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TANAIDACEA (CRUSTACEA: PERACARIDA) OF THE GULF OF MEXICO. VII. *ATLANTAPSEUDES LINDAE*, N. SP. (APSEUDIDAE) FROM THE CONTINENTAL SLOPE OF THE NORTHERN GULF OF MEXICO.

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ABSTRACT During 1983 through 1985, 53 specimens of *Atlantapseudes lindae*, new species, were collected in box core samples taken on the continental slope in the northern Gulf of Mexico. *Atlantapseudes lindae* can be distinguished from the only other member of the genus, *A. nigrichela* Băcescu, 1978 by several characters, including the length of the squama of antenna 2, which is no longer than the third peduncular segment, and the absence of anterolateral spines on pereonites 1-2 of females and 1-6 on males. The diagnosis for genus *Atlantapseudes* Băcescu, 1978 is amended to include the presence of sexually dimorphic chelae and first antennae in fully developed males.

INTRODUCTION

Băcescu (1978) created the monotypic genus *Atlantapseudes* to receive *Atlantapseudes nigrichela* Băcescu, 1978, described from the northeastern Atlantic off the coast of Portugal in depths ranging from 750 to 1250 m. He pointed out that in many respects his material superficially resembled *Aapseudes grossimanus* Norman and Stebbing, 1886, which also has been reported from Portuguese waters at similar depths.

This report describes a new species of *Atlantapseudes* from box core samples collected as part of an extensive study of the continental slope in the northern Gulf of Mexico during 1983 through 1985.

Băcescu (1978) characterized the genus *Atlantapseudes* as lacking sexually dimorphic chelae and first antennae. However, fully developed males of the new species are distinctly sexually dimorphic in these structures. This leads us to amend Băcescu's generic diagnosis as follows: Aapseudids lacking exopods on chelae and first pereopods; ocular lobes lacking visual elements; pleopods absent in females, five biramous pairs present in males; sexually dimorphic chelae and first antennae present in fully developed males.

Type material has been deposited in the collections of the National Museum of Natural History (USNM) and the Gulf Coast Research Laboratory Museum (GCRL).

We follow Sieg and Heard (1985) in not considering the chela as a pereopod. Pereopods 1-6 are attached to

pereonites 1-6, respectively.

***Atlantapseudes lindae*, new species**

Figures 1-5

Synonymy: Aapseudidae A: Galloway, Martin, and Howard (1988).

Type material examined

Holotype - 1 male, 27°42'46"N, 091°32'58"W, 10 June 1985, 556 m, USNM 221832.

Paratypes - 1 ovigerous female, 27°50'30"N, 090°44'07"W, 12 June 1985, 545m, USNM 221833; 1 ovigerous female, 27°43'31"N, 092°07'57"W, 9 June 1985, 549 m, GCRL 1134.

Additional material

One female, 3 subadult males, 2 juveniles, 27°54'24"N, 090°06'00"W, 26 Nov. 1983, 603 m; 1 male, 1 transitional manca (i.e. those juveniles with the 6th pair of pereopods present but not fully developed), 27°54'18"N, 090°05'54"W, 26 Nov. 1983, 615 m; 1 subadult male, 28°16'48"N, 086°14'53"W, 18 May 1985, 624 m; 1 subadult male, 1 juvenile, 28°02'11"N, 85°40'59"W, 15 May 1985, 624 m; 1 subadult female, 28°15'45"N, 086°37'08"W, 20 May 1985, 852 m; 1 female, 27°35'56"N, 092°21'33"W, 8 June 1985, 750 m; 1 subadult female, 1 transitional manca, 27°50'29"N, 090°44'06"W, 13 June 1985, 547 m;

