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Pseudopaguristes, a new and aberrant genus of hermit crabs (Anomura: Paguroidea: Diogenidae)

PATSY A. MCLAUGHLIN

Shannon Point Marine Center, Western Washington University, 1900 Shannon Point Road, Anacortes, WA 98221-9081B, U.S.A.

Abstract—*Pseudopaguristes*, gen. nov., an aberrant, presently monotypic, genus of the hermit crab family Diogenidae, is diagnosed and its type species, *Pseudopaguristes janetkae*, sp. nov., is described and illustrated. As its name implies, this new genus is, in many morphological characters, nearly identical to the genus *Paguristes* Dana. However, it differs most significantly in gill number, the sexually dimorphic, enlarged right cheliped of the male, the dimorphic propodus of the left second pereopod of the female, and the development of a preungual process at the base of the claw of the dactyl of the fourth pereopod that, together with the claw, gives the appearance of a miniature chela.

Introduction

During survey work by faculty and staff of the University of Guam Marine Laboratory, a pair of splendidly and distinctly colored hermit crabs was dredged off Agat Bay from 90 m depth. A second, smaller pair were collected subsequently in shallow water from the fore reef area of Agat Bay north of Alutom Island. Although the females superficially looked very typical of a species of the genus *Paguristes* Dana 1851, the appearance of the males suggested a member of the family Paguridae. Not only was the right cheliped considerably larger, this appendage also was morphologically very different from the left, with both differing from the chelipeds of the females.

Marked heterochely in species of *Paguristes*, while not common, has been reported for several species, e.g., *P. frontalis* (H. Milne Edwards, 1836), *P. pilosus* (H. Milne Edwards, 1836), *P. setosus* (H. Milne Edwards, 1848), *P. oculatus rubropictus* A. Milne-Edwards & Bouvier 1892, *P. tuberculatus* Whitelegge, 1900, *P. purpureantennatus* Morgan, 1987c, and *P. kimberleyensis* Morgan & Forest, 1991b. However, in all of these species, it is the left chela that is notably larger. Alcock (1905) did not describe the chelipeds of *P. mundus* Alcock, 1905, as being asymmetrical; however, his figure (pl. 3, fig. 5) showed a slightly larger right cheliped. A slightly larger right cheliped also was reported by Morgan (1987a), for his new *P. alegrias* Morgan, and by McLaughlin & Clark (1997) for *P. hians* Henderson, 1888. As noted by Morgan (1987b) the condition of the right cheliped being larger than the left is most unusual for *Paguristes*, and also rare in the family Diogenidae, the exceptions in the latter being species of the genera *Petrochirus*

Stimpson, 1858, and *Tisea* Morgan & Forest, 1991a. Although the male right cheliped of *Pseudopaguristes janetkae*, gen. nov., sp. nov., is markedly larger than, and dissimilar to, the left, these apparently are sexually dimorphic characters. The chelipeds of the females are subequal and generally similar in armament. Sexual dimorphism, as it relates to armature of the chelipeds is not common among hermit crabs, except in the diogenid genus *Diogenes* Dana, 1851 (e.g., Forest & Guinot 1956). However, dimorphic armature has been observed in some species of *Paguristes* (e.g., *Paguristes kimberleyensis* Morgan & Forest 1991a).

The branchial formula in species of *Paguristes* has been described as consisting of 13 pairs of usually biserial, but occasionally quadriserial, gills (cf. McLaughlin & de Saint Laurent 1998); the last thoracic somite lacks a pleurobranch (Forest 1954; Forest & de Saint Laurent 1968). As species of this genus are usually quite distinctive in their overall morphology, it is probable that authors of new species of *Paguristes* have not routinely verified the gill number. And such would have been the case here, if just the females had been observed. However, the obvious differences in the males did prompt an examination of the gills of the holotype, allotype and smaller female paratype. In this character, all were the same. A pleurobranch was absent, not only above each fifth pereopod, but also above the second. The gills of the chelipeds were reduced to a small, laterally orientated, row of tiny lamellae; those of the third maxilliped further reduced to simple buds. In view of the superficial similarity of the females of *Pseudopaguristes* and those of *Paguristes*, all students of *Paguristes* would be well advised to verify this character in their species.

The holotype and allotype of *Pseudopaguristes janetkae* have been deposited in the National Museum of Natural History, Smithsonian Institution (USNM); the additional pair of paratypes have been deposited in the Florida Museum of Natural History, University of Florida (FMNH). General terminology for the generic diagnosis and species description follows that of McLaughlin & Provenzano (1974), and that of McLaughlin & de Saint Laurent (1998) for gill structure. One measurement, shield length (sl), measured from the tip of the rostrum to the posterior midpoint of the shield, provides an indication of animal size.

