

NEW *CARABODES* (ACARI : ORIBATIDA : CARABODIDAE) FROM THE SOUTHERN APPALACHIAN MOUNTAINS, USA

BY R. Marcel REEVES *

NEARCTIC
ORIBATIDA
U.S.A.
NEW SPECIES
DISTRIBUTION

ORIBATES
NÉARCTIQUES
U.S.A.
ESPÈCES NOUVELLES
DISTRIBUTION

ABSTRACT : Adults of three new species of *Carabodes*, *C. cherokee*, *C. phylliformis* and *C. nantahalaensis*, are described. All three species were most abundant in hardwood leaf litter samples collected in the Appalachian Mountains from West Virginia to Georgia.

RÉSUMÉ : L'article décrit la forme adulte de trois nouvelles espèces de *Carabodes*, *C. cherokee*, *C. phylliformis* et *C. nantahalaensis*. Les trois espèces se trouvaient toutes en plus grande abondance dans les échantillons de litières de feuilles de bois dur ramassés dans les monts Appalaches de la Virginie-Occidentale jusqu'à la Géorgie.

Introduction

Carabodes (C. L. Koch 1836) is a large cosmopolitan genus of oribatid mites with over 60 species known from the world (MAHUNKA 1987). Fourteen species have been recorded from North America (MARSHALL *et al.* 1987), however, I believe two of these species, *C. coriaceus* C. L. Koch and *C. areolatus* Berlese, are not present in North America (REEVES 1990, 1992) and have been unable to confirm the presence of a third species, *C. minusculus* Berlese. Recent descriptions of new species (REEVES 1988, 1990, 1992a, 1992b) bring the known North American *Carabodes* fauna to 19 species. This paper describes three new species from the southern Appalachian Mountain region of eastern United States.

The species richness of *Carabodes* is higher in the southern Appalachian Mountain region than anywhere else in North America. With the inclusion of the three species described herein, this area now contains 18 of the 22 named Nearctic species. The number of coexisting species is also high; often samples of forest leaf litter or rotten wood from this

region contain eight or more *Carabodes* species. For most species the number of individuals per sample is also highest in this region.

Terminology and abbreviations are those developed by F. GRANDJEAN, as summarized by BALOGH and MAHUNKA (1983). All measurements are given in micrometers (μm), and are taken from specimens mounted temporarily on cavity slides. Specimen measurements are as follows: total length (tip of rostrum to posterior edge of notogaster); width (widest part of notogaster); height (from between genital and anal plates to highest point of notogaster); prodorsal length (tip of rostrum to posterior edge of dorsosejugal depression). All the above body measurements are expressed as a mean ($n = 10$) followed by the range in parentheses. Setal measurement ratios are expressed as total length (L), width at widest part (W) and distance between setal insertions (D). Thus, $lm/lm-lp$ L/D should be read as "The ratio of the length of seta *lm* to the distance between the insertions of *lm* and *lp*."

Scanning electron micrographs (SEMs) were from mites stored in 70 % ethyl alcohol, ultrasonically cleaned, air dried, placed onto tape on 1/2

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inch (1.27 cm) aluminum stubs, and coated with 20 nm AuPd in a Hummer IV sputter coater before observation in an AMR1000 Scanning Electron Microscope.

All holotypes will be deposited in the Canadian National Insect Collection, Centre for Land and Biological Resources Research, Ottawa, Ontario, Canada. Paratypes will be deposited in the National Museum of Natural History, Washington, DC; Museum of Comparative Zoology, Harvard University, Cambridge, Massachusetts; Canadian National Insect Collection; and the personal collections of R. A. NORTON and the author.

Carabodes cherokee n. sp.

