Part R, Revised, Volume 1, Chapter 8T2: Systematic Descriptions: Superfamily Carpilioidea

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Superfamily CARPILIOIDEA
Ortmann, 1893
[nom. transl. KARASAWA & SCHWEITZER, 2006, p. 42, pro Carpinaceae
Ortmann, 1893, p. 429]

Carapace wider than long, maximum carapace length 70 to 80 percent maximum carapace width, ovate or hexagonal in shape, position of maximum width between one-half to three-quarters of the distance posteriorly on carapace; dorsal surface generally not densely ornamented but may have large spherical swellings, with regions well to very poorly defined; anterolateral margins entire or with spines or lobes; front with a medial sulcus, bi- or quadrilobed, frontal width between one-quarter to two-thirds maximum carapace width; antenna situated outside the supraorbital angle; orbits entire or rarely with clearly defined upper orbital fissures, fronto-orbital width between one-half and two-thirds maximum carapace width; male thoracic sternite 4 with medial sulcus and male sternum may exhibit distinctive, Y-shaped groove pattern (Palaeoxanthopsidae, Tumidocarcinidae, Zanthopsidae; see SCHWEITZER, 2005, for illustrations); sternal sutures 4/5 and 5/6 parallel; sternite 7 barely visible in ventral view in female; sternite 8 not visible; telson about as long as somite 6 in female; female pleon reaching middle of sternite 4. [KARASAWA & SCHWEITZER, 2006, p. 42.] Cretaceous–Holocene.

Family ARABICARCINIDAE Schweitzer & Feldmann, 2017
[Arabicarcinidae Schweitzer & Feldmann, 2017, p. 3]

Carapace not much wider than long, length about 94 percent width, widest about one-half of the distance posteriorly on carapace, and moderately vaulted longitudinally; front about 23 percent of maximum carapace width, extended beyond orbits, with 4 blunt spines including inner-orbital spines; orbits rectangular, directed forward, upper-orbital margin entire; outer-orbital spine curving slightly axially; anterolateral margin convex, entire except for small anterolateral spine extending from arcuate epirostral region; dorsal carapace regions very weakly defined; sternal suture 4/5 incomplete, sutures 4/5 and 5/6 parallel; sternite 7 barely visible in ventral view in female; sternite 8 not visible; telson about as long as somite 6 in female; female pleon reaching middle of sternite 4. [SCHWEITZER & FELDMANN, 2017, p. 3.] Upper Cretaceous (Coniacian).

Arabicarcinus Schweitzer & Feldmann, 2017, p. 3 [*A. arumensis, p. 4, fig. 1; OD]. Diagnosis as for family. Upper Cretaceous (Coniacian): Saudi Arabia.—Fig. 1a–c. *A. arumensis, holotype, USNM 636369, view of dorsal carapace (a), oblique anterior view of orbits (b), ventral view of pleon and sternum (c), scale bars, 1 cm (Schweitzer & Feldmann, 2017, fig. 1).
Carapace wider than long, length about 70 to 80 percent maximum carapace width, widest about two-thirds to three-quarters of the distance posteriorly on carapace; may be ornamented with large, flat swellings; regions moderately to poorly defined; grooves not developed except branchiocardiac groove in some; front usually with bilobed medial projection and blunt inner-orbital spines, thus appearing quadriloculated, but may be produced into downturned, blunt triangle; notch between frontal margin and supraorbital angle indistinct, frontal width averaging 36 percent maximum carapace width; orbits circular, entire, rimmed or beaded, directed forward, fronto-orbital width about one-half to two-thirds maximum carapace width; anterolateral margin may be entire or with blunt lobes or spines; last spine may be extended onto dorsal carapace as short, low ridge; anterolateral margin long, much longer than posterolateral margin, terminating two-thirds to three-quarters of the distance posteriorly, concave, tightly curved posteriorly, often very convex posteriorly; posterolateral margin straight or weakly convex, short, at a very low angle to posterior margin, around 25°–30°; posterior margin nearly straight, narrow, averaging about 30 percent maximum carapace width; carapace regions may be weakly inflated or not defined; branchiocardiac groove often defining lateral margins of urogastric region. Buccal frame usually tapering anteriorly; thoracic sternum narrow, rectangular, with subparallel margins; articulation condyle of pereiopods on sternum; sternite 3 without medial groove; sutures 4/5–7/8 complete, parallel; sternite 8 not visible in ventral view; male pleonal somites 3–5 fused, pleon filling entire space between coxae of fifth pereiopods; chelae large, subequal or heterochelous, with outer, upper, and lower surfaces generally smooth (though upper surface may have blunt nodes); chelipeds much larger than other walking legs; merus fused to basis-ischium; merus and coxa articulating directly; pereiopods 2–5 narrow, smooth, tubular; male gonopod 1 weakly curved, stout, with simple apex; male gonopod 2 long with long, filamentous flagellum. [Emended from Karasawa & Schweitzer, 2006, p. 43.] Paleoecne (Thanetian)–Holocene.

Family CARPILIIDAE Ortmann, 1893

Carapace wider than long, length about 70 to 80 percent maximum carapace width, widest about two-thirds to three-quarters of the distance posteriorly on carapace; may be ornamented with large, flat swellings; regions moderately to poorly defined; grooves not developed except
Carpilius Desmarest, 1823, p. 228 [*Cancer maculatus Linnaeus, 1758, p. 626; M]. Front with bilobed projection; orbits small; anterolateral margin with two, blunt projections, the posteriormost largest and extending onto carapace as weak ridge; branchiocardiac groove moderately incised; subtle ridge parallel to anterolateral margin; anterolateral corner positioned in posterior half of carapace. Eocene–Holocene: Italy, Ypresian–Lutetian; Japan?, Miocene; Barbados, Pliocene; Taiwan, Jamaica, Pleistocene; Indo-Pacific, Caribbean, Brazil, Holocene.——Fig. 2a–b. C. corallinus (Herbst, 1783 in 1782–1804), USNM 4094, dorsal (a) and ventral (b) views of female, Caribbean, Holocene, scale bars, 1 cm (new).