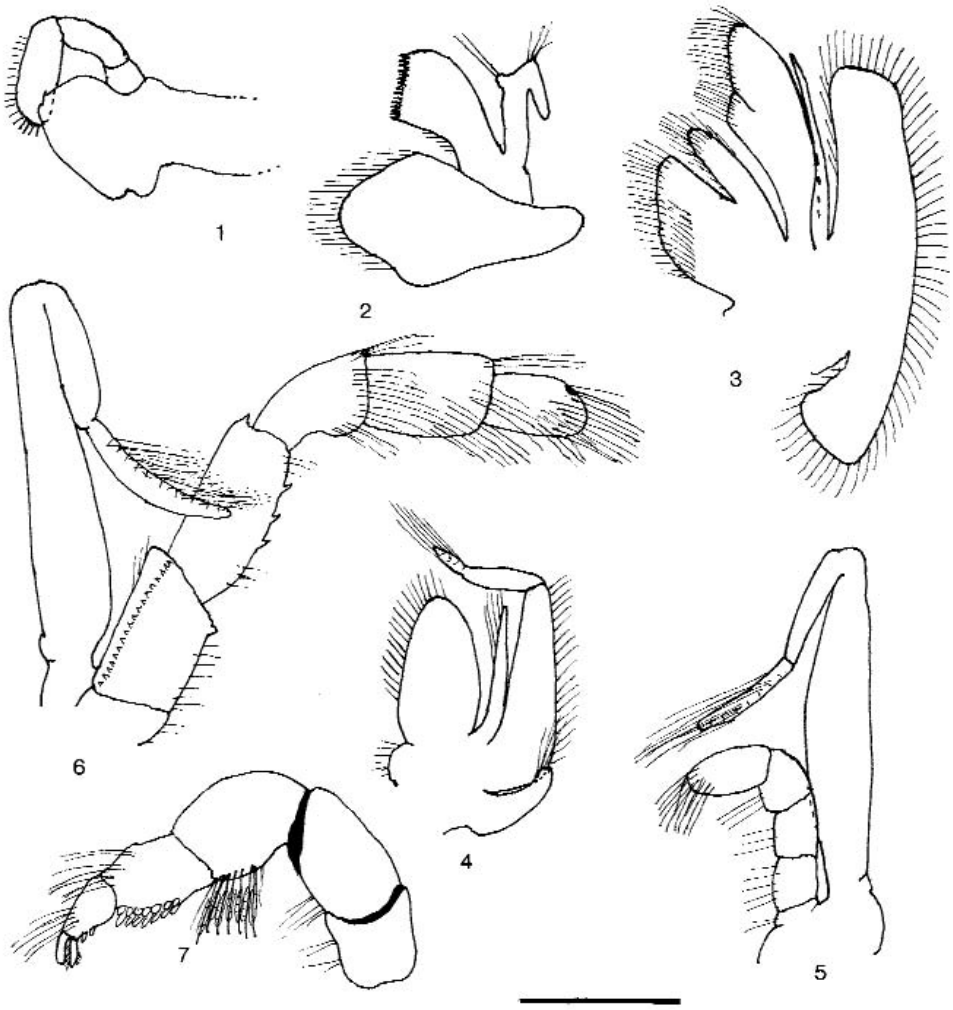
Pseudopaguristes gen. nov.

Type Species. *Pseudopaguristes janetkae*, sp. nov.

Gender. Masculine.

Diagnosis. Eight pairs of functional phyllobranchiate gills (no pleurobranchs on fifth and eighth thoracic somites); arthrobranchs of third maxillipeds and chelipeds markedly reduced; remaining gills quadriserial. Rostrum well developed. Ocular acicles well developed, widely separated. Antennal peduncles with supernumerary segmentation; acicles moderately long, spinose. Antennal flagella of medium length, as long or slightly longer than carapace.

Mandible (Fig. 1) with smooth medial margin; palp 3-segmented. Endopod of maxillule (Fig. 2) with well developed, recurved external lobe. Maxilla (Fig. 3)



Figures 1-7. *Pseudopaguristes janetkae*, gen. nov., sp. nov., female allotype, USNM 276499: 1, mandible (external view); 2, maxillule (external view); 3, maxilla (external view); 4, first maxilliped (external view); 5, second maxilliped (external view); 6, third maxilliped (internal view); 7, fourth pereopod (lateral view). Scale equals 0.5 mm.

with long, slender endopod. First maxilliped (Fig. 4) with setose epipod. Second maxilliped (Fig. 5) without distinguishing characters. Third maxilliped (Fig. 6) with crista dentata consisting of row of quite small teeth, no accessory tooth.

Chelipeds often sexually dimorphic, dissimilar and unequal in males, right largest; subequal and generally similar in females; claws corneous, fingers opening in horizontal plane. Fourth pereopods with prominent, distinctive preungual process (Fig. 7) at base of dactylar claw, and with claw presenting chelate appearance. Fifth pereopods chelate.