Figs. 1-12

Diagnostic Characters

Body surface mostly foveate-reticulate, fovea poorly developed or surface granulate on most of prodorsum, anterior part of notogaster, and on epimera. Dorsosejugal depression wide, deep, anterior margin with inverted U-shaped medial indentation. Lateral protuberances in interlamellar region prominent, foveate, posteromedial angles overhang dorsosejugal depression. Sensilli S-shaped, arched dorsad and then anteriorly, ending in long, narrow, lanceolate club, barbed along entire length. Circumgastric depression present. Notogaster with anteromedial hump and lateral depression near shoulder. Notogastral setae bacilliform, very minutely barbed, setae *lm* L/W 14-23, *lm/lm-lp* L/D 0.45-0.88, *c*₂ inserted anterior to *lm*, *h*₂ inserted nearer to medial setal row than to circumgastric depression, *h*₁, *h*₃ and *p*₁₋₃ arched mediad, *p*_{1/p₁-p₁} L/D 0.31-0.53. Two pairs of aggenital setae. Setae (*u*) of all tarsi attenuate.

ADULT

Measurements. Total length : ♀ 535 (455-575), ♂ 512 (460-555). Width : ♀ 311 (250-340), ♂ 289 (260-325). Height : ♀ 258 (220-290), ♂ 243 (220-265). *Integument.* Black, body surface mostly foveate-reticulate, fovea reduced or surface granu-

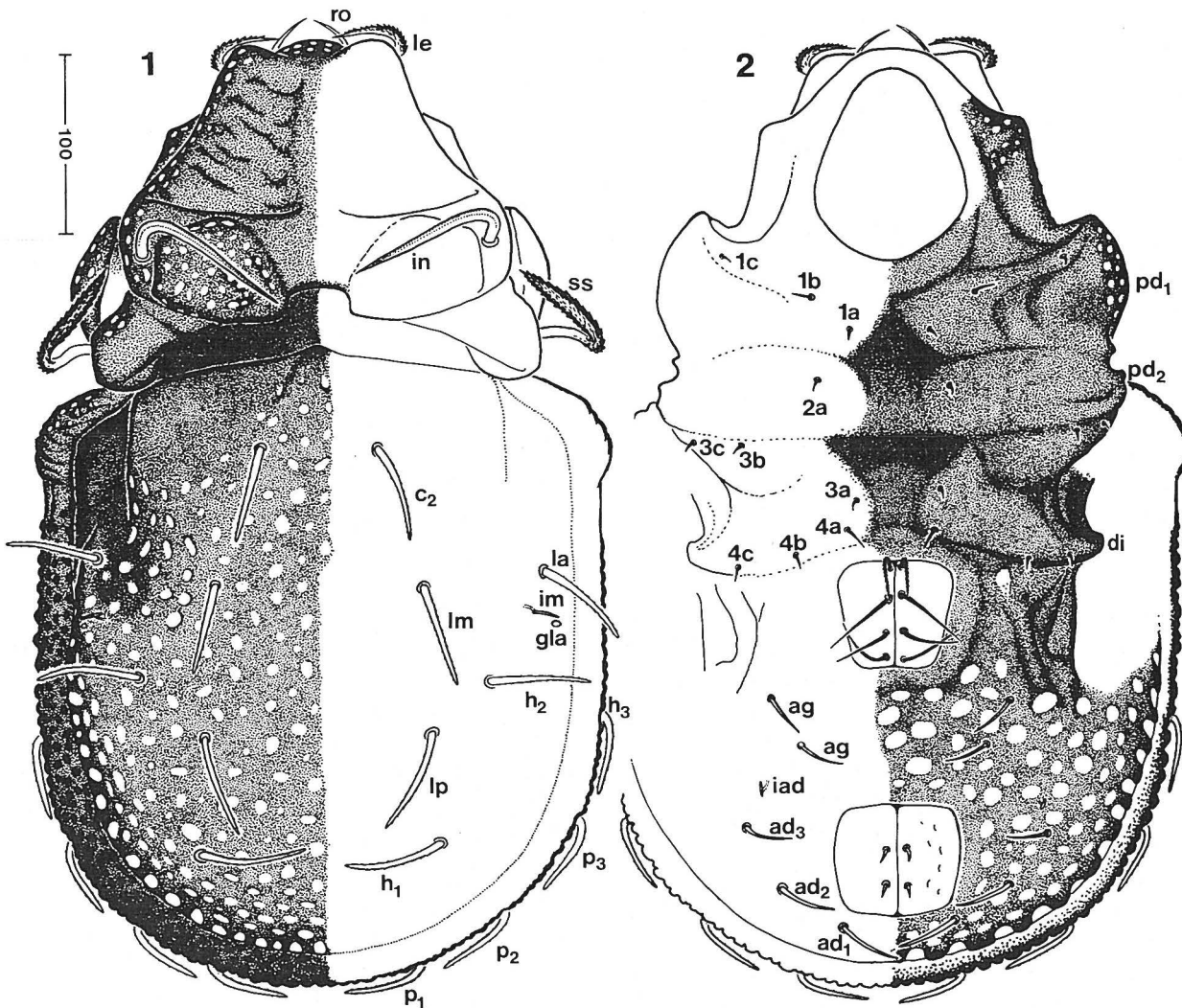
late on most of prodorsum, anterior part of notogaster, and on epimera, surface covered with minute tubercles (Figs. 6, 8, 10). Thin, inconspicuous cerotegument covers body.