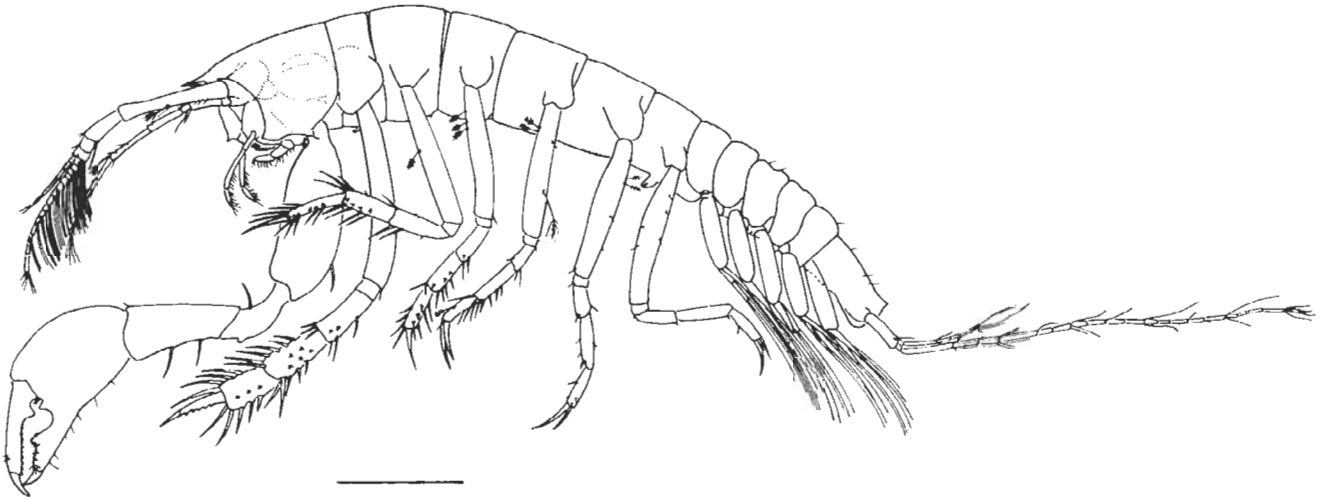


Figure 1. *Atlantapseudes lindae* n. sp.: lateral view of adult male. Scale equals 1.0 mm.

1 subadult male, 1 juvenile, 28°35'26"N, 086°44'27"W, 13 May 1985, 624 m; 1 manca, 1 transitional manca, 27°43'31"N, 092°07'57"W, 9 June 1985, 549 m; 1 subadult male, 1 subadult female, 2 transitional mancans, 27°43'28"N, 092°08'08"W, 9 June 1985, 545 m; 1 female, 1 subadult female, 1 subadult male, 2 mancans, 27°45'37"N, 091°13'07"W, 11 June 1985, 455 m; 2 mancans, 1 transitional manca, 27°50'30"N, 090°44'07"W, 12 June 1985, 545 m; 1 female, 2 subadult females, 1 transitional manca, 27°45'49"N, 091°13'08"W, 11 June 1985, 444 m; 1 subadult male, 1 manca, 1 transitional manca, 27°42'37"N, 091°33'04"W, 4 June 1985, 554 m; 1 female, 1 subadult female, 2 subadult males, 27°45'39"N, 091°13'11"W, 12 June 1985, 454 m; 1 female, 1 subadult male, 1 manca, 27°43'32"N, 092°07'57"W, 9 June 1985, 547 m; 1 subadult male, 28°16'47"N, 086°14'46"W, 18 May 1985, 622m; 1 subadult male, 3 juveniles, 27°50'23"N, 090°44'01"W, 12 June 1985, 550 m.

Diagnosis

Second antenna, squama not longer than third segment. Maxilliped with 3 coupling hooks. Pereonites 1–2 lacking anterolateral spiniform processes in both sexes; 3–6 with weakly developed, acute anterolateral processes in female, lacking in male. Chela, basis with proximal anterior spur; carpus with 2 long, simple setae on posterior surface. Pleonites, lateral margins rounded; acute midventral spinose processes lacking.

Description of male

Body (Fig. 1; 2a) – Length 6.5 mm, about 5.6 times longer than wide.

Cephalothorax (Fig. 1; 2a) – Length-width ratio (including rostrum), 1:1; lateral margin bearing pronounced spine; rostrum well developed, terminally acute.

Pereonites (Fig. 1; 2a) – All wider than long; 1–2 with rounded lateral margins; 3–6 bearing rounded anterolateral processes. Pereonite 1 with anteriorly directed midventral process, processes on remaining pereonites usually smaller.

Pleonites (Fig. 1; 2a, c) – Pleonites 1–4 with rounded lateral margins; pleonite 5 more subquadrate. Keel-like ventral processes present; lateral margins visible dorsally on 1–4.

Pleotelson (Fig. 1; 2a, c) – Length-width ratio 1.6:1; widest at level of uropod attachment.

First Antenna (Fig. 3d) – Peduncle 4-segmented; first peduncular segment approximately 3 times longer than second, bearing 3 broom setae proximally, 2 broom setae and 1 simple seta at midlength on outer margin; second peduncular segment with one long seta distally on outer margin, inner margin with 1 short seta proximally, 2 setae distally; third peduncular segment bearing 1 seta distally on inner margin; fourth peduncular segment with projection at junction with inner flagellum. Inner flagellum with 5 segments; outer flagellum with 16 segments, proximally bearing rows of long aesthetascs along medial margins, becoming less numerous distally, last segment reduced. Last segment of both inner and outer flagella bearing 4 terminal setae.

Second Antenna (Fig. 3b) – Composed of 12 segments; second segment with 1 proximal seta on outer margin, small squama distally on inner margin, squama shorter than third segment, bearing 2 terminal setae of different lengths; third segment with 1 seta distally on outer margin; fourth segment with 1 seta distally on outer margin followed by 2 broom setae; fifth segment, inner margin with 1 short seta at midlength, followed by 1 broom seta more distally, outer margin with 1 long seta at midlength, 3 smooth setae and 1 long broom seta more distally; sixth segment, inner margin with 1 long seta at midlength and 1 shorter seta distally; segments 7–11 each bearing 1–2 setae distally; last segment with 4 terminal setae and 1 aesthetasc.