Braggicarpilius Besch, Busulini, & Tessier, 2015, p. 79, pl. 5, 1 [*B. marginatus; OD]. Carapace ovate, moderately vaulted; frontal margin sinuous; orbits oriented anterolaterally; anterolateral margin convex, apparently entire; posterolateral margin weakly concave; carapace regions unmarked; carapace apparently smooth. Eocene (Ypresian): Italy.——Fig. 3, 1. *B. marginatus, holotype, MCZ 3998, dorsal carapace, scale bar, 1 cm (new; photo by A. Busulini, Museo di Storia naturale, Venezia, Italia).
Bryocarpilius Feldmann & others, 2011, p. 345 [*Palaeocarpilius aquilinus Collins & Morris, 1973, p. 284, pl. 29–30; OD]. Carapace ovate, length about two-thirds maximum width, widest about 60 percent of the distance posteriorly; very strongly vaulted longitudinally; front quadrilobed, weakly projected into a sinuous triangular shape, with two, closely spaced axial lobes and blunt inner-orbital lobes, about 36 percent maximum width, with fronto-orbital width about half maximum carapace width; anterolateral margin with eight or nine, evenly spaced spines including outer-orbital

Fig. 3. Carpiliidae (p. 3–5).
spine; posterolateral margin rimmed anteriorly, sometimes with one small spine, at 80° angle to axis, then arcing posteriorly at about 60° angle to carapace; mesogastric region weakly to moderately defined, sometimes with weak, arcuate ridge; chela with row of spines on upper surface and distal half of fingers black. [Emended from Feldmann & others, 2011.] Eocene (Lutetian–Priabonian): Egypt, Libya.——Fig. 3, a,–b. *B. aquilinus* (Collins & Morris), holotype, SMNS 61866; a, dorsal carapace; b, anterior view.——Fig. 3, c, *B. apis*; posterolateral margin and onto dorsal carapace; posterolateral margin initially at 80° angle to axis, then curving at 60° angle to axis; chela stout, smooth. [Emended from Feldmann & others, 2011.] Eocene: Egypt, India.——Fig. 4, a,–b. *L. aegypticus*, holotype, SMNS 67895/1, Eocene, Egypt; a, dorsal carapace; b, ventral view, scale bars, 1 cm (Feldmann & others, 2011, fig. 12, 1–2).

**Coralicarpilius** De Angeli & Ceccon, 2015, p. 125, fig. 4 [*C. arcuatus*; OD]. Carapace very strongly vaulted longitudinally, strongly transversely ovate; frontal margin sinuous, with bilobed axis, each lobe bounded laterally by shallow concavity; orbits circular; anterolateral margins appearing to be crispate; carapace regions poorly defined and ornamented overall by large, widely spaced tubercles. Eocene (Ypresian): Italy.——Fig. 3, a,–b. *C. arcuatus*, holotype, MCV 14/18; a, dorsal carapace; b, anterior view, scale bars, 1 cm (new; photo by A. De Angeli, Associazione Amici del Museo Zannato, Montecchio Maggiore, Vicenza, Italy).

**Eocarpilius** Blow & Manning, 1996, p. 20, fig. 1–2 [*E. carolinensis*; OD]. Carapace strongly vaulted longitudinally, length about 77 percent maximum width, widest about 60 percent of the distance posteriorly; front broad, with two lobes axially and inner-orbital lobes, about 38 percent maximum width; orbits with beaded rim, fronto-orbital width about 55 percent carapace width; anterolateral margin entire, steeply curving posteriorly, and ornamented with fine beads; posterolateral margin weakly convex, short; posterior margin narrow; anterolateral corner situated about two-thirds of the distance posteriorly on carapace. Eocene (Lutetian–Miocene (Tortonian): USA (South Carolina), Lutetian–Barptonian: USA (North Carolina), Priabonian: Hungary, Spain, Langbian; Austria, Hungary, Poland, Tortonian.——Fig. 3, a,–b. *E. blowi* Feldmann & others, 1998, holotype, CM 36026; a, dorsal carapace; b, anterior view, Priabonian, North Carolina, scale bars, 1 cm (Feldmann & others, 1998, fig. 13).

**Holocarcarius** Withers, 1924, p. 94, pl. 5, 1–2 [*H. sulcatus*; M]. Carapace ovate, regions not developed, with two transverse ridges, one extending between first anterolateral protuberances, second extending between protuberances at anterolateral corners; front wide, depressed, triangular; anterolateral margin with two protuberances. Eocene (Lutetian–Barptonian): Nigeria.——Fig. 4, a, *H. sulcatus*, holotype (BMNH) In.18455, dorsal carapace, Lutetian, Nigeria, scale bar, 1 cm (new).

**Laticarpilius** Feldmann & others, 2011, p. 342, fig. 12 [*L. aegypticus*; OD]. Carapace ovoid, length 60 to 70 percent maximum width, widest 55 to 65 percent of the distance posteriorly; rostrum triangular, downturned, frontal width 45 to 50 percent maximum carapace width; orbits small, circular, rimmed, fronto-orbital width 55 to 65 percent carapace width; anterolateral margin composed of two arcs, one gentle, second arc becoming more strongly convex in posterior one-third, with two broadly separated, blunt projections that mark the beginning of the inflection in convexity and the anterolateral angle; last blunt projection extending into rim along postero-lateral margin and onto dorsal carapace; posterolateral margin initially at 80° angle to axis, then curving at 60° angle to axis; chela stout, smooth. [Emended from Feldmann & others, 2011.] Eocene: Egypt, India.——Fig. 4, a,–b. *L. aegypticus*, holotype, SMNS 67895/1, Eocene, Egypt; a, dorsal carapace; b, ventral view, scale bars, 1 cm (Feldmann & others, 2011, fig. 12, 1–2).

**Liopsalis** von Meyer, 1862, p. 163 [*Cancer klipsteini* von Meyer, 1842, p. 589; M]. Carapace ovate, wider than long, length 70 to 78 percent maximum carapace width, widest 55 to 67 percent of the distance posteriorly at anterolateral corner; front triangular, downturned, weakly sinuous, 36 to 50 percent maximum carapace width; orbits circular, directed forward, 60 to 70 percent maximum carapace width; anterolateral margins entire, tightly convex; rim along postero-lateral margin and onto dorsal carapace; posterolateral margin initially at 80° angle to axis, then curving at 60° angle to axis; upper margin of chela with stout spines. [Feldmann & others, 2011.] Eocene (Lutetian): India, Pakistan, Spain. Eocene: Germany, Italy.——Fig. 4, a, *L. klipsteini* (von Meyer), specimen number and scale unknown (von Meyer, 1862, pl. 17, 9).