Prodorsum (Figs. 1, 3, 5). Prodorsal length : ♀ 179 (155-190), 177 (160-200). Surface granulate except for protuberances in interlamellar region and lamellar margins. Dorsosejugal depression wide, deep, bottom granulate. Lateral protuberances in interlamellar region prominent, foveate, posteromedial angles overhang dorsosejugal depression resulting in inverted U-shaped medial indentation on anterior margin of dorsosejugal depression. Transverse ridge anterior to interlamellar protuberances. Rosstral (*ro*), lamellar (*le*) and interlamellar (*in*) setae setiform, arched mediad; *ro* glabrous, 17-30 long; *le* barbed, 25-35 long, 2-3 times width of *ro* in dorsal view, inserted on lateral margin of lamellae near tip; *in* glabrous, attenuate, grooved dorsally, 65-85 long, inserted laterally on lamellae near base. Sensilli (*ss*) S-shaped, arched dorsad and then anteriorly, ending in long, narrow, lanceolate club, barbed along entire length (Fig. 8). Bothridial rim notched.

Notogaster (Figs. 1, 3, 4, 6, 7). Circumgastric depression present. Notogaster with anteromedial hump; anterolateral depression medial to circumgastric depression; anterior portion of notogaster granulate, posterior portion foveate, fovea 2.5-20.0 in diameter, rim beyond circumgastric depression tuberculate. Notogastral setae bacilliform, very minutely barbed, setae *lm* L/W 14-23, *lm/lm-lp* L/D 0.45-0.88, *h*₁, *h*₃ and *p*₁₋₃ arched mediad, *p*_{1/p₁-p₁} L/D 0.31-0.53. Setae *c*₂ inserted anterior to *lm* forming two medial rows of four setae (*c*₂-*h*₁), *h*₂ inserted nearer to medial row than to circumgastric depression.

Gnathosoma. Palp setal formula 0-2-1-3-9 (+1 solenidion). Mentum foveate.

Ventral surface (Figs. 2, 9-11). Epimeral surface granulate, epimeral setae short, *1b* and *4a* 10-12 long, others 5-8 long, formula 3-1-3-3, medial depressions between epimera I and III. Anogenital region setal formula 4-2-2-3; genital setae setiform, long, *g*₂ approximately 0.65-0.96 length of genital plates, *g*₁ barbed, directed posteriorly, *g*₂ and *g*₃ directed laterad, *g*₄ directed anterolaterad; aggeni-



FIGS. 1-2 : *Carabodes cherokee* n. sp., adult, gnathosoma and legs removed.

1. — Dorsal aspect. 2. — Ventral aspect. See text for explanation of abbreviations. Scale bar in micrometers.

tal, anal and adanal setae setiform, aggenital and adanal arched mediad, ad_1 and ad_2 twice as thick as ad_3 , ad_3 inserted lateral to and 1.5-2.5 its length from edge of anal plate. Lyrifissure *iad* anteromedial to ad_3 .