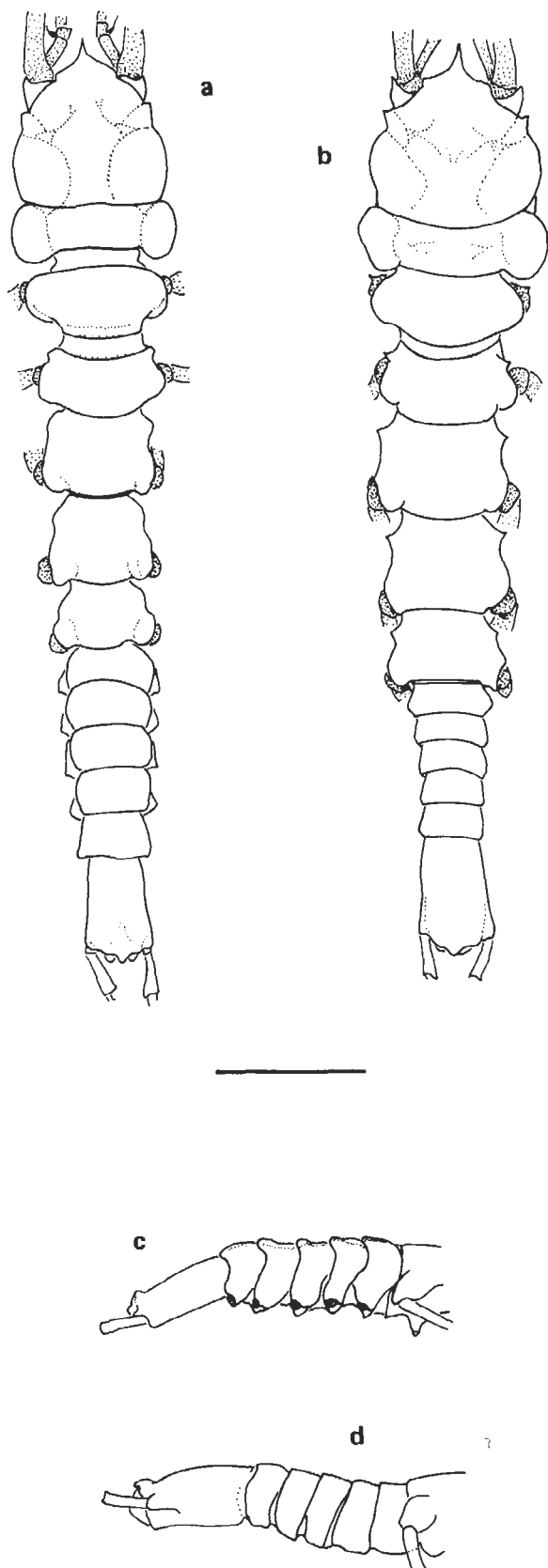


Figure 2. *Atlantapseudes lindae* n. sp.: (a) adult male, dorsal view; (b) ovigerous female, dorsal view; (c) adult male pleon, lateral view; (d) ovigerous female pleon, lateral view. Scale equals 1.0 mm.

Clypeolabral complex (Fig. 4b) – Clypeus bearing well-developed spine-tooth with tip curved ventrally. Labrum subdivided in two parts by labral suture, posterior half bilobed, surface covered with fine setae.

Mandibles (Fig. 3g, h) – Pars molaris and pars incisiva with irregular cutting edge. Left mandible with 5-dentate lacinia mobilis; spiniferous lobe with 8 spined teeth. Right mandible with lacinia mobilis reduced to one strong forked spine; spiniferous lobe with 5 spined teeth. Palp three-segmented, first segment bearing one seta at midlength on inner margin; second segment about 4 times longer than first, with 12–13 distally pinnate setae; third segment bearing 14–15 distally pinnate setae on inner and medial margins.

Labium (Fig. 4d) – Large terminal palp covered with fine setules, bearing three spine-like setae distally.

Maxilla 1 (Fig. 4a) – Outer endite with 11 terminal spines and 2 subterminal, stout, plumose setae; inner endite bearing 1 finely setulose seta, 1 completely plumose seta, and 1 partially plumose seta; palp 2-segmented, with 1 long, simple terminal seta and 2 shorter subterminal setae with spoon-shaped tips armed distally with fine, recurved setules (Fig. 4a enlargement).

Maxilla 2 (Fig. 4f) – Fixed endite, medial setal row with 16 finely plumose setae and 2 distally serrate setae; terminal armament composed of three tridentate spines and 8 setae, 6 of which are partially or completely pinnate. Movable endite, inner lobe with 4 distally pinnate setae and 1 plumose seta; outer lobe with 2 subterminal and 5 terminal, distally pinnate setae (2 bearing several long, proximal setules), outer margin with two protuberances bearing small spinules.