**Lovaracarpilius** Beschin & others, 2016, p. 55, pl. 9, 4 [*L. incisus*; OD]. Carapace round-oval, moderately vaulted longitudinally; front triangular; orbits directed slightly anterolaterally; anterolateral margins with two, small spines posteriorly; posterolateral margin slightly convex; weak groove defining anteriormost limit of epibranchial region; urogenetic and cardiac regions moderately defined laterally; carapace surface punctate. Eocene (Lutetian–Bartonian): USA (North Carolina), scale bars, 1 cm (new; photo by A. De Angeli, Associazione Amici del Museo Zannato, Montecchio Maggiore, Vicenza, Italy).

**Montemagralia** De Angeli & Ceccon, 2016, p. 130, fig. 2 [*M. lata*; OD]. Carapace much wider than long, transversely ovate, strongly vaulted longitudinally, especially in anterior one-third, and moderately vaulted transversely; front wide, straight; orbits circular, directed forward; anterolateral margins rimmed. Eocene (Ypresian): Italy.——Fig. 4, a,–b. *M. lata*, holotype, MCV.15/353-LG.369329; a, dorsal carapace; b, anterior view, scale bars, 1 cm (new; photo by A. De Angeli, Associazione Amici del Museo Zannato, Montecchio Maggiore, Vicenza, Italy).

**Ocalina** Rathbun, 1929, p. 1, pl. 1–3 [*O. floridana*, OD]. Carapace wider than long, length 63 to 73 percent maximum carapace width, maximum width
position about 60 percent of the distance posteriorly; surface ornamented with large tubercles, most prominently on anterior and anterolateral surfaces; front with two, prominent lobes flanking axis and two, smaller lobes near inner orbital corner, 35 to 40 percent maximum carapace width; orbits rimmed and granular, with fronto-orbital width 50 to 55 percent maximum carapace width; anterolateral margin lobulate or with at least nine, large, blunt projections; posterior margin with one or a few, blunt projections anteriorly; carapace regions poorly defined; chelae with rows of large granules. Eocene: Netherlands Antilles (Bonaire), Lutetian; Egypt, Jamaica, Senegal, USA (Florida), Eocene.——Fig. 5,1a–b. O. delicata Feldmann & others, 2011, holotype, SMF X/m69a1, Eocene, Egypt; a, dorsal view; b, anterior view, scale bars, 1 cm (Feldmann & others, 2011, fig. 14,1–2).
Palaeocarpilius A. Milne-Edwards, 1862, p. 51 [*Cancer macrochelus Desmarest, 1822, p. 91, pl. 7, f. 1-2; SD Glaessner, 1929, p. 291]. Carapace wider than long, length about 75 percent maximum carapace width; widest about 70 percent of the distance posteriorly, smooth; front downturned, triangular, may have a small axial sulcus at tip, about 40 percent maximum carapace width; orbits small, circular, entire; fronto-orbital width about 60 percent maximum carapace width; anterolateral margins long, very tightly convex, with seven to nine spines.
or blunt projections including outer-orbital spine; well-developed ridge extending onto dorsal carapace from last anterolateral spine; posterolateral margin initially at about 80° angle, then becoming more gentle, at about 60° angle to axis; chelae generally massive, with spines on upper margin. [Emended from Schweitzer, 2003.]

Eocene (Bartonian)—Miocene: France, Bartonian; Egypt, Hungary, Italy, Romania, Priabonian; India, Italy, USA (Mississippi). Eocene: Norway, Eocene—Oligocene; France, Italy, India, Rupelian; Tanzania; U.S. Territories (Northern Mariana Islands). Miocene.——Fig. 5.2. *P. macrochelus (Desmarest), MCZ 1191, Eocene, Italy, scale bars, 1 cm (new; photo by A. De Angeli, Associazione Amici del Museo Zannato, Montecchio Maggiore, Vicenza, Italy).

Paraocalina BESCHIN & others, 2007, p. 42, pl. 6,1 [*P. multilobata, OD]. Carapace wider than long, ovate, strongly vaulted; front with four lobes; orbits round; anterolateral margin with five, broad lobes divided by shallow notches, the fifth extending onto dorsal carapace as a weak ridge; posterolateral margins at very low angle to axis, converging strongly posteriorly; dorsal carapace without ornamentation. Eocene (Ypresian); Italy.——Fig. 5.3a–b. *P. multilobata, holotype, MCZ 1810; a, dorsal carapace; b, anterior view, scale bars, 1 cm (new; photo by A. De Angeli, Associazione Amici del Museo Zannato, Montecchio Maggiore, Vicenza, Italy).

Proxicarpilius COLLINS & MURRIS, 1978, p. 972, pl. 117,5–6, 118,1–4, 7 [*P. planifrons; OD]. Carapace ovate, wider than long; front downturned, triangular, about 40 percent maximum carapace width; orbits rimmed, about 65 percent maximum carapace width; anterolateral margins with four spines or projections, including outer-orbital spine; metagastric region with transverse ridge, urogastric and cardiac region with longitudinal ridge intersecting metagastric ridge forming a cross shape; sternite 4 with oblique ridge where telson intersects it. Paleocene (Thetanetian), Eocene: Pakistan.——Fig. 5.4a–b. *P. planifrons, KSU D 302, Eocene, Pakistan; a, dorsal carapace; b, ventral view, scale bars, 1 cm (new; photo by A. De Angeli, Associazione Amici del Museo Zannato, Montecchio Maggiore, Vicenza, Italy).

Tethyscarpilius DE ANGELI & ALBERTI, 2016, p. 122, fig. 2–3 [*T. bericus; OD] Carapace ovate, wider than long, smooth; front with rounded-triangular projection axially, projection itself axially sulcate; anterolateral margins with tiny spines posteriorly with concave margin between spines, yielding scalloped appearance; ridge extending onto dorsal carapace at anterolateral corner. Eocene (Priabonian); Italy, USA (Florida).——Fig. 5.5a–b. *T. bericus, holotype, MCZ 4461.4.G.367043, Priabonian, Italy; a, dorsal carapace; b, anterior view, scale bars, 1 cm (new; photo by A. De Angeli, Associazione Amici del Museo Zannato, Montecchio Maggiore, Vicenza, Italy).