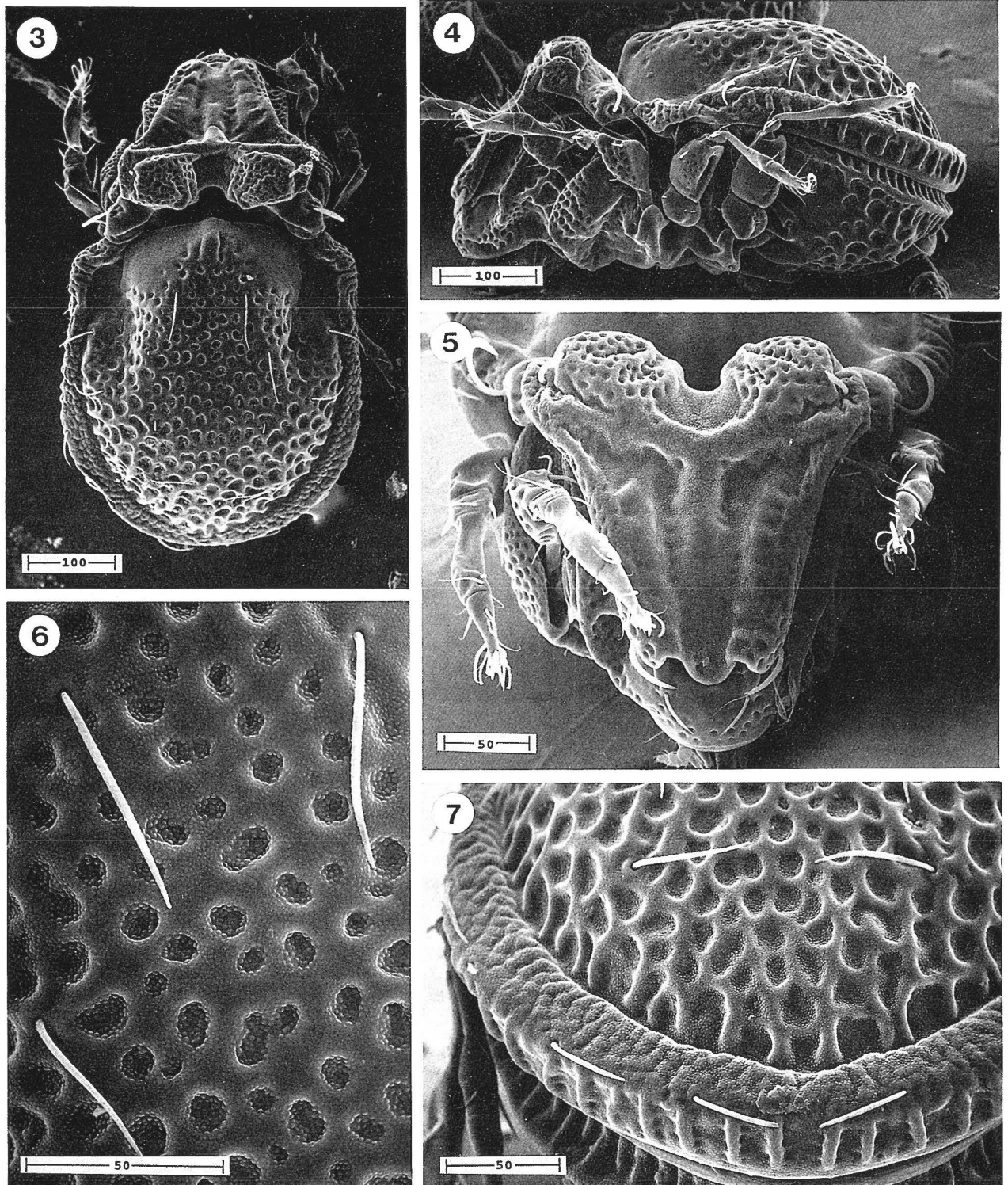
Lateral surface (Fig. 4). Surface mostly foveate, portion above acetabula II-IV and below margin of bothridium and notogaster with small tubercles, fovea on most other surfaces.

Legs. Fovea on part or all abaxial surfaces of femora I and II and trochanters and femora III and

IV. Ventrodistal spurs present on femora III and IV. Setation of legs I-IV (solenidia in parentheses), trochanters 1-1-2-1, femora 4-4-3-2, genua 3(1)-3(1)-1(1)-2, tibiae 4(2)-3(1)-2(1)-2(1), tarsi 15(2)-15(2)-15-12. Distal tarsal setae (*p*) (except tarsus I), (*a*), (*it*) and (*tc*) end in "shepherd's crook" with flattened tip. Setae (*u*) of all tarsi attenuate.