Maxilliped (Fig. 4c, e) – Palp 4-segmented; first segment with 1 stout, simple lateral seta; second segment with 1 long distolateral seta and 13 setae along inner margin; third segment with 8–9 setae along inner margin; fourth segment with 11 setae scattered on distal third of article. Setae of segments 2–4 finely pinnate distally under high magnification. Endite subtriangular (Fig. 4c), bearing 6 stout, plumose marginal setae and 3 submarginal coupling hooks medially; distal margin with 7 spines (2 finely plumose, 1 finely plumose with ring of setules in proximal third, 1 setulose, 3 with strong distal groove and ring of setules near base).

Epignath (Fig. 4g) – Margin edged with short setules; terminal spine with scattered short setules; frontal lobe fringed with longer setules; 2 proximal accessory plates with scattered clumps of setae on surface.

Cheliped (Fig. 5b) – Exopod absent; coxa reduced, obscured from view by lateral margins of cephalothorax; basis over twice as long as broad, antero-proximal spur present, spine-seta in posterodistal third; fused ischium-merus with distal tooth on posterior surface, 1 long anterior seta; carpus with short setae scattered on surface, 2 long, simple setae posteriorly;

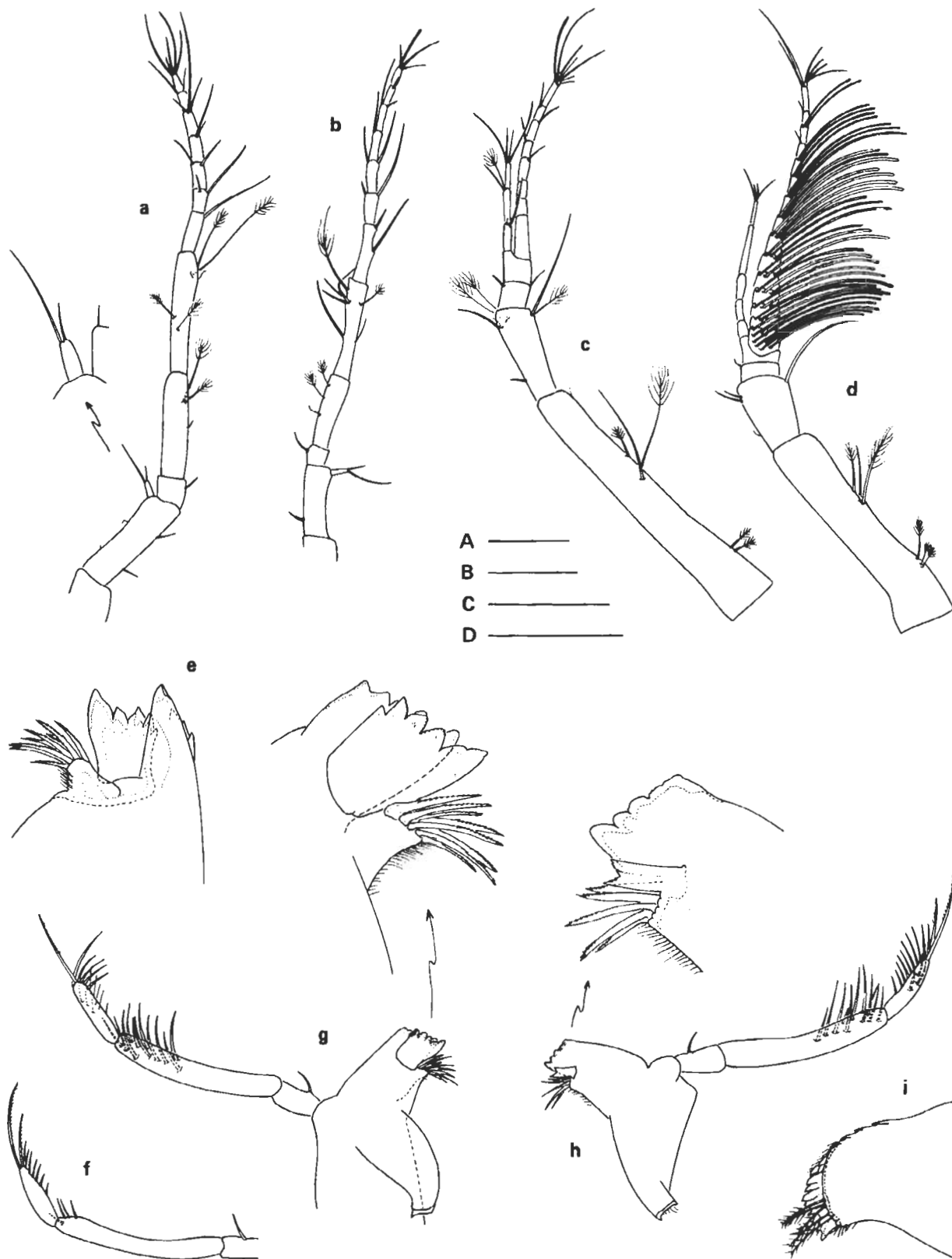


Figure 3. *Atlantapseudes lindae* n. sp.: (a) second antenna, adult female, with enlargement of squama, ventral view; (b) second antenna, adult male, dorsal view; (c) first antenna, adult female, ventral view; (d) first antenna, adult male, ventral view; (e) right mandible, adult female; (f) mandibular palp, adult female; (g) right mandible, adult male; (h) left mandible, adult male; (i) molar process, adult female. Scale A for (e) equals 0.1 mm; scale B for (f-h) equals 0.2 mm; scale C for (a-d) equals 0.5 mm; scale D for (i) equals 0.1 mm.

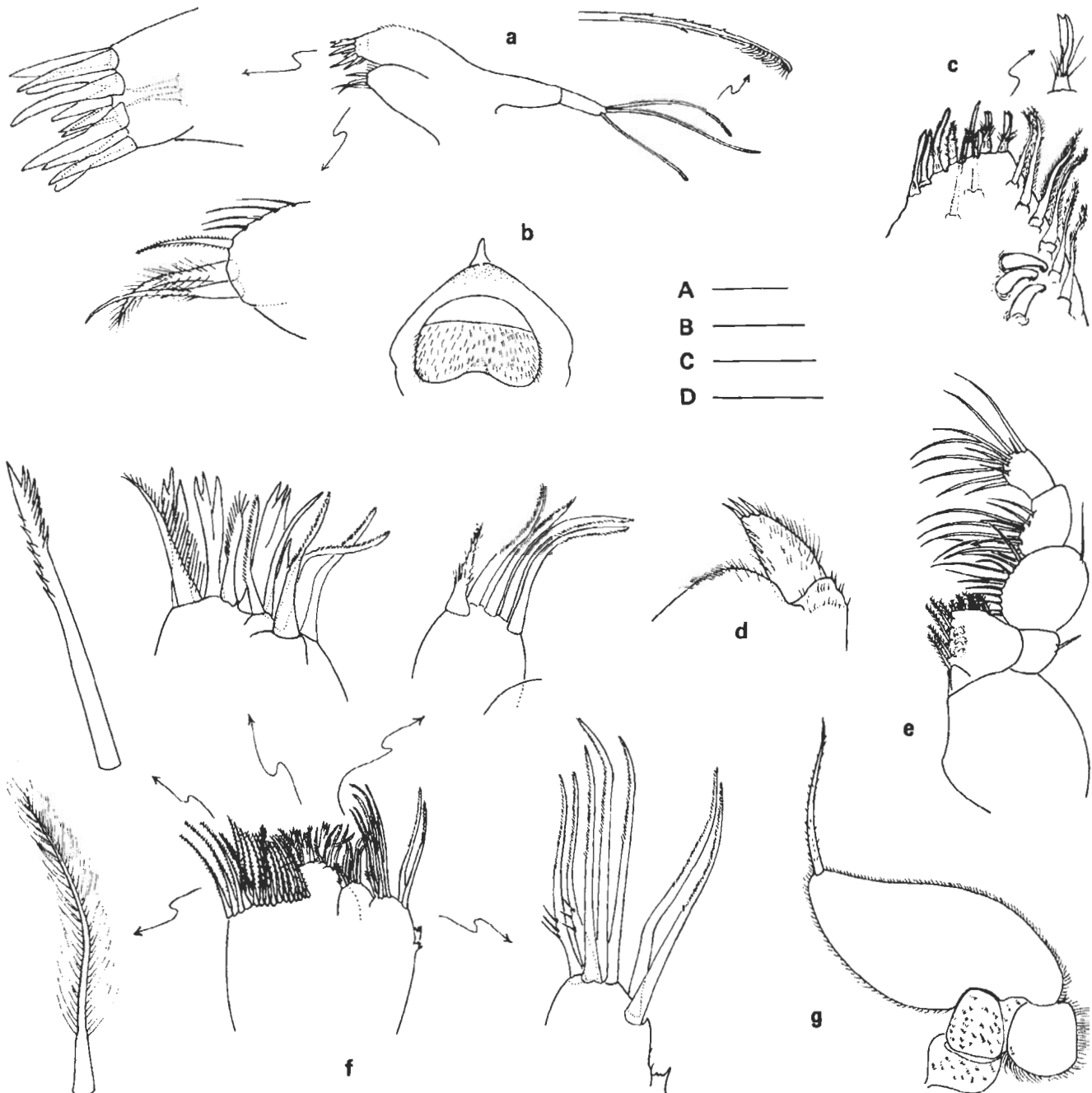


Figure 4. *Atlantapseudes lindae* n. sp.: Male (a) first maxilla; (b) clypeolabral complex; (c) enlargement of endite of maxilliped; (d) labium; (e) maxilliped; (f) second maxilla; (g) epignath. Scale A for (b, g) equals 0.2 mm; scale B for (d, f) equals 0.1 mm; scale C for (a, e) equals 0.2 mm; scale D for (c) equals 0.1 mm.

