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TWO GNAPHOSID SPIDERS FROM ARKANSAS¹

by

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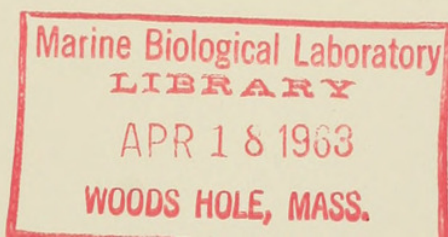
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Rachodrassus echinus Chamberlin (1922; Kentucky) was proposed with a brief description and without illustration; *Drassylus covensis* is a new species. Both were collected by Otis Hite in pitfall traps in the forest litter of Cove Creek Valley, Arkansas, during April and May, 1961. In so far as has been determined, genitalia of spiders of the family Gnaphosidae are described here for the first time.

I am indebted to Dr. Willis J. Gertsch, American Museum of Natural History, for checking identifications, and to Dr. Herbert W. Levi, Museum of Comparative Zoology, Harvard University, for sketches of the palpus and epigynum of the type and allotype of *Rachodrassus echinus* Chamberlin and the epigynum of the type of "*R. chera* Chamberlin."

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Family GNAPHOSIDAE

Rachodrassus echinus Chamberlin.

(Figures 7-12.)

Rachodrassus echinus CHAMBERLIN, 1922, Biol. Soc. Wash., Proc., vol. 35, pp. 146, 160.

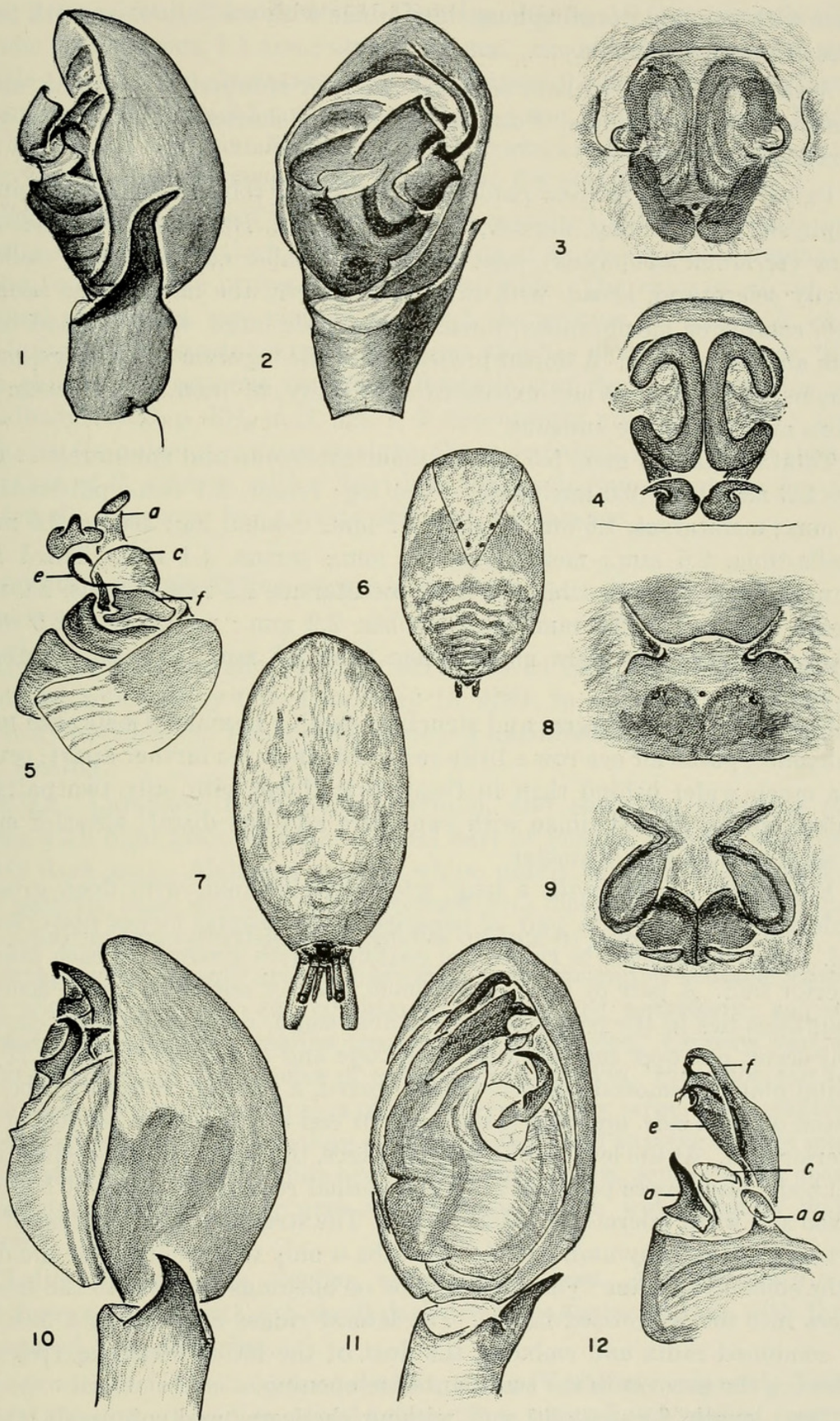
Male holotype and female allotype from near Mammoth Cave, Kentucky, in Museum of Comparative Zoology. Type species of *Rachodrassus*. The specific name is a Latin noun in apposition, meaning "sea-urchin."

