distal plate behind dactylar articulation, extending to ventral half of mesial surface, where it is separated by a narrow sulcus from small ridged

ventral accessory plate; main plate consists of 19–20 closely spaced ridges, c. 2.2–2.3 times longer than wide; a series of five short plates, decreasing in size proximally, distal-most consisting of 7–9 ridges; a longer narrow plate extends ventrally behind main plate consisting of c. 13 ridges, and behind this are 3–4 short narrow plates of 5–6 ridges. Ambulatory legs moderately long, second (P3) overreaching tips of chelipeds by 0.3 length of dactyli; generally similar in armature and ornamentation. Dactyli 1.4–1.7 times longer than propodi, terminating in strong terminal claws, weakly curved in lateral view. Propodi lateral and ventral faces scutellate, similar to chelipeds. Meri also with similar scutellation, but smooth and without denticles. Fourth pereiopods semichelate; dactylus somewhat curved distally, longer than palm, overreaching tip of fixed finger by $0.2 \times$ length, terminating in small corneous claw, edged with comb of very short closely-spaced corneous spinules ventrally. Fifth pereiopods typically chelate. Pleon of males with first pair of pleopods paired, followed by 3 unpaired left pleopods (third to fifth pleopods; length: fifth = fourth > third > second); exopods well-developed, endopods $0.2\text{--}0.3 \times$ length of exopods, but reduced to stub on second pair. Female with 4 biramous unpaired pleopods, with both rami multi-segmented and well-developed. Uropods asymmetrical.

Colouration: Chelipeds with dactyl and pollex bright crimson red to maroon, cutting margins with long black corneous apical cusps in front of cream molars; propodus and carpus cream with distinctive red tubercles, ventral face cream; merus with rows of cream squamiform patches with red borders, ventral face mostly cream with faint pink tinge. Pereiopods 2 and 3 with red dactyli armed with black-tipped spinules and with black distal claws, ventral face red; propodi, carpi and meri with similar, but slightly less distinctive, cream squamiform patches with red borders, ventral face pinkish-cream. Ocular peduncles red with one white lateral stripe on inner edge. Ocular acicles red with several white patches, terminal spinule white with red band near tip.

Shell use: Present material found in gastropod shells, mostly from Volutidae (*Amoria jansae*, *A. moller*, *Ericusa sowerbyi*, *E. sericata*), but one from a species of Fascioliariidae (*Pleuroploca australasia*).

Distribution: So far only known from shelf waters off SEQ, Australia, at depths of 120–260 m.

Etymology: Name is derived from the Latin for ‘strawberry’ (*Fragaria*), combined with ‘chela’ to highlight the bright red colour of the claws. A suitable common name could therefore be the Strawberry-clawed Hermit. It is used here as a noun in apposition.

Remarks: A key to separate the six presently known species of *Strigopagurus* is provided by Davie & McNamara (2024). *Strigopagurus fragarchela* sp. nov. is immediately distinguished from other congeners because the outer faces of the cheliped and ambulatory legs are covered in raised scutella. This is particularly evident on the outer face of the chela, where *S. fragarchela* has each scutellum tipped with one prominent short spine, along with small spinules or sharp granules along the edge (Davie & McNamara 2024: fig. 3F, H); whereas on the other species, the outer face of the chela bears an even covering of individual prominent sharp spines, and scutella are not present (Davie & McNamara 2024: fig. 3A–E, G). Scutellation is also prominent on the outer faces of the walking legs, though not armed with strong spinules as on the chela scutes (Davie & McNamara 2024: fig. 5K).

The cheliped stridulatory apparatus is also distinctive, and this is a further clear indication of species isolation. In overall shape and size, the primary plate of *S. fragarchela* sp. nov. most closely resembles its southern counterparts, *S. strigimanus* and *S. elongatus*, but that of the new species is much broader medially and less tapering ventrally. The male second pleopods of *S. fragarchela* sp. nov. most closely resemble *S. bilineatus*, however in the new species the terminal segment of the exopod is relatively shorter and broader than in any of the other species. The endopod, though reduced to a stub, is also more prominent than in *S. bilineatus*.

Interestingly, all species are geographically and bathymetrically separated in occurrence (Forest 1995). Of the three species found off the eastern Australian coast, *S. strigimanus* is from southern temperate waters and seems to prefer shallower habitats (<100 m depth, except for one report from 385 m off southern NSW). *S. fragarchela* sp. nov. is only found off SEQ in 120–260 m; and *Strigopagurus*

bilineatus, is currently only known from a few localities off central and northern Queensland, and from the greater depths of 250–350 m. Perhaps this depth profile could be temperature-related, with hermits favouring colder water at increasing depths with decreasing latitude; if so, it would support the idea of a temperate origin for the genus.

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