propodus and fixed finger combined about 1.5 times longer than ischium-merus, posterior edge with scattered setae; fixed finger with 2 blunt teeth separated by deep, broad notch, cutting edge bearing about 22 deep-rooted, sharp-edged teeth of various shapes and sizes, interspersed with setae (Fig. 5b enlargement); gape with 2 setae between proximal tooth and dactylar articulation; dactylus longer than fixed finger, bearing 1 proximal tooth followed by about 12 articulated distal spine-teeth. Tips of propodus and dactylus

smooth.

Pereopod 1 (Fig. 5e, f, g) – Fossorial; basis longer than ischium, merus, and carpus combined, with one distal seta on posteromedial margin; ischium reduced; merus with 1 proximal and 2 distal setae on posterior margin, anterodistal margin with group of 4 setae; carpus with posterior margin bearing 5 spine-setae, each armed with minute spinules, anterior margin with 6 setae, with only the distal-most seta bearing spinules (Fig. 5e); propodus slightly longer than carpus, pos-

terior margin with 5 spine-setae, all with spinules, anterior margin with 4 spine-setae, 2 with spinules. Short spine-like setules scattered on surface of merus, carpus, and propodus. Dactylus narrow with 5 serrate teeth on posterior margin and sharp styloform tip (Fig. 5g).

Pereopod II (Fig. 5i) – Nonfossorial; basis subequal to combined length of merus, carpus, and propodus, with short setae scattered posteriorly and 1 broom seta at midlength anteromedially; ischium bearing 1 posterior seta; merus with 2 proximal and 2 distal setae on posterior margin, anterior margin with 1 seta at midlength and 2 distally; carpus almost as long as merus, with 1 seta at midlength, 3 long distal setae on anterior margin, and 4 long setae on distal half of posterior margin, with accompanying medial row of 4 shorter setae; propodus longer than carpus, with distal posterior margin bearing 4 long setae, anterior margin bearing 6 setae, with medial row of 6 shorter setae; dactylus almost as long as propodus, bearing few short setules.

Pereopod III (Fig. 5j) – Similar to pereopod II. Basis with 3 broom setae proximally on anterior margin, several fine setae on surface, 1 posterodistal seta; ischium with 1 posterodistal seta; merus with 1 distal seta anteromedially, 2 long posterodistal setae, 1 short seta medially; carpus about same length as merus, 2 distal setae anteriorly, 4 setae along posterior margin, with row of 3 setae medially; propodus longer than carpus with 4 long anterodistal setae, 4 setae posteriorly with medial row of 5 shorter setae; dactylus slightly longer than propodus with scattered fine setules.

Pereopod IV (Fig. 5k) – Basis bearing 2 broom setae proximally on anterior margin, 1 long broom seta at midlength near posterior margin, and additional small scattered setae; ischium with 1 fine seta posteriorly; merus with 1 distal seta on anterior margin, 2 distal setae on posterior margin; carpus distinctly longer than merus, with 7 setae along posterior margin, 3 long setae on distolateral margin; propodus with 1 broom seta on proximal third of anterior margin, 1 seta on same area posteriorly, distal end with 1 pinnate seta (see Fig. 5k enlargement) and 1 strong seta longer than dactylus; dactylus shorter than propodus.

Pereopod V (Fig. 5l) – Posterior-anterior orientation often reversed when attached to specimen (see Fig. 1). Basis with 2 broom setae on proximal third anteriorly, shorter setae scattered on surface; ischium with 1 fine seta posteriorly; merus with 1 long seta distally on anterior and posterior margins; carpus bearing 5 setae on posterior margin and 1 fine seta on anterior margin; propodus with one seta at midlength posteriorly, 1 short seta more proximally, 1 3-pointed seta near anterior margin (see Fig. 5l enlargement), 1 long, stout, distal seta adjacent to dactylus; dactylus slightly longer than propodus.

Pereopod VI (Fig. 5m) – Similar to pereopod V

(illustrated with orientation reversed). Basis with scattered short setae on surface; ischium with 1 fine seta on posterior margin; merus with 1 distal seta on posterior margin; carpus with distal spine on posterior margin, few scattered setae on surface; propodus with 1 seta at midlength on posterior margin and 3 distal setae adjacent to dactylus; dactylus slightly longer than propodus, with a few short setules.

Pleopods (Fig. 5c) – Protopod long, almost twice as long as endopod, 1 plumose seta distally; endopod and exopod bearing many (30–40) long plumose setae.