Males with paired gonopores; paired pleopods modified as gonopods on first and second abdominal somites; unpaired, unequally biramous left pleopods on somites 3-4, fifth uniramous. Females with gonopore only on coxa of left third pereopod; paired, uniramous pleopods modified as gonopods, on first abdominal somite; following 3 somites with unpaired, unequally biramous left pleopods; fifth with exopod well developed, endopod rudimentary; brood pouch represented by row of setae.

Uropods markedly asymmetrical. Telson with lateral indentations; posterior lobes slightly asymmetrical.

Remarks. *Pseudopaguristes*, gen. nov., is clearly very closely related to *Paguristes*. The recurved external lobe of the maxillulary endopod is very similar to that described for species of *Paguristes* (e.g., Forest 1954, Morgan 1987a). An epipod on the first maxilliped, comparable to that seen in *Paguristes* (cf. Boas 1880, McLaughlin & Provenzano 1974, 1975), is also present in *Pseudopaguristes*. Similarly, the structure of the male and female gonopods are typical of those seen in species of the former genus. However, notable differences in telson structure are observed in the type species, *Pseudopaguristes janetkae* sp. nov. In having only slightly asymmetrical and rounded posterior lobes, and terminal margins armed with numerous very small spines or spinules, the telson is more like many paguroid telsons. In contrast, in the species of *Paguristes* for which telsons have been described, the posterior lobes are most frequently triangular or subquadrate, often notably asymmetrical, with terminal margins entirely unarmed, or armed with a few prominent spines (e.g., McLaughlin & Provenzano 1974, 1975, Miyake 1978, Morgan 1987c, 1992, Morgan & Forest 1991b).

As noted by Morgan (1987a), while single left female gonopores are uncommon in Indo-Pacific species of *Paguristes*, this condition has been reported by Forest (1954) for several West African species, i.e., *P. fagei Forest*, 1952, *P. mauritanicus* Bouvier, 1906, *P. difficilis* Forest, 1952, *P. oxyacanthus* Forest, 1952, *P. rubrodiscus* Forest, 1952, *P. microphthalmus* Forest, 1952, *P. virilis* Forest, 1952, and *P. hispidus* A. Milne-Edwards & Bouvier, 1892. Reports from the Indo-Pacific include those of Haig & Ball (1988) for *P. hians* and Morgan (1987a) in his original description of *P. monoporus* Morgan.

Correspondingly, although development of a brood pouch is typical of most species of *Paguristes*, it is not universal. Total absence of a brood pouch was recorded by Forest (1954) for *P. fagei* and by Morgan (1987b) for *P. monoporus*. Substitution of a row of setae for a brood pouch was reported by McLaughlin & Provenzano (1974) for *P. anomalus* Bouvier, 1918, and by McLaughlin & Hogarth (1998) in their original description of *P. lauriei*. Forest & McLaughlin (2000) noted that the brood pouch in *P. setosus* was represented by a tuft of long dense setae arising from the integument between the third and fourth pleopods.

Pseudopaguristes janetkae, sp. nov.
Figs 1-24

Material examined. Holotype ♂ (sl = 2.7 mm), USNM 307713; recently ovigerous allotype ♀ (sl = 2.2 mm), USNM 276499, Off Agat, Guam, 13º22.7'N, 144º38.4'E, 90 m, 31.I.2000. Paratypes. — 1 ♂ (sl = 1.9 mm), 1 ♀ (sl = 2.2 mm), Agat Bay, north of Alutom Island, fore reef, 3-5 m, 7.VIII.2000, collector H.T. Conley, FMNH.

Etymology. This species is dedicated to Janet K. Armbrust, malacological consultant, patient manuscript editor, and special friend.

Description. Shield (Fig. 8) longer than broad; dorsal surface with few spinules laterally. Lateral projections broadly and roundly triangular, with tiny terminal spinule or upper and lower pair of spinules (allotype, Fig. 9). Rostrum moderately long, triangular, reaching well beyond bases of ocular acicles, with minute or small, terminal spinule. Branchiostegites each with row of spines on dorsal margin in distal half in larger holotype and allotype, unarmed in smaller paratypes.

Ocular peduncles slightly to noticeably unequal, left longest; moderately slender; 0.6-0.8 length of shield; corneas not dilated. Ocular acicles moderately large, triangular or subquadrate, with 2-5 terminal spines or spinules (broken off in holotype).