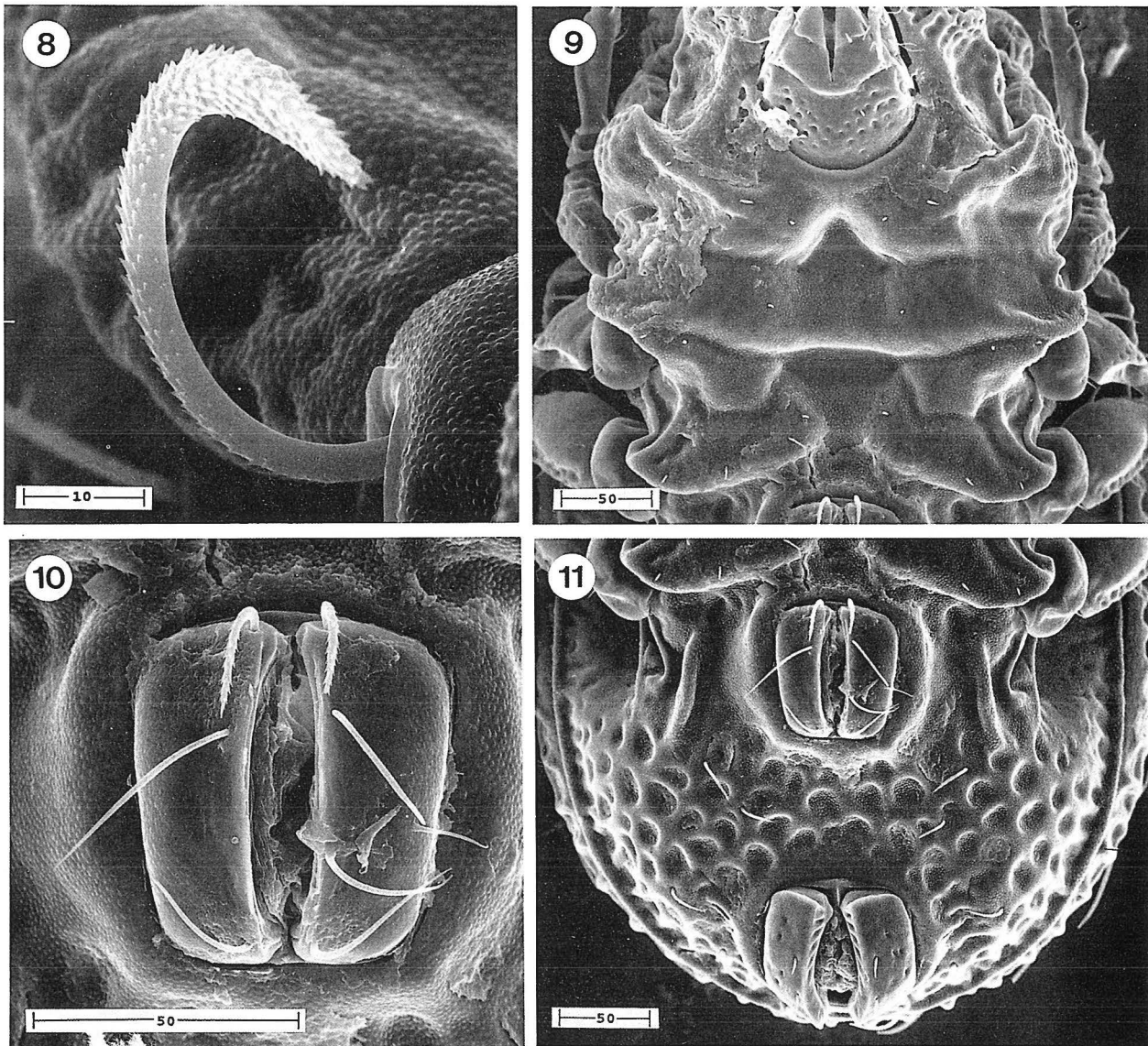
Immatures. Unknown.