Rachodrassus chera CHAMBERLIN, 1922, Biol. Soc. Wash., Proc., vol. 35, p. 161. Female holotype from near Mammoth Cave, Kentucky, in Museum of Comparative Zoology.

MALE. Carapace yellow covered with gray hair-like setae that lie prone and face mid-line between thoracic groove and ocular area, and a few erect setae. Legs, palpi, mouthparts and sternum yellow, thickly covered with prone and erect setae. Abdomen dull yellow with an irregular gray pattern, venter grayish yellow, spinnerets clear yellow.

Carapace with steeply inclined sides, equally high from behind thoracic groove to near eye region, which is lower; evenly rounded on sides, but narrowed anteriorly. Chelicerae short, somewhat geniculate; anterior margin of fang groove with three teeth, posterior margin with two teeth, all well separated and sharp. Clypeus narrow, less than a radius of anterior lateral eye. Anterior eyes in procurved row, anterior medians smaller than other eyes, separated by a radius, nearer anterior laterals. Posterior eyes in a straight row; median eyes round, slightly smaller than laterals, and nearer each other than laterals. Median ocular area a little wider behind than long. Legs moderately robust with many long spines; relative length 4,1,2,3. Fourth

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- Figure 1. *Drassyllus covensis* Exline, new species, male palpus, ectal view.
Figure 2. *Drassyllus covensis* Exline, new species, male palpus, ventral view.
Figure 3. *Drassyllus covensis* Exline, new species, epigynum of female.
Figure 4. *Drassyllus covensis* Exline, new species, female genital plate, dorsal view.
Figure 5. *Drassyllus covensis* Exline, new species, bulb of male palpus expanded, dorsal view: a) median apophysis showing the two segments, c) conductor, e) embolus, f) fulcrum or terminal apophysis.
Figure 6. *Drassyllus covensis* Exline, new species, abdomen of male.
Figure 7. *Rachodrassus echinus* Chamberlin, abdomen of male.
Figure 8. *Rachodrassus echinus* Chamberlin, female epigynum.
Figure 9. *Rachodrassus echinus* Chamberlin, genital plate of female, dorsal view.
Figure 10. *Rachodrassus echinus* Chamberlin, male palpus, ectal view.
Figure 11. *Rachodrassus echinus* Chamberlin, male palpus, ventral view.
Figure 12. *Rachodrassus echinus* Chamberlin, tip of bulb of male palpus, lateral view: a) median apophysis, aa) accessory apophysis of tegulum, c) conductor, e) embolus, f) fulcrum or terminal apophysis.



tibiae with two mid-dorsal spines, third tibiae with one; all tibiae with three pairs of ventral spines.

Abdomen slender, without scutum. Anterior spinnerets very long, stout, separated by their radius. Posterior spinnerets shorter, slender, with very short terminal segment.

Palpal tibia longer than patella, with a short, robust, ventrally pointed apophysis. Tarsus long, narrow, with bulb thick. Bulb with terminal fulcrum (terminal apophysis) bent back in a double curve at tip; embolus heavily sclerotized, broad, with three distal teeth, the median one bearing duct; conductor membranous; median apophysis large, with a broad basal tooth and distal hook. A dorsal projection of the tegulum has a large, membranous folded tip. When expanded artificially, at least, the fulcrum envelops and grasps the embolus.