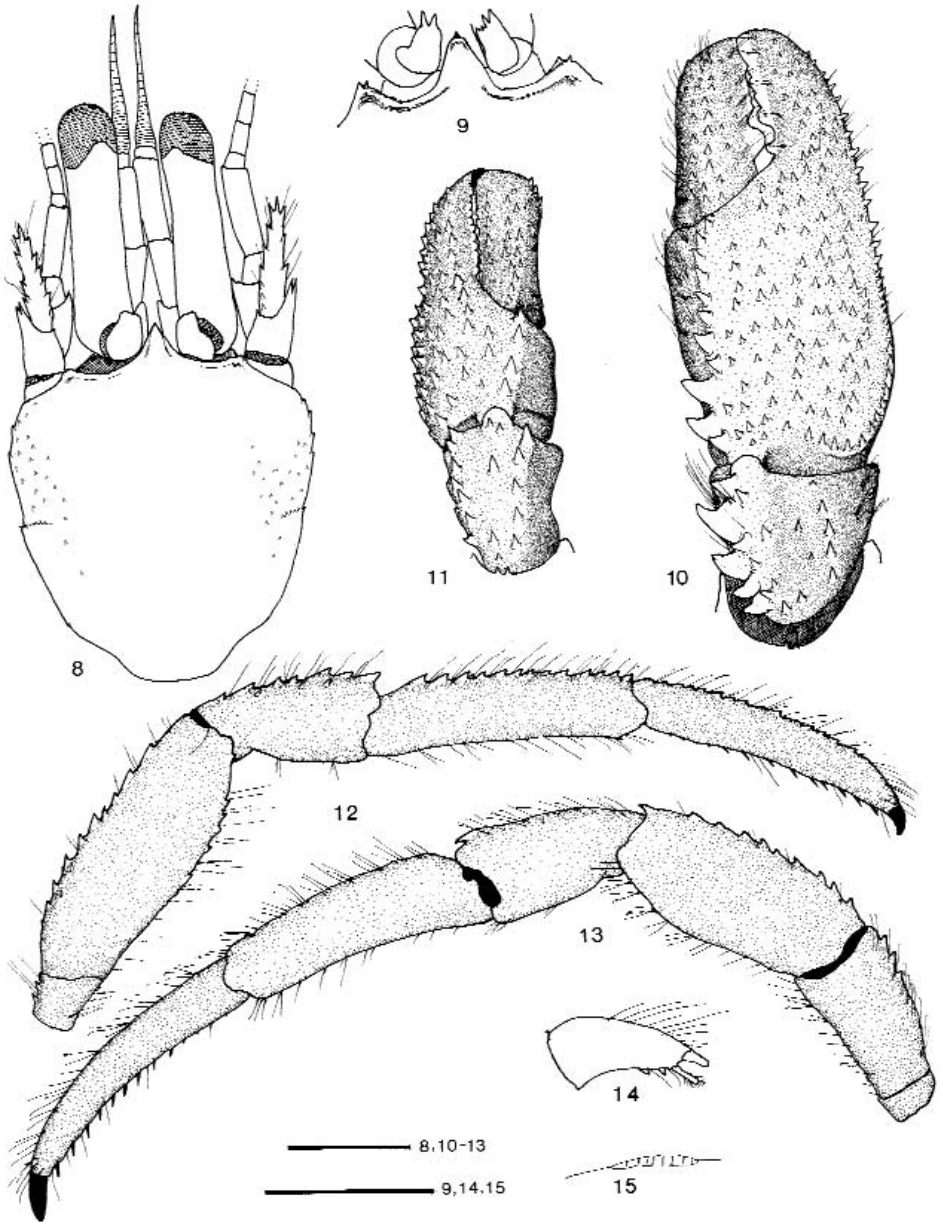
Antennular peduncles, when fully extended, reaching to or overreaching bases of corneas but not reaching to distal margins. Ultimate and penultimate segments glabrous. Basal segment with slender spine on dorsolateral margin of statocyst lobe, ventrodistal margin produced into prominent spine-like projection.

Antennal peduncles, when fully extended, not reaching to bases of corneas. Fifth segment with 1 or 2 small spines on dorsal surface and few scattered, short setae. Fourth segment with prominent dorsodistal spine and smaller ventrodistal spine. Third segment with very prominent ventrodistal spine. Second segment with dorsolateral distal angle produced, terminating in bifid spine; dorsomesial distal angle with small spine. First segment unarmed. Antennal acicle approximately reaching midlength of fully extended ultimate peduncular segment; with simple or bifid terminal spine, mesial margin with 3-7 spines, lateral margin with 1-3 spines. Antennal flagellum moderately long, somewhat longer than carapace in holotype, but not overreaching right cheliped; each article with few short setae, and 2 or 3 longer setae every 3 or 4 articles.

Third maxilliped with 2 or 3 spines on ventrodistal margin of ischium; ventral margin of merus with 3 or 4 spines; carpus with 1 dorsodistal spine.