Family PALAEOXANTHOPSIDAE
Schweitzer, 2003

[Palaeoxanthopsidae Schweitzer, 2003, p. 1120]

Carapace wider than long, maximum carapace length about 75 percent maximum carapace width, position of maximum width about one-half to two-thirds of the distance posteriorly; regions defined by grooves, moderately or deeply incised, with V-shaped groove separating gastric regions from hepatic and branchial regions; regions may be moderately or weakly inflated, often with large, spherical swellings; frontal width about 20 percent maximum carapace width; front quadrilobed, medial two lobes may project well beyond orbits; orbits with two fissures or sutures, rectangular, sometimes rimmed, outer-orbital angle a projected spine, fronto-orbital width about half maximum carapace width; anterolateral margin with a straight segment followed by three to five spines, not including outer-orbital spine; spines well separated by notches or fissures, with last spine longest, directed laterally or posterolaterally; posterior margin narrow, concave, about one-quarter maximum carapace width; branchial regions often with linear, transverse swellings. Male sternum with no evidence of suture between sternites 2 and 3; with distinctive, Y-shaped groove pattern on sternites 3 and 4; sternal suture 3/4 oriented at steep angle; sternite 4 with large episternal projection; sternite 4 with very clear, longitudinal grooves near lateral margins, which appear to be episternal projections from sternite 3 fused with and prominent on sternite 4; male pleonal somites free. Female sternum with deep suture between sternite 2/3; groove from pleonal cavity extending anteriorly onto sternite 4; pleon reaching level of base of coxae of pereiopods 1. [Emended from Karasawa & Schweitzer, 2006, p. 44.]

Upper Cretaceous—Eocene.

Jakobsenius SCHWEITZER, 2005, p. 289 [*Xanthilites cretacea SEGERBERG, 1900, p. 375, pl. 9,19–20; OD]. Carapace wider than long, maximum width about 60 percent of distance posteriorly; carapace
strongly vaulted longitudinally in anterior one-third; front downturned, appearing to have had four spines, about 30 percent maximum carapace width; orbits directed forward, with two fissures, fronto-orbital width about half carapace width; anterolateral margins with four spines excluding outer-orbital spine, with first spine small, almost a straight segment, second and third spines with rectangular bases and triangular tips, and last spine sharp, directed anterolaterally; all spines separated by broad fissures; regions moderately well defined; protogastric region bounded by deep grooves; epibranchial region arcuate. *Jakobsenius* (Danian): Denmark, Sweden.——Fig. 6,1a–b. *J. cretaceus* (SEGERBERG), KSU D 37, cast of holotype, MGUH 2483, Danian, Denmark; a, dorsal carapace; b, oblique anterior view, scale bars, 1 cm (new).

**Lobulata** Schweitzer, Feldmann, & Gingerich, 2004, p. 108 [*Lobonotus lobulata* Feldmann & others, 1995, p. 11, fig. 7; OD]. Carapace wider

*Fig. 6. Palaeoxanthopsidae (p. 8–10).*
than long, maximum carapace width over half the distance posteriorly; fronto-orbital width about half maximum carapace width; anterolateral margins with four spines excluding outer-orbital spines, all broadly separated by deep notches, last spine narrowest but longest; protogastric and axial regions with central tubercles; epibranchial region arcuate; sternum narrow, with Y-shaped groove pattern on sternites 3 and 4; sternal suture 3/4 oriented at steep angle; male pleonal somites free. Upper Cretaceous (Maastrichtian–Paleocene (Danian)); Argentina. Eocene; Italy? —— Fig. 6.2a–b. *L. lobulata (Feldmann & others), holotype, GHUNLPam 7011, Danian, Argentina; a, dorsal carapace; b, ventral surface, scale bars, 1 cm (Feldmann & others, 1995, fig. 7.1–2).

Palaeoxanthopsis Beurlen, 1958, p. 607, fig. 6 [*P. libertiensis; OD]. Carapace wider than long; regions well defined as swellings; anterolateral margins upturned in anterior view, with four lobes; front with two lobes; orbits with two fissures. Upper Cretaceous (Maastrichtian); USA (Mississippi). —— Fig. 6.3. *P. libertiensis, holotype GSCM 1692, scale bar, 1 cm (new).

Palaeoxanthithis Bishop, 1986, p. 607, fig. 6 [*Zanthispis cretacea Rathbun, 1902, p. 43, pl. 5; OD] [=Parazanthispis Vega, Feldmann, & others, 2001, p. 323 (type, *P. meyapaquensis,* p. 233, fig. 4, OD)]. Carapace wider than long, widest about 65 percent of the distance posteriorly, strongly vaulted longitudinally, moderately vaulted transversely; carapace regions strongly inflated, often ornamented with large swellings; front triangular and axially notched, with spines on either side of notch and with inner-orbital spines; frontal width about 20 percent maximum carapace width; orbits square, with two fissures; fronto-orbital width about half maximum carapace width; anterolateral margins long, convex, with straight segment followed by three spines, the last spine longest, stout, directed posterolaterally; posterolateral margins short, sinuous; swellings on epibranchial and branchial regions forming transverse ridges. Upper Cretaceous (Maastrichtian); Brazil, Mexico, U.S. Territory (Puerto Rico). —— Fig. 6.4. *P. cretacea (Rathbun), syntype, USNM 73709, Maastrichtian, Brazil, scale bar, 1 cm (new).

Paraverrucoides Schweitzer, 2003, p. 1123 [*Xantholites alabamensis Rathbun, 1935, p. 91, pl. 20,3–16; OD]. Carapace wider than long, widest about 70 percent of the distance posteriorly, regions moderately defined, ornamented with large swellings; front with four lobes, about 20 percent maximum carapace width; orbits with two, fused fissures; anterolateral margins with three spines, excluding outer-orbital spine, the last spine longest and directed laterally; epibranchial region arcuate, branchial region with spindelike swelling. Paleocene (Danian–Thanetian); USA (Texas), Selanidian; Mexico (Coahuila), USA (Alabama), Thanetian. —— Fig. 7.1. *P. alabamensis (Rathbun), holotype, USNM 371718, Thanetian, Alabama, dorsal carapace, scale bar, 1 cm (new).

Remia Schweitzer, 2003, p. 1123 [*Xantholites africana Remy & Tessier, 1954, p. 187, pl. 11,1; OD]. Carapace ovate, grooves deep, regions with discrete, large swellings; anterolateral margin short, with three spines, excluding outer-orbital spine, the last longest; branchial regions strongly inflated axially. Upper Cretaceous (Maastrichtian); Senegal. —— Fig. 7.2. *R. africana (Remy & Tessier), KSU D 1100, cast of holotype MNHN R03885, scale bar, 1 cm (new).