Total length, 6.5 mm., 5.5 mm. without chelicerae and spinnerets. Carapace 2.3 mm. long, 2.0 mm. wide. First leg: femur, 2.1 mm.; patella-tibia, 3.0 mm.; metatarsus, 1.6 mm.; tarsus, 1.2 mm. Second leg: femur, 2.0 mm.; patella-tibia, 2.5 mm.; metatarsus, 1.4 mm.; tarsus, 1.1 mm. Third leg: femur, 1.7 mm.; patella-tibia, 2.2 mm.; metatarsus, 1.5 mm.; tarsus, 1.0 mm. Fourth leg: femur, 2.3 mm.; patella-tibia, 2.9 mm.; metatarsus, 2.6 mm.; tarsus, 1.2 mm. The eight males range from 5.5 mm., in total length, to 6.5 mm.

FEMALE. Color, pattern, and structure similar to male. Chelicerae more geniculate; posterior eye row a little recurved, and eyes farther apart; ocular area much wider behind than in front; first tibiae with only two pairs of ventral spines, second tibiae with two pairs and one distal; anterior spinnerets separated by a diameter.

Epigynum swollen with a long, wide anterior fold, with deep grooves bordering it laterally. A pair of conspicuous horizontal ridges posterior to fold. Grooves anterior to ridges are confluent with grooves on each side of anterior fold. A pair of large, contiguous, heavily sclerotized, oval seminal receptacles lies in the posterior half. Three small, deep, sclerotized depressions occur, one over each seminal receptacle and one between them. If the genital plate is removed, dissected, and cleared, a slender, irregular tube can be seen on each side, opening at the anterior end of the groove bordering the anterior fold. At the level of the lateral ridges, this enters a large sclerotized oval body, and passes posteriorly to the seminal receptacle, where it becomes affixed as a wide, sclerotized anterior part. The structure and function of the parts are not entirely understood. The tube is only wide enough for the duct of the embolus to enter. There seem to be no openings anterior to the lateral ridges into the sclerotized bodies. The lateral ridges may act as a lock for the combined radix and embolus, the duct of the latter becoming free and following the grooves to the small anterior opening.

Total length, 6.8 mm.; 6.1 mm. without chelicerae and spinnerets. Cara-

pace, 2.6 mm. long, 2.1 mm. wide. First leg: femur, 1.7 mm.; patella-tibia, 2.6 mm.; metatarsus, 1.1 mm.; tarsus, 0.8 mm. Second leg: femur, 1.7 mm.; patella-tibia, 2.6 mm.; metatarsus, 1.1 mm.; tarsus, 0.8 mm. Third leg: femur, 1.6 mm.; patella-tibia, 2.2 mm.; metatarsus, 1.4 mm.; tarsus, 0.8 mm. Fourth leg: femur, 2.3 mm.; patella-tibia, 3.0 mm.; metatarsus, 2.4 mm.; tarsus, 1.2 mm. The five females range from 5.6 mm. to 6.8 mm. in length.

Rachodrassus chera Chamberlin is synonymized with *R. echinus* as a paucity of spines was the basis for separation of *R. chera*, and the spination of the ventral tibiae proves to be quite variable. The epigyna of the two nominal species are very similar, although the grooves of that of *R. chera* are darker. One female taken in Arkansas also has darkened grooves, filled with chitin or a resinous material. *Rachodrassus flavus* Chamberlin and Woodbury (1929, p. 134, pl. 2, figs. 1, 2; erroneously given as plate 1), from Utah, has the anterior eye row straight; the male palpus seemingly is simpler than that of *R. echinus*, with a flat tibial apophysis rounded at the tip; and the female epigynum has a quite different appearance.

Drassyllus covensis Exline, new species.

(Figures 1-6.)

Holotype male and allotype female from Cove Creek, Washington County, Arkansas, collected by Otis Hite, May 13, 1961, in collection of California Academy of Sciences. The specific name is a Latinized adjective based on the type locality.

MALE. Carapace, mouthparts, sternum, and some leg segments pale orange with light gray infusions. Distal part of femora, patellae and tibiae mostly dark gray. Abdomen grayish white, nearly covered with a blackish gray pattern; basal scutum orange overcast with blackish gray. Venter pale with a pair of large grayish black patches uniting in front of spinnerets.