Chelipeds of holotype and male paratype grossly unequal, right distinctly larger; armature dissimilar. Right cheliped (Fig. 10) with dactyl approximately 0.8 length of palm; dorsomesial margin with row of small spines and few sparse tufts of setae, dorsal surface with row of small spines in midline and additional few spines nearer to cutting edge; mesial surface with 2 irregular rows of low tubercles and few tufts of setae; cutting edge with row of moderately small (generally fused in holotype), calcareous teeth and 1 prominent calcareous tooth near proximal angle; terminating in small corneous claw and slightly overlapped by fixed

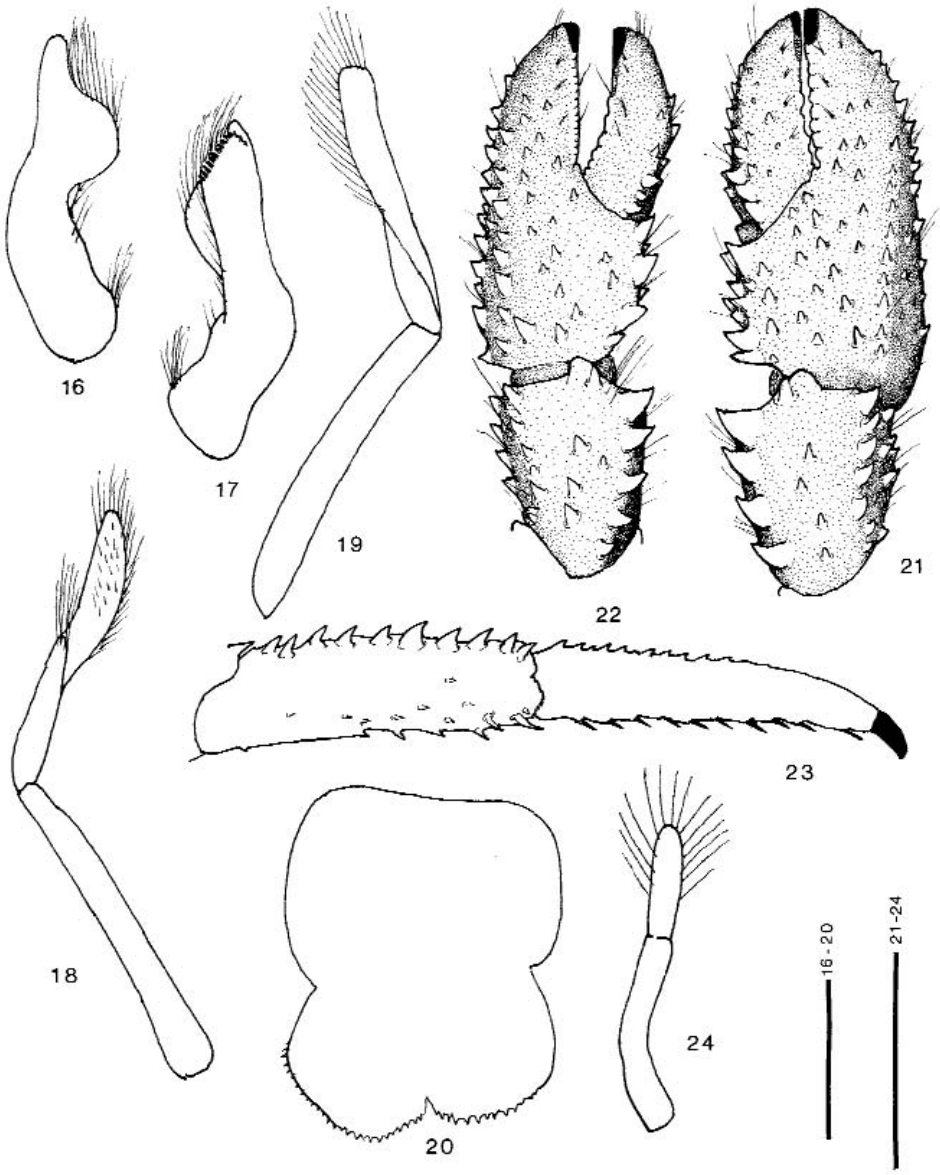
Plate 1: *Pseudopaguristes janetkae*, gen. nov., sp. nov., female allotype, USNM 276499, living colors. (Photo: G. Paulay).



Figures 8-15. *Pseudopaguristes janetkae*, gen. nov., sp. nov., 8, 10-15, male holotype, USNM 307713; 9, female allotype, USNM 276499: 8, shield and cephalic appendages (aesthetascs omitted); 9, anterior margin of shield, bases of ocular peduncles and ocular acicles; 10, carpus and chela of right cheliped (dorsal view); 11, carpus and chela of left cheliped (dorsal view); 12, right second pereopod (lateral view); 13, left third pereopod (lateral view); 14, dactyl of right fourth pereopod (lateral view); 15, capsulate seta. Scales equal 1.0 mm (8-13) and 0.5 mm) (14, 15).