Uropod (Fig. 5a) – Basis with one distomedial seta; exopod 5-segmented, second segment with 2 distal setae, last segment with 4 long terminal setae; endopod with 10–20 segments due to large number of fused or pseudo-segments, bearing irregularly scattered setae distally on segments, last segment with 5 long terminal setae.

Description of female

Similar to male except for the following:

Body, Cephalothorax, Pereonites (Fig. 2b) – Length 7.0 mm, about 4.6 times longer than wide. Cephalothorax and pereonites similar to male except anterolateral processes on pereonite 3–6 more acute; midventral process on pereonite 1 reduced and blunt on ovigerous females.

Pleonites (Fig. 2b, d) – As in male, but ventral keels lacking.

First Antenna (Fig. 3c) – Peduncle 4-segmented; first segment with 2 short broom setae proximally, 1 long broom seta, 1 short broom seta, and 1 long simple seta at midlength on outer margin, scattered short setae on surface; second segment with 2 broom, 1 simple seta distally on inner margin, 1 broom, 1 very long seta on outer margin distomedially; third segment with 1 seta distally on each side. Inner flagellum 3-segmented; first segment with 1 short, 1 long seta distally; second with 1 simple seta and 1 broom seta distally; last segment with 4 terminal setae. Outer flagellum of 9–11 segments; segments 4–7 with 1–2 distal setae; penultimate segment with 1 short seta, 1 long seta, and 1 aesthetasc; terminal segment reduced, with 4 setae.

Second Antenna (Fig. 3a) – Composed of 12 segments; first 4 segments same as male; fifth segment with 2 broom setae at midlength medially, 2 longer broom setae distally on outer margin; segments 6–11 with 1–3 setae distally; last segment with 5 terminal setae.

Mandibles (Fig. 3e, f, i) – As in male, except second segment of palp bears only 4 setae, third segment with 9 setae.

Maxilla 2 – Similar to male, except medial setal row with 17 finely plumose setae and 2 distally serrate setae; movable endite, inner lobe with 6 distally pinnate setae and 1 plumose seta, outer lobe with 3