Carapace low, evenly arched, highest at posterior end of thoracic groove, wide with sides evenly curved, somewhat narrowed anteriorly; sparsely covered with setae that incline toward thoracic groove. Clypeus vertical, height about equal to diameter of anterior median eyes. Posterior eye row procurved; posterior median eyes oblique, very slightly larger than posterior laterals, all separated by less than a radius. Shape and spacing of eyes somewhat variable. Anterior median eyes smaller than others, separated by nearly a diameter. Median ocular area a little longer than wide, slightly wider behind.

Chelicerae geniculate, slender, with elongate boss. Anterior margin of fang furrow armed with 3-5 small dark teeth; posterior margin with three well spaced, pale denticles.

Legs with metatarsi and tarsi slender, tibiae IV slightly enlarged. Tibiae III and IV without median dorsal spines. Two, a basal and median, ventral

spines on tibiae I and II; three pairs of ventral spines on tibiae III and IV. Spines on anterior tibiae are not present on all males. Legs 4,1,2,3 in relative length.

Abdomen with triangular scutum on basal half. Anterior spinnerets separated by their diameter. Posterior spinnerets equal to anteriors in length, much more slender, with a short terminal segment.

Palp with patella longer than tibia without apophysis. Tibial apophysis extending a third cymbial length, broad at base, tapering to a point, bent dorsally near tip. In ventral and lateral views of the unexpanded bulb, the conspicuous structures are parts of the two-jointed, protruding median apophysis. The long, slender, curved embolus lies against the cymbium. The terminal apophysis or fulcrum is short, blunt at tip with notched margin, only the tip showing in ventral view. The conductor, invisible in the unexpanded bulb, is a thin plate with only the edge sclerotized, lying between the median apophysis and embolus.

Total length, 4.6 mm. including chelicerae and spinnerets. Carapace, 1.9 mm. long, 1.5 mm. wide. First leg: femur, 1.5 mm.; patella-tibia, 2.0 mm.; metatarsus, 1.0 mm.; tarsus, 0.8 mm. Second leg: femur, 1.3 mm.; patella-tibia, 1.6 mm.; metatarsus, 0.7 mm.; tarsus, 0.7 mm. Third leg: femur, 1.0 mm.; patella-tibia, 1.3 mm.; metatarsus, 0.7 mm.; tarsus, 0.6 mm. Fourth leg: femur, 1.5 mm.; patella-tibia, 2.1 mm.; metatarsus, 1.5 mm.; tarsus, 0.8 mm. Nine males range from 4.6 mm. to 5.3 mm. in length.

FEMALE. Pattern and colors not so distinct as in male. Structure essentially the same: differs by having clypeus slanting and not quite so high; posterior median eyes about a radius apart, nearer lateral eyes; first tibiae without ventral spines, second tibiae with one spine. Epigynum large, flat, highly sclerotized. Openings lateral about midway, seemingly leading into sclerotized bursae. Tube from each bursa forms an anterior lateral loop, bordering bursa medially and forming a postero-lateral loop leading to seminal receptacles on posterior edge of epigynum. Seminal receptacles contiguous, with a dorsal thickening from which the fertilization tubes originate. Total length, 6.3 mm. Carapace, 1.9 mm. long, 1.4 mm. wide. First leg: femur 1.4 mm.; patella-tibia, 1.9 mm.; metatarsus, 0.9 mm.; tarsus, 0.7 mm. Second leg: femur, 1.3 mm.; patella-tibia, 1.6 mm.; metatarsus, 0.7 mm.; tarsus, 0.6 mm. Third leg: femur, 0.9 mm.; patella-tibia, 1.3 mm.; metatarsus, 0.7 mm.; tarsus, 0.6 mm. Fourth leg: femur, 1.5 mm.; patella-tibia, 2.1 mm.; metatarsus, 1.5 mm.; tarsus, 0.7 mm. A second female measures 5.0 mm. length.

Drassyllus covensis is closely related to *D. dentelifer* Chamberlin (1936, p. 13, figs. 1, 2) from Florida. In the latter the tibial apophysis is not so long, the position of the embolus is more ventral, the median apophysis is shorter, the abdomen is darker and without pattern, the lower margin of the

chelicera has only two teeth, the posterior tibiae bear a median dorsal spine, and the posterior median eyes are very large.

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