Rocacarcinus Schweitzer, 2005, p. 288 [*Xantholites gerthi Glæssner, 1930, p. 5, fig. 2; OD]. Carapace wider than long, length about 80 percent carapace width, widest a little over half the distance posteriorly; front wide, downturned, with two medial spines and weak inner-orbital spines; orbits rimmed, with two fissures, fronto-orbital width about half maximum carapace width; anterolateral margins upturned in anterior view, with 4 spines excluding outer-orbital spine, first spine nearly straight, second and third spines with rectangular bases and triangular tips, edges serrate, and last spine longest, directed laterally, deep fissures separating each anterolateral spine; carapace regions moderately developed; sternum narrow, with Y-shaped groove pattern on sternites 3 and 4; sternal suture 3/4 oriented at steep angle; female pleonal somites free. Upper Cretaceous (Maastrichtian–Paleocene (Danian)); Argentina. —— Fig. 7.4a–b. *R. gerthi (Glæssner), holotype, Glæssner 1, UBIP, Danian, Argentina; a, dorsal carapace; b, ventral view, scale bars, 1 cm (Feldmann & others, 1995, fig. 9.3–4).

Verrucoides Vega, Cosma, & others, 2001, p. 940 [*Xantholites verrucoides Collins & Rasmussen, 1992, p. 38, fig. 21; OD]. Carapace wider than long, widest about 65 percent the distance posteriorly; regions moderately defined, ornamented with large tubercles; front with four spines including inner orbital spines, about 25 percent carapace width; orbits rectangular, with two fissures, fronto-orbital width about half carapace width; anterolateral margin with four spines excluding outer-orbital spine, first three spines with rectangular bases and triangular tips, separated by U-shaped fissures, last anterolateral spine long, directed posterolaterally; protogastric, mesogastric, cardiac, epibranchial, and branchial regions with distinctive large tubercles. Paleocene–Eocene (Ypresian); Greenland, Paleocene; Mexico (Chiapas), Ypresian. —— Fig. 7.3. *V. verrucoides (Collins & Rasmussen), KSU D 1803, cast of holotype MGUH 21.612, Paleocene, Greenland, scale bar, 1 cm (new).

Family TUMIDOCARCINIDAE Schweitzer, 2005

[Tumidocarciinae Schweitzer, 2005, p. 282] [=Eogyersonidae Osso, 2016, p. 234]

Carapace wider than long, length 80 to 90 percent maximum carapace width, widest at position of last or penultimate
anterolateral spine, about half of the distance posteriorly on carapace; carapace markedly vaulted longitudinally, especially in anterior third; front four-lobed, including inner-orbital spines, frontal width about one-quarter maximum carapace width; fronto-orbital width a little less than half to two-thirds maximum carapace width; orbits rimmed, sometimes with one or two very faint, completely fused fissures, circular, directed forward; antenna situated outside supraorbital angle; carapace regions well to poorly defined; anterolateral margins with three or four small, blunt spines, excluding outer-orbital spine or entire and granular; epibranchial regions usually arcuate; male sternites 1 and 2 fused with no evidence of suture; sternites 2 and 3 with very clear, deep, and continuous suture between them; sternites 3 and 4 with notch in lateral margins where suture intersects them, with suture becoming increasingly shallow, a shallow groove at midlength and completely interrupted axially; left and right sternal sutures between sternites 3 and 4 merge with deep groove extending anteriorly from sterno-
pleonal cavity, forming prominent, Y-shaped groove pattern; suture between sternites 3 and 4 oriented at high angle; sternite 4 with very clear, longitudinal grooves near lateral margins that appear to be episternal projections from sternite 3 fused with and prominent on sternite 4; sternal sutures not parallel; sternite 8 not visible in ventral view; male pleon barely or not quite reaching posterior margin of coxae of first pereiopods; all male pleonal somites free; male pleon completely occupying space between coxae of fifth pereiopods; chela subequal to very unequal; mani stout; fingers with black tips; coxae of first pereiopods articulating with basis-ischium; basis-ischium not fused to merus; other pereiopods slender. [Emended from Karasawa & Schweitzer, 2006, p. 44.]

Upper Cretaceous (Cenomanian)–Miocene.

Agostella Ossó-Morales, 2011, p. 414, fig. 4, 1–5 [*A. terrersensis; OD]. Carapace ovate, wider than long; front broadly bilobed with diminished inner-orbital spines; orbits with two, closed fissures; anterolateral margins short, with four spines including outer-orbital spine, third spine short and blunt; regions well defined, epibranchial arc high, intestinal region and posteriormost branchial region depressed well below level of rest of carapace; sternum granular. Eocene (Lutetian): Spain.—Fig. 8, 1–a–b. *A. terrersensis, holotype, MGB 57606; a, dorsal carapace; b, ventral surface, scale bars, 1 cm (new; photos by A. Ossó, Tarragona, Spain).

Baricarcinus Casado & others, 2004, p. 98, fig. 7A–B, D–E [*B. mariae; OD]. Carapace length about 85 percent width, regions not defined, strongly vaulted longitudinally; front bilobed; orbits circular, entire, fronto-orbital width about 65 percent maximum carapace width; anterolateral margin short, with three, blunt protuberances, not including outer-orbital angle, third one largest; epibranchial regions arcuate. Oligocene: Argentina.—Fig. 8, 2. *B. mariae, KSU D252, scale bar, 1 cm (new).

Cyclocorystes Bell, 1858, p. 24, pl. 4, 1–2 [*C. pulchellus; M]. Carapace not much wider than long, length about 90 percent maximum carapace width, widest at position of last anterolateral spine, narrowing markedly posteriorly; carapace moderately vaulted transversely and longitudinally; regions moderately well defined as swellings; anterolateral spines small; orbits with two fissures; fronto-orbital width about half maximum carapace width. Eocene (Ypresian–Lutetian): UK (England).—Fig. 8, 3. *C. pulchellus, holotype, (BMNH) In. 59101, Ypresian–Lutetian, England, scale bar, 1 cm (new).

Dynomenopsis Secretan, 1972, p. 2, pl. 1, 1–2 [*D. bransai; M]. Carapace wider than long, about three-quarters maximum carapace width; regions moderately well defined; fronto-orbital width about two-thirds maximum carapace width; orbits with two fissures, with forward-directed outer-orbital spine; anterolateral margin with three, short, triangular, and anteriorly directed spines, excluding outer-orbital spine, second largest; posterolateral margin straight; posterior margin with concavities at lateral edges, straight centrally; mesobranchial region with transverse, granular ridge; posterior pereiopods apparently slender. Upper Cretaceous (Cenomanian): Bolivia.—Fig. 8, 4. *D. bransai, holotype, MNHN A.33498, scale bar, 1 cm (new).