MATERIAL EXAMINED. *Holotype.* Adult ♀, U.S.A. : North Carolina : Macon Co., 17 km SW Franklin,



FIGS. 3-7 : *Carabodes cherokee* n. sp., adult.

3. — Dorsal aspect. 4. — Lateral aspect. 5. — Prodorsum, anterior view. 6. — Central notogastral region between setae c_2 and lm .
7. — Notogaster, posterior view. Scale bars in micrometers.



FIGS. 8-11 : *Carabodes cherokee* n. sp., adult.

8. — Sensillus, anterior view. 9. — Epimeral region. 10. — Genital plates. 11. — Anogenital region. Scale bars in micrometers.

Nantahala National Forest, 19/21.VIII.1990, S. O'KEEFE, sifted hardwood leaf litter by logs (RMR90-45) ; 500 long, 290 wide, 245 high. *Paratyphes*. 696 specimens, same data as holotype.

The known distribution of this species is from southern Pennsylvania to northern Florida (Fig. 12). The state and county records for the 1169 additional adult specimens examined are : U.S.A. : Pennsylvania (Westmoreland Co.), Virginia (Smyth

Co.), West Virginia (Greenbrier and Pocahantas Cos.), Kentucky (Whitney Co.), Tennessee (Johnson Co.), North Carolina (Buncombe, Burke, Caldwell, Clay, Graham, Macon, Montgomery, Wake and Yancey Cos.), South Carolina (Edgefield, Newberry and Oconee Cos.), Georgia (Habersham, Putnam and Rabun Cos.), and Florida (Calhoun Co.).

This species has been collected from rotten wood,

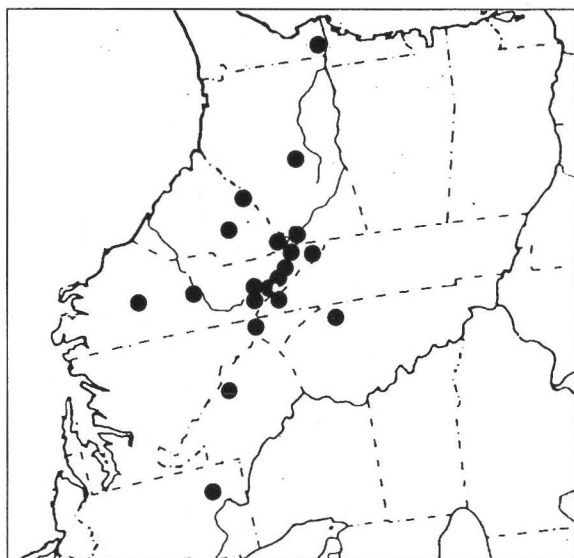


FIG. 12 — Collection locations of *Carabodes cherokee* n. sp.

moss, and coniferous and hardwood leaf litter; 99 % of the specimens were found in hardwood leaf litter.

This species is named for an American indian tribe that once inhabited the southern Appalachian Mountain region.

REMARKS

This species differs from all other *Carabodes* species I have seen from North America by having an anterolateral depression on the notogaster, setae h_1 directed mediad, and setae h_2 closer to medial row than to circumgastric depression. It is similar to *Carabodes gibbiceps* Berlese in having S-shaped sensilli and prominent lateral protuberances in the interlamellar region, the posteromedial angles of which overhang a wide, deep dorsosejugal depression, and to *Carabodes falcatus* Jacot in the extent of granulate cuticular surface. *Carabodes cherokee* is similar to *Carabodes niger* Banks, *Carabodes floridus* Berlese, *Carabodes clavatus* Jacot, *Carabodes interruptus* Reeves, *Carabodes erectus* Reeves, *C. gibbiceps* and *C. falcatus* in the shape and arrangement of the genital setae, in the form of the *ro*, *le* (except *C. interruptus*) and *in* setae, and by

having a well-developed circumgastric depression and two pairs of aggenital setae.

Carabodes phylliformis n. sp.

FIGS. 13-20

DIAGNOSTIC CHARACTERS