finger. Palm 1.5 to nearly 2 times length of carpus, dorsoventrally somewhat swollen, but becoming appreciably thinner on fixed finger; dorsomesial margin with 3 prominent spines proximally and row of smaller spines in distal 0.65 (holotype) or entire row of moderately prominent spines (male paratype), dorsoproximal margin laterally and dorsolateral margin with continuous row of small spines, becoming more widely-spaced on fixed finger; dorsal surface of palm and fixed finger with numerous, but not densely-packed, small spines; mesial face with double row of spinulose tubercles dorsally and additional small tubercles adjacent to distal margin (holotype only), longitudinal row of tiny, closely-spaced tubercles adjacent to ventral margin giving appearance of stridulating mechanism; lateral face with few, very inconspicuous, small tubercles; ventral surface with few low protuberances and sparse tufts of setae; cutting edge of fixed finger with row of small calcareous teeth; terminating in small corneous claw. Carpus slightly less to slightly more than 0.50 length of merus; dorsomesial margin with row of 4 or 5 prominent spines, dorsal surface with 1 or 2 adjacent, irregular rows of smaller spines, 2 small spines medially (holotype), and row of small spines on dorsolateral margin; mesial face with 2 low protuberances, each with sparse tuft of setae; lateral face with few spinules, ventrolateral distal angle with tiny spinule. Merus subtriangular; 1 or 2 small spines on dorsodistal margin separated from elevated dorsal margin by smooth area extending laterally and mesially; dorsal margin (damaged in holotype) with 2 distal transverse rows of spines, extending mesially and laterally, row of tiny spinules proximally (holotype) or unarmed (male paratype); lateral and mesial faces each with irregular rows of tiny spinules, much weaker on mesial face; ventromesial and ventrolateral margins each with row of spines, strongest mesially. Ischium with 2 or row of small spines on ventromesial margin. Coxa with small spine at ventromesial and ventrolateral distal angles (holotype).

Left cheliped of holotype (Fig. 11) and male paratype reaching to or slightly beyond midlength of dactyl of right; dactyl and fixed finger curved ventrally. Dorsomesial margin of dactyl armed with irregular row of small spines, dorsal surface with 1 or 2 irregular rows of spines, not extending full length of surface; mesial face with few spinules proximally and short row of spinules distally (holotype) or irregular row not extending to tip (male paratype); ventral surface with few tufts of setae; cutting edge with row of small calcareous teeth in proximal 0.65, corneous teeth distally, terminating in large corneous claw. Palm approximately 0.75 length of dactyl; dorsomesial margin with row of 4 spines, dorsal surface with irregular rows of moderately small spines (fewer in male paratype), 2 rows extending onto fixed finger; dorsolateral margin not delineated, but rounded surface with moderately well-spaced covering of small spines; mesial face with few low protuberances; ventral surface with few spines or low protuberances distally, and row of small spinules on fixed finger (holotype only); cutting edge of fixed finger with row of small calcareous teeth, terminating in moderately large, corneous claw. Carpus with row of 4 or 5 spines on dorsomesial margin, dorsolateral margin also with row of spines, dorsal surface with 3 spines



Figures 16-24. *Pseudopaguristes janetkae*, gen. nov., sp. nov., 16-20, male holotype, USNM 3077713; 21-24, female allotype, USNM 276499: 16, left first pleopod (internal view); 17, left first pleopod (external view); 18, left second pleopod (internal view); 19, left second pleopod (external view); 20, telson (dorsal view); 21, carpus and chela of right cheliped (dorsal view); 22, carpus and chela of left cheliped; 23, dactyl and propodus of left second pereopod (mesial view); 24, left first pleopod internal view. Scales equal 1.0 mm (21-23) and 0.5 mm (16-20, 24).

in distal 0.50 and 2 proximally (holotype) or irregular median row of spines (male paratype); mesial face unarmed; lateral face spinose, ventrolateral distal angle with acute small spine, proximal margin with short row of minute spinules. Merus with 1 or 2 small spines at dorsodistal margin; dorsal surface with transverse rows of small spines and spinules, strongest distally and extending onto lateral face; mesial face unarmed; ventromesial and ventrolateral margins each with row of spines, strongest mesially; ventral surface with few small spines in distal 0.50. Ischium with row of small spines or minute spinules on ventromesial margin. Basis with 1 small spine on ventromesial margin (holotype). Coxa with spinule at ventrolateral distal angle and 2 spinules at ventromesial distal angle (holotype) or ventrolateral distal angle unarmed, 1 spinule at ventromesial distal angle (male paratype).