Eogeryon Ossó, 2016, p. 235, fig. 4–5 [*E. elegius; OD]. Carapace about as long as wide, hexagonal, widest at position of anterolateral spine about one-third of distance posteriorly on carapace; front with 4 spines, including inner-orbital spine; orbits square, with two fissures and long outer-orbital spine curving axially; anterolateral margins with four spines, including outer-orbital spines, last smallest; posterolateral margins sinuous; regions moderately defined; sternum narrow, small portions of sternites 5 and 6 visible, sternites 7 and 8 not visible in ventral view; all male pleonal somites free; chela apparently massive, with black fingers and molariform teeth on occlusal surfaces. Upper Cretaceous (Cenomanian): Spain.—Fig. 8, 5a–b. *E. elegius, holotype, MGB 69151; a, dorsal carapace; b, ventral view, scale bars, 1 cm (new; photos by A. Ossó, Tarragona, Spain).

Lobonotus A. Milne-Edwards, 1863, pl. 10, 4; 1864, p. 39 [*L. sculptus; M] [*Archaeoepilamnus Rathbun, 1919, p. 177 (type, A. caelatus, p. 177, pl. 6, 6–7, 7–10–13, 8–4–7, M)]. Carapace not much wider than long, length about 85 percent maximum width; regions well defined, ornamented with tubercles; front nearly straight, with central notch, about 33 percent maximum carapace width; orbits with two fissures and sometimes inner spine; fronto-orbital width about 65 percent carapace width; anterolateral margin with four or five spines excluding outer-orbital spine; cardiac region with distinct, arcuate swellings paralleling lateral margins; male pleonal somites free, completely covering space between coxae of pereiopod 5; sternite 8 not visible in ventral view. Eocene (Lutetian)–Oligocene: Italy, Lutetian; USA (South Carolina), Lutetian–Bartonian; USA (North Carolina), Priabonian; Borneo, Mexico (Baja California), USA (Louisiana, Texas), Eocene; Caribbean, Oligocene.—Fig. 9, 1, L. natchitochensis Stenzel, 1935, cast of holotype, UT21168 (numbered KSU D 87); Eocene, Louisiana, scale bar, 1 cm (new).

Nitotacarcinus Schweitzer & others, 2007, p. 292 [*Glyphithyreus bituberculatus Collins & Jakobsen, 2003, p. 74, pl. 5; OD]. Carapace not much wider than long, regions well defined; front axially notched, about 33 percent maximum carapace width; orbits with two fissures or with blunt intraorbital spine, fronto-orbital width about 65 percent maximum carapace width; anterolateral margins with three or four spines or blunt
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projections, excluding outer-orbital spines. *Eocene*: Argentina; Canada (British Columbia), Denmark; UK (England). —— Fig. 9.2a–b. *N. bituberculatus* (Collins & Jakobsen), holotype, Eocene, Denmark; a, holotype, MGUH 26794, dorsal view; b, paratype, MGUH 26796, ventral surface, scale bars, 1 cm (Collins & Jakobsen, 2003, pl. 5.2a,4a; with permission from BMFM).

**Paratumidocarcinus** Martins-Neto, 2001, p. 244, pl. 2C [*P. marajoarum* OD]. Carapace not much wider than long; anterolateral margins entire; carapace strongly vaulted longitudinally; chelipeds strong, weakly heterochelous. *Miocene*: Brazil. —— Fig. 9.3. *P. marajoarum*, holotype, RGMN-T06, scale bar, 1 cm (Martins-Neto, 2001, fig. 2C, permission granted by UNISINOS Editorial Office).

**Paronacarcinus** Bischin, Busulini, & Tessier, 2009, p. 15, pl. 3.3–5 [*P. spinosus* OD]. Carapace hexagonal, wider than long; orbits with two notches bounding intraorbital spine; anterolateral margins shorter than posterolateral margins, with four spines excluding outer-orbital spine;
protogastric region with longitudinal groove. *Eocene (Priabonian):* Italy.——Fig. 9.4. *P. spinosus*, holotype, MCZ 3097-LG.336826, scale bar, 1 cm (new; photo by C. Beschin, Museo Civico "G. Zannato," Montecchio Maggiore, Italy).

**Pulalius** Schweitzer & others, 2000, p. 41 [*Zanthopsis vulgaris* Rathbun, 1926, p. 48, pl. 13–14; OD]. Carapace ovate or hexagonal; carapace regions inflated; front four-lobed; orbits circular, rimmed, with one orbital fissure; anterolateral margin with three or four, small, blunt spines, excluding outer-orbital spine, last spine longest and placed at distal end of epibranchial region; branchial regions inflated; posterolateral margins convex. *Eocene–Oligocene: USA (Oregon, Washington), Canada (British Columbia).——Fig. 9.5. *P. vulgaris* (Rathbun), T134, Oligocene, Washington, scale bar, 1 cm (new).
Styracocarcinus Schweitzer & Feldmann, 2012, p. 23 [*Titanocarcinus meridionalis Secretan, 1961, p. 41, pl. 1–3; M]. Carapace quadrate, length about 92 percent maximum width, widest about 44 percent the distance posteriorly on carapace at position of last anterolateral spine; front about 30 percent maximum carapace width; fronto-orbital width about 70 percent maximum carapace width; anterolateral margins with four spines including outer-orbital spines; posterolateral margin with two small spines; mesobranchial region broadly inflated, followed posteriorly by weak depression; metabranchial region transversely inflated parallel to posterior margin; sternum with deep sterno-pleonal cavity extending anteriorly as axial groove onto sternites 3 and 4. [Emended from Schweitzer & Feldmann, 2012, p. 23.] Upper Cretaceous (Turonian–Maastrichtian): Morocco.——Fig. 10, 1a–b. *S. meridianalis (Secretan), cast of holotype, MNHN A24595; a, dorsal carapace; b, anterior view, Turonian–Maastrichtian, Morocco, scale bars, 1 cm (new).