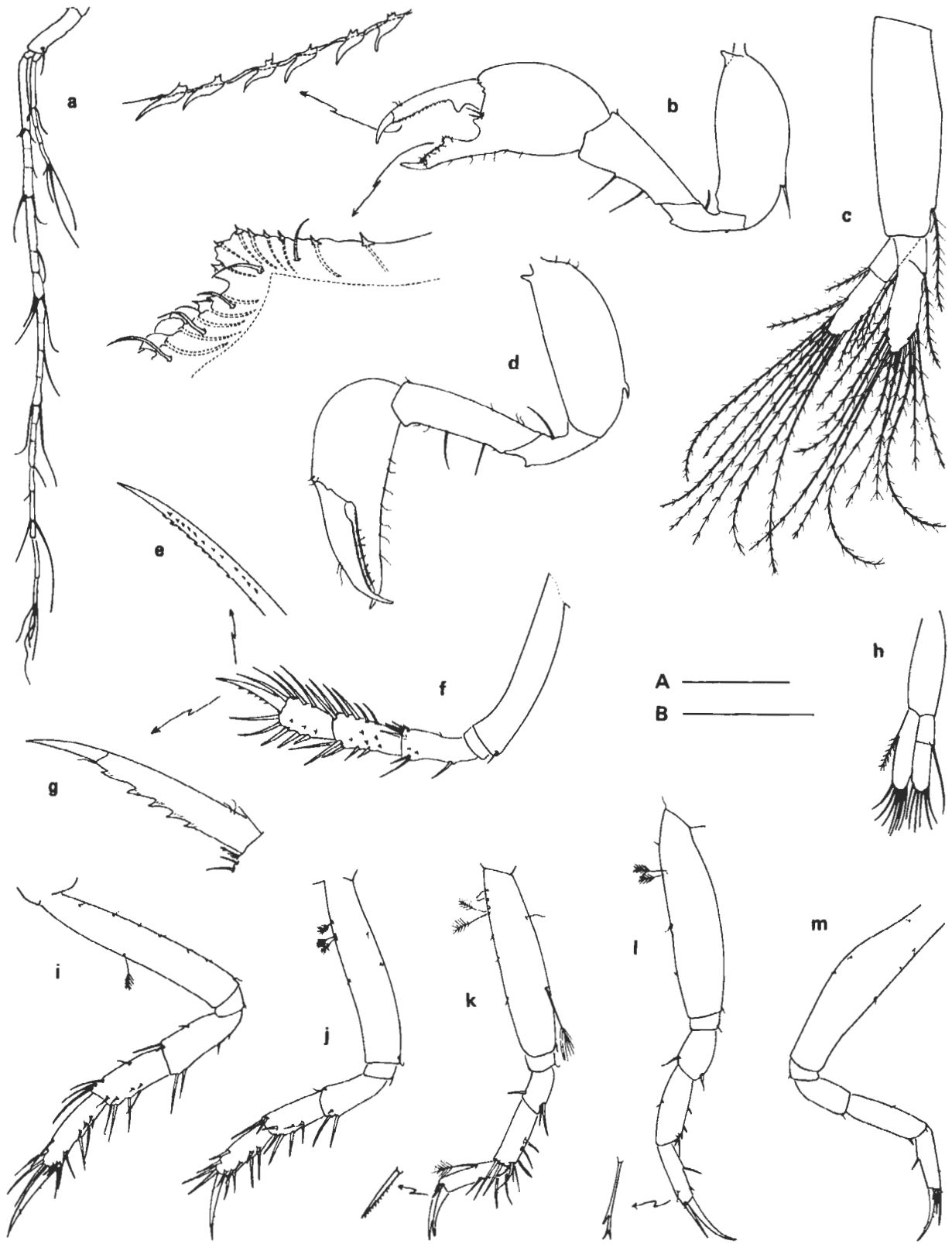


Figure 5. *Atlantapseudes lindae* n. sp.: All male except (d); (a) right uropod; (b) left chela, enlargement of propodus and dactylus; (c) pleopod, adult male; (d) left chela, female; (e) enlargement of spinose spine-seta of pereopod I; (f) left pereopod I; (g) enlargement of dactylus of pereopod I; (h) pleopod, subadult male; (i) left pereopod II; (j) left pereopod III; (k) left pereopod IV; (l) left pereopod V; (m) left pereopod VI. Scale A for (a, i-m) equals 0.6 mm; scale B for (b, d, f) equals 1.0 mm; scale B for (c, h) equals 0.4 mm.

TABLE 1

Characters separating *Atlantapseudes nigrichela* and *A. lindae*.

Character	<i>A. nigrichela</i>	<i>A. lindae</i>
Sexual dimorphism:		
Chela	Not observed*	Present
1st antenna	Not observed*	Present
Pleopods	Present in male	Present in male
Antenna 1:		
Inner flagellum	3 segments in both males and females*	3 segments in female, 5 in fully developed male
Outer flagellum	7 segments, 1 aesthetasc distally on both sexes*	9–11 segments in female, 16 on fully developed male, female with 1 aesthetasc on penultimate segment, male with 100+ aesthetascs
Antenna 2	10 segments; squama, excluding terminal setae, about 3 times as long as 3rd peduncular segment.	12 segments in both sexes; squama, excluding terminal setae, about equal in length to 3rd peduncular segment.
Maxilla 1: palp	2 setae	3 setae
Number of coupling hooks on maxilliped	4 coupling hooks	3 coupling hooks
Setal type on carpus (posterior margin)	2 plumose setae	2 simple setae
Pereonites: anterolateral margins	Well developed, anterolateral spiniform processes on 1–6 of both sexes	Female: 1–2 unarmed, rounded, 3–6 with weakly developed, anterolateral acute processes; male: 1–6 unarmed, rounded
Pleonites	1–5 armed with posteriorly directed, ventrolateral, spiniform processes	1–5 lacking ventrolateral spiniform processes

* It is probable that Băcescu did not have a fully developed male in his type series.

of the terminal pinnate setae bearing long proximal setules.

Cheliped (Fig. 5d) – Basis with small, curved spine-tooth on posterior margin, replacing long spine-seta of male; fixed finger and dactylus lacking teeth, cutting edge of dactylus with shallow notch proximally at articulation with propodus, cutting edges of both dactylus and fixed finger armed with spine-teeth, tips smooth.

Subadult males and females

Subadult males and females are similar to adult females except that they lack oostegites. Subadult males, like adult males, have a genital cone, although smaller in size, on the sixth thoracic somite. Subadult females also lack pleopods.

Pleopod of subadult male (Fig. 5h) – Pleopod simi-

lar to that of adult male except much smaller in size. Protopod lacking setae; exopod bearing one long smooth seta on distal end of first segment; endopod with only one plumose seta at midlength. Setae on terminal ends of exopod and endopod simple, fewer in number, and much shorter than in adult male.

Etymology

Named in honor of Dr. Linda H. Pequegnat in recognition of her many contributions to marine zoology.

Remarks

Atlantapseudes lindae can be readily distinguished from *A. nigrichela* by the length of the squama of antenna 2, which is no longer than the third pedun-

cular segment, and by the absence of anterolateral spines on pereonites 1-2 of females and 1-6 of males. These and other characters separating the two species are listed in Table 1.

An important characteristic of *A. lindae* is the presence of sexual dimorphism. Fully developed males possess distinct chelae, first antennae, and more fully developed pleopods than previously described for the genus. Subadult males have antennae and chelae that resemble the females, thus resembling the type males described for the type species, *A. nigrichela*. Since the pleopods of subadult male *A. lindae* are similar in relative size and structure to those described for the males of *A. nigrichela*, we suggest that Băcescu (1978) did not have fully developed males in his type collection.

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