Ambulatory legs of holotype (Figs 12, 13) with dactyls 1.10-1.25 longer than propodi, left second slightly shorter; dactyls slightly shorter to approximately equal in male paratype; dorsal margins each with row of small spines and moderately sparse setae (second right and left of holotype, right only of paratype) or with only setae (third); lateral faces of second and third, and mesial faces of second each with few scattered setae; mesial faces of third each with median row of tiny or minute, corneous spinules and scattered setae; ventral margins each with row of 10-13 corneous spines. Propodi considerably longer than carpi; dorsal margins each with row of spines and few accessory spinules (second), or only tufts of setae sometimes arising from low protuberances (third); ventral margins of second pair each with small corneous spinule at distal margin, and few additional spinules in distal 0.50 of second left, third pair with sparse tufts of setae; mesial faces with tufts of setae. Carpi approximately 0.50-0.75 length of meri; dorsal margins each with irregular, partially double (second right, holotype; both, male paratype) or triple (second left, holotype) row of spines, or dorsodistal spine (third, holotype; third left of paratype, but right with few small spines); lateral, mesial and ventral surfaces unarmed, but with sparse setae. Meri each with partially double row of small spines (second, holotype) or single row (third, holotype; second and third, male paratype); ventral margins each with single (paratype) or double (holotype) row of spines (second) or unarmed (third) and with tufts of moderately long setae. Ischia with spinules on dorsal margins, fewer in number on second. Fourth pereopods with dactyls elongate, stiffly setose, prominent preungual process at base of claw giving chelate appearance (Fig. 14); propodi each with 2 rows of corneous scales in propodal rasp; carpi each with thick tuft of strangely capsulate setae (Figs 7, 15) on ventral margin. Sternite of third pereopods with roundly subrectangular anterior lobe.

First pleopods of holotype (Figs 16, 17) each with tuft of setae basally on basal lobe; inferior lamella with row of setae on lateral margin, distal margin with row of very small, curved spines not extending down mesial margin; internal lobe moderately small, with row of long setae on mesial margin; external lobe extending only slightly beyond distal margin of inferior lamella. Second pleopods (Figs 18, 19) each with marginal row of setae on mesial margin of ultimate segment.

Telson (Fig. 20) with slightly asymmetrical posterior lobes separated by shallow median cleft; rounded and laterally oblique left terminal margin with complete row of small spinules, extending onto lateral margin and not concealed by accompanying long setae; terminal margin of rounded right lobe with row of small spinules, not extending full length of margin and not concealed by accompanying long setae.

Allotype and female paratype differ from holotype and male paratype as follows:

Chelipeds (Figs 21, 22) subequal, right very slightly larger; armament generally similar. Dactyl of right slightly longer than left, each with row of spines on dorsomesial margin, dorsal surface with few small spines (right, allotype; both, female paratype) or unarmed (left, allotype); mesial faces each with few spinules and sparse tufts of setae; ventral surfaces each with sparse tufts of setae; cutting edges each with row of small calcareous teeth in proximal 0.75, corneous teeth distally, terminating in corneous claw. Palms each with row of prominent spines on dorsomesial margin, dorsal surfaces each with widely-spaced and somewhat scattered, small spines; row of small spines on dorsolateral margin of right and adjacent to poorly defined margin on left, both rows continuing onto fixed finger, but not extending to tip; mesial and lateral faces each with numerous small spines; ventral surfaces each with few spines or spinulose tubercles distally on palm; fixed fingers with few spines (right, allotype; both, female paratype) or sparse tufts of setae (left, allotype), cutting edges each with row of small calcareous teeth, terminating in corneous claw. Carpi each with row of prominent spines on dorsomesial margin, dorsolateral margins each with row of smaller spines, dorsal surfaces each with irregular median row of spines; mesial faces each with 1 or 2 spinulose tubercles dorsally; lateral faces each with numerous spines, small spine at ventrolateral distal angle, and row of minute spinules on proximal margin (allotype). Meri each with small dorsodistal spine, distalmost spine of row on dorsal margin somewhat removed from distal margin, and accompanied by transverse, irregular row of small spines extending onto lateral and mesial faces; ventromesial and ventrolateral margins each with row of spines, strongest mesially. Ischia each with row of spines on ventromesial margins.

Ambulatory legs of allotype and female paratype with dactyl of left second approximately equal to length of propodus. Dactyls of right second and third pair as in holotype, but as few as 8 ventral dactylar spines in female paratype. Propodi of second right as in holotype; propodi of second left (Fig. 23) each with scattered spinules on mesial face; ventral margins each with row of spines in distal 0.50; third pereopods with only with tufts of setae on dorsal margins (allotype) or row of spines (female paratype); each with row of small spines near each ventral margin. Other segments of allotype as in holotype; female paratype with dorsal row of carpal spines on third right pereopod.

Allotype and female paratype each with single left gonopore; paired first pleopods of allotype (Fig. 24) with ultimate segment approximately 0.75 length of basal segment. Brood pouch represented by row of fine setae.

Color. In life, shield yellowish-white with cranberry-red anterior margin. Ocular peduncles cranberry-red in proximal 0.25-0.35, remainder yellow-orange; corneas lemon-yellow; ocular acicles also cranberry-red. Basal segments and proximal halves of penultimate segments of antennular peduncles cranberry-red, distal portions of penultimate and ultimate segments red-orange with tinge of yellow at segmental articulations; flagella red-orange. First and second segments of antennal peduncles cranberry-red, produced dorsolateral distal angle and peduncular segments 3-5 yellow; flagella translucent with bands of dark brown every several articles.