Titanocarcinus A. Milne-Edwards, 1863, pl. 9, 3, 10, 4; 1864, p. 31 [*T. serratifrons; SD Glaessner,
Carapace wider than long, maximum carapace length about 80 to 85 percent maximum carapace width, widest at position of last anterolateral spine, about half the distance posteriorly on carapace; carapace regions well marked by deep grooves; regions granular; moderately vaulted longitudinally; frontal margin axially notched, granular, usually with blunt protuberances or spines on either side of notch and at inner orbital angles; frontal width about 30 percent maximum carapace width; orbits semicircular, with thick rim, two orbital fissures positioned near outer-orbital angle, and sometimes a spine between fissures; fronto-orbital width between two-thirds and three-quarters maximum carapace width; anterolateral margin with four spines, excluding outer-orbital spine, second and third spines generally largest, fourth often very reduced, spines well-separated from one another; posterolateral margin well defined; epigastric region well defined, inflated; proautarchic regions very inflated, usually with longitudinal groove separating anterior portion into two lobes; anterior projection of mesogastric region smooth, extending to a point level with the epigastric regions; metagastric and urogastric regions not well differentiated, depressed; cardiac region inflated; hepatic regions inflated; intestinal region depressed; branchial regions subdivided into epi-, meso-, and metabranhichal regions, epibranchial region particularly well defined and composed of an inner and outer lobe. [Emended from Schweitzer, Artal, & others, 2007, p. 281.]

Upper Cretaceous (Maastrichtian)—Eocene (Ypresian): Belgium, Madagascar, The Netherlands, Maastrichtian; Austria, Denmark, Danian; France, Hungary, Italy, Spain, Eocene (Ypresian).—Fig. 10.2. T. briarti (Forir, 1887), holotype, IRSNB MI 11011, Maastrichtian, The Netherlands, scale bar, 1 cm (Schweitzer, Artal, & others, 2007, fig. 2C).

Tumidocarcinus Gläsnessner, 1960, p. 24 [*Harpactocarcinus tumidus Woodward, 1876, p. 51, pl. 7; OD]. Carapace not much wider than long, rounded, strongly convex longitudinally and transversely; front four-lobed, about 25 percent maximum carapace width; orbits small, without fissures; anterolateral margin thickened, entire or with three or four spines; posterolateral margin convex; regions poorly marked; chelae strongly heterochelous, large. Eocene—Miocene: New Zealand, Eocene (Lutetian—Priabonian)—Oligocene (Chatian), Miocene (Langhian—Serravallian); Australia, Eocene—Miocene.—Fig. 10.3. T. giganteus Gläsnessner, 1960, KSU 1092, Miocene, New Zealand, scale bar, 1 cm (new).

Xanthilites Bell, 1858, p. 17, pl. 2, 2.2–6 [*X. towerbankii; M] [=Pseuderiphia Reuss, 1859, p. 54, pl. 18, 4–6 (type, P. mecoyi, M), obj.]. Carapace hexagonal, markedly vaulted longitudinally; front four-lobed, axial two lobes longer; regions very well-developed, proautarchic regions elevated well above mesogastric region, hepatic region inflated, epibranchial regions inflated; all regions granular; two fused orbital fissures; three anterolateral spines excluding outer-orbital spine, second largest; grooves very deep. Eocene (Lutetian): Germany. Eocene: United Kingdom (England).—Fig. 10.4a–b. *X. bowerbanki, CM 38700, Eocene, England; a, dorsal carapace; b, ventral surface, scale bars, 1 cm (Schweitzer, 2005, fig. 3, 3, 4).

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Carapace wider than long, maximum carapace length about 80 percent of maximum carapace width, widest about one-half to two-thirds of the distance posteriorly on carapace, ovate or circular in shape, may be ornamented with large swellings that are sometimes arranged on ridges, regions poorly or moderately defined; branchiocardiac groove well developed; front with four, blunt spines including inner orbital spines, frontal width about one-quarter maximum carapace width; orbits circular or rectangular, entire, rimmed, fronto-orbital width about half maximum carapace width; anterolateral margin convex, entire, with three to five blunt spines or with numerous small spines; last anterolateral spine may extend onto carapace as long, low ridge; anterolateral margin often tightly arched posteriorly; anterolateral margin about as long or slightly longer than posterolateral margin; posterolateral margin sinuous or weakly concave; posterior margin nearly straight, 30 to 40 percent of maximum carapace width; sternum narrow, ovate, broadest anteriorly at position of fourth sternite, narrowing posteriorly; sternal suture 4/5 incomplete; sutures 5/6 to 7/8 complete; sutures 4/5 and 5/6 not parallel; sternite 4 in males and females with swelling just anterior to episternal projection of sternite 4; sternite 4 with clear longitudinal grooves near lateral margins that appear to be episternal projections of sternite 3 fused with sternite 4; sternite 8 not visible in ventral view; male pleon with somites 3–5 fused, suture between 4/5 visible; somite 3 with lateral extensions often ornamented with spherical swellings; telson
longer than somite 6; male pleon reaching base or middle of coxa of pereiopod 1; male pleon covering entire space between coxae of pereiopods 5; chelae large, subequal or weakly heterochelous, outer surface smooth or with large swellings, upper and lower margins with numerous small spines; chelipeds much longer than walking legs; ischium of major cheliped articulating with coxa, merus not fused completely to ischium. [Emended from Karasawa & Schweitzer, 2006, p. 45.] Paleocene–Miocene.

**Amekicarcinus** Schweitzer, Odumodu, & Feldmann, 2016, p. 71, fig. 7 [*A. enigmaticus*; M].

Carapace wider than long, flattened; mesogastric region with long, narrow anterior process, posterior portion semicircular; remainder of axial regions narrow; epibranchial region arcuate; sternite 3 broadly inflated centrally, with deep, wide notch laterally between sternites 3 and 4 and groove on remainder of interface between sternites 3 and 4; sternite 4 with long, sharp swelling on episternite 3 and smaller swelling centrally; sternites 5–7 becoming less wide; sternite 8 probably not visible in ventral view; pleon appearing to have been quite narrow, somite 6 long. [Schweitzer, Odumodu, & Feldmann, 2016, p. 71.] Eocene:—Fig. 11.1a–b. [*A. enigmaticus*, holotype, CM 59126; partial dorsal carapace; b, reconstruction of carapace using mirror image of left side, scale bars, 1 cm (Schweitzer, Odumodu, & Feldmann, 2016, fig. 7A,C).

**Fredericia** Collins & Jakobsen, 2003, p. 75, p. 6, fig. 1–7 [*F. barsoei*; OD]. Carapace rounded, not much wider than long, regions poorly defined; front with four lobes including inner-oral lobes, fronto-oral width about 60 percent of maximum carapace width; anterolateral margins entire; regions poorly defined; male pleonal somites 3–5 fused. Eocene (Ypresian–Lutetian):—Fig. 11.2a–b. [*F. barsoei*, holotype MGUH 26798, Ypresian–Lutetian, Denmark; a, dorsal carapace; b, ventral surface, scale bars, 1 cm (new; photos by S. Jakobsen, Natural History Museum of Denmark, Copenhagen).

**Harpactocarcinus** A. Milne-Edwards, 1862, p. 64 [*H. punctulatus* Desmarest, 1817, p. 498; SD Rathbun, 1928, p. 3]. Carapace wider than long, length about 80 percent of maximum width, regions poorly defined to undefined, surface punctate; branchiocardiac groove well defined along lateral margins of urogastric region; front width about 25 percent of maximum carapace width, front with 4 spines including inner-orbital spines; orbits shallow, circular or rectangular, fronto-oral width about half maximum carapace width; anterolateral margins with eight to fifteen spines. Eocene (Ypresian–Miocene (Serravallian)):—Turkey, Ypresian; Albania, Croatia, France, Italy, Hungary, Slovakia, Slovenia, Spain, Switzerland, Lutetian–Priabonian; Italy, Romania, Somalia, Eocene; Germany, Oligocene; Iran, Miocene (Langhian–Serravallian).—Fig. 11.3. *H. dalmatius* Schweitzer, Shirk, & others, 2007, holotype, PS01-0803, Eocene, Croatia, scale bar, 1 cm (adapted from Schweitzer, Shirk, & others, 2007, fig. 5.1).

**Harpactoxanthopsis** V(a, 1959, p. 54 [*Cancer quadrilobatus* Desmarest, 1817, p. 499; OD]. Carapace ovate, length about 80 percent maximum width, narrowing markedly posteriorly; regions poorly defined, branchiocardiac groove well defined along lateral margins of urogastric region; front with four spines including inner-orbital spine; anterolateral margins with five spines including outer-orbital spine. Eocene (Lutetian–Priabonian):—Albania, Croatia, France, Germany, Italy, Hungary, Slovakia, Spain, Lutetian–Bartonian; UK (England), Lutetian; Russia, Bartonian; Hungary, Priabonian.—Fig. 11.4a–b. [*H. quadrilobatus* (Desmarest), syntype, MNHN.F.R03824, Eocene, France; a, dorsal carapace; b, ventral surface, scale bars, 1 cm (new; Muséum national d’histoire naturelle, Paris, France, Collection: Paleontology (F), Fossil specimen MNHN.F.R03824, http://coldb.mnhn.fr/catalogue/mnhn/fr03824, photo by Jocelyn Falcomet).

**Lavaracarcinus** De Angelis & Beschin, 2010, p. 30, pl. 1 [*L. granulatus*; OD]. Carapace ovate, length about 75 percent maximum width; strongly vaulted longitudinally; front very broadly quadrilobed, about 25 percent maximum carapace width; orbits rimmed; anterolateral margins with four, small spines, not including small outer-orbital projection, granular in between spines; posterolateral margins with two spines; posterior margin narrow; entire carapace surface coarsely granular. Eocene (Lutetian):—Fig. 12.1, *L. granulatus*, paratype, MCZ3220-I.G.336906, scale bar, 1 cm (new; photo by A. De Angelis, Associazione del Museo Zannato, Montecchio Maggiore, Vicenza, Italy).

**Martinetta** Blow & Manning, 1997, p. 172, pl. 1, 1 [*M. palmeri*; OD]. Carapace wider than long, length about 75 percent maximum carapace width; front with four spines including inner-orbital spines, about 25 percent maximum carapace width; orbits small for family, rimmed, fronto-oral width about 34 percent maximum carapace width; anterolateral margin long, with about fifteen spines, last spine extending onto dorsal carapace as oblique ridge; carapace regions

**Neozanthopsis** Schweitzer, 2003, p. 1119 [*Harpactocarcinus americanus* Rathbun, 1928, p. 3, pl. 2, 3; OD]. Carapace ovate, length about 80 percent maximum width; front with four short spines including inner-orbital spines, about 30 percent maximum width; fronto-oral width about half carapace width; anterolateral margin entire or with three or four blunt spines, last spine extending onto dorsal carapace as oblique ridge; carapace regions
developed as broad swellings. Eocene (Lutetian): Germany, Italy, Spain. Eocene: Armenia; Germany; Baja California, Mexico; Somalia; South Carolina, Texas, USA. ——Fig. 12, 4a–b. *N. americanus (Rathbun), NLU2F-27, 4a, dorsal carapace; 4b, ventral surface, Eocene, South Carolina, scale bars, 1 cm (adapted from Schweitzer, Feldmann, & Stringer, 2014, pl. 1,1–2).

Zanthopsis M’Coy, 1849, p. 162 [*Cancer leachii Desmarest, 1817, p. 500; OD] [=Cycloxanthus H. Milne Edwards in d’Archiac, 1850, p. 304k (type, C. dufourii; SD herein); =Xanthopsis M’Coy
in Bell, 1858, p. 10 (type, X. leachii, OD)]. Carapace ovate, length about 80 percent maximum width; regions poorly to moderately defined; front with four, blunt spines including inner-orbital spines; orbits circular, entire, fronto-orbital width about half maximum carapace width; anterolateral margins with four or five, blunt spines including outer-orbital spines; branchial regions with discrete swellings arranged into rows, rows may be situated on ridges; chelipeds large, heterochelous. Paleocene (Selandian)—Oligocene (Rupelian): France, Selandian; Belgium, France, Germany, UK (England), Ypresian; Belgium, France, Spain, Switzerland, Turkey, Lutetian; USA (New Jersey), Lutetian—Priabonian; Iran?, Ivory Coast, Peru, USA (California, Texas), Eocene; Germany, Rupelian; USA (Oregon), Oligocene.—Fig. 12, 3. *Z. leachii* (DESMAREST), CM 38715a, Ypresian, England, scale bar, 1 cm (Schweitzer, 2003, fig. 4,1).

**ABBREVIATIONS FOR MUSEUM REPOSITORIES**

BMFM: Bulletin of the Mizunami Fossil Museum, Japan

REFERENCES


De Angeli, Antonio, & Riccardo Alberti. 2016. Tetbyscaropilius bericus n. gen., n. sp. (Decapoda, Brachyura,
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