Chelipeds with meri and carpi cranberry-red, palms cranberry-red, becoming lighter distally, dactyls and fixed fingers tan tinged with cranberry-red. Ambulatory legs with proximal portions of meri cranberry-red, color continuing distally in oblique, ventrally-directed pattern, dorsodistal, lateral and mesial faces distally light yellow and white, tinged with cranberry-red; carpi, propodi and dactyls light cream tinged with yellow.

Habitat. Holotype and allotype found in shells of *Cantharus wagneri* (Anton, 1839).

Distribution. Known only from Guam, 3–90 m.

Variation. The ocular acicles in *Pseudopaguristes janetkae* clearly are multispinous, although they were broken or worn off in the holotype, and reduced in number in the allotype. The smaller male paratype has acicles armed with 4 and 5 well developed spines of equal size. Spination of the antennal acicles, however, was weaker in the two smaller paratypes than in either the holotype or allotype. In addition to the pronounced sexual dimorphism, variations in the number and prominence of spines on the chelipeds and ambulatory legs was noted among the four specimens.

Affinities. Generic differences not withstanding, there is a superficial resemblance between *Pseudopaguristes janetkae*, gen. nov., sp. nov, and *Paguristes mundus* Alcock, 1905, from the Andaman Islands [not *Paguristes mundus* sensu Laurie (1926), redescribed by McLaughlin & Hogarth (1998) as *P. lauriei*]. Both *Pseudopaguristes janetkae* and *Paguristes mundus* have multispinous ocular acicles, antennular and antennal peduncles of comparable lengths, asymmetrical chelipeds, and second pereopods with well armed propodi and carpi. Alcock (1905) described the chelipeds of his species as being subequal, but his figure (Alcock 1905, pl. 3, fig. 5) clearly shows the right somewhat larger. Although his description referred only spines on the dorsal margins of the propodi and carpi of the second pereopods, his figure shows spines on the dorsal margins of the carpi of the third as well. Alcock gave no indication of the number of specimens upon which his description was based, but his reference to "Inhabiting clean shells of *Xenophora pallidula*" indicates that he had at least two specimens. Similarly, he provided no information on possible dimorphism or on the sex of his specimens. In addition to the generic characters that separate *Paguristes* from *Pseudopaguristes*, presumably males of *Paguristes mundus* are readily distinguished from *Pseudopaguristes janetkae* by having a shorter rostrum, more heav-

ily and similarly armed chelae, less pronounced cheliped asymmetry, and armed carpi of the left third pereopods.

Remarks. In the only earlier, relatively comprehensive study of hermit crabs from Guam (Wooster, 1979), no specimens of *Paguristes* were recorded. Thus it can be assumed that despite the potential for mistaken identity of female specimens of *Pseudopaguristes janetkae* with females of *Paguristes*, this new taxon is not a common faunal representative. However, it clearly has a broad bathymetric distribution. The female allotype had the remnants of cuticle attached to the second and third pleopods, indicating that she had been carrying eggs that had hatched shortly before the time of collection.

As may be seen from the description, not only is marked sexual dimorphism exhibited by the male, but also the propodus of the second left pereopod of the female differs considerably in armament from the right and also from the propodi of the male. The male and female paratypes collected from beneath rocks in the shallow fore reef area in Agat Bay, were completely retracted into their shells. Consequently no photos or notes on coloration were made at the time of sampling. When examined in the laboratory no indication of any color patterns remained, except for the lemon-yellow pigmentation of the corneas. However, the extraordinary sexual dimorphism, reduced gill number, and distinctive preungual process of the dactyl of the fourth pereopod left no doubt as to the identities of these specimens. Despite their smaller sizes, gonopod development would indicate that both were mature individuals.

During the examination of the hermit crabs collected during the biodiversity study, two species of *Paguristes* also have been found. In addition to its own distinctive color pattern of red stripes on the ambulatory legs, a diagnostic difference that immediately separates both sexes of *Paguristes jalur* Morgan, 1992, is the unarmed, subtriangular lobes of the telson of. Females of *Paguristes jalur* are also immediately distinguished from females of *Pseudopaguristes janetkae* by the presence of paired gonopores and a brood pouch. In contrast, females of the second species of *Paguristes* now recognized from Guam, *P. monoporus*, like those of *Pseudopaguristes janetkae* have only a single left gonopore. Coloration, including striped ocular peduncles of *Paguristes monoporus*, will immediately identify this species; however, in the absence of color, the dense plumose setation on the shield and antennal peduncles, and the shape and armature of the telson will distinguish females of this taxon from *Pseudopaguristes janetkae*. Males of *Paguristes monoporus* do not have dimorphic chelipeds, but more importantly, they lack the left second gonopod, and the left first is reduced or lacking.

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holotype in life. Janet Armbrust provided the identification of the mollusk shells. The assistance provided by Rafael Lemaitre, and the suggestions made by Jacques Forest and an anonymous reviewer are gratefully acknowledged. This is a scientific contribution from the Shannon Point Marine Center, Western Washington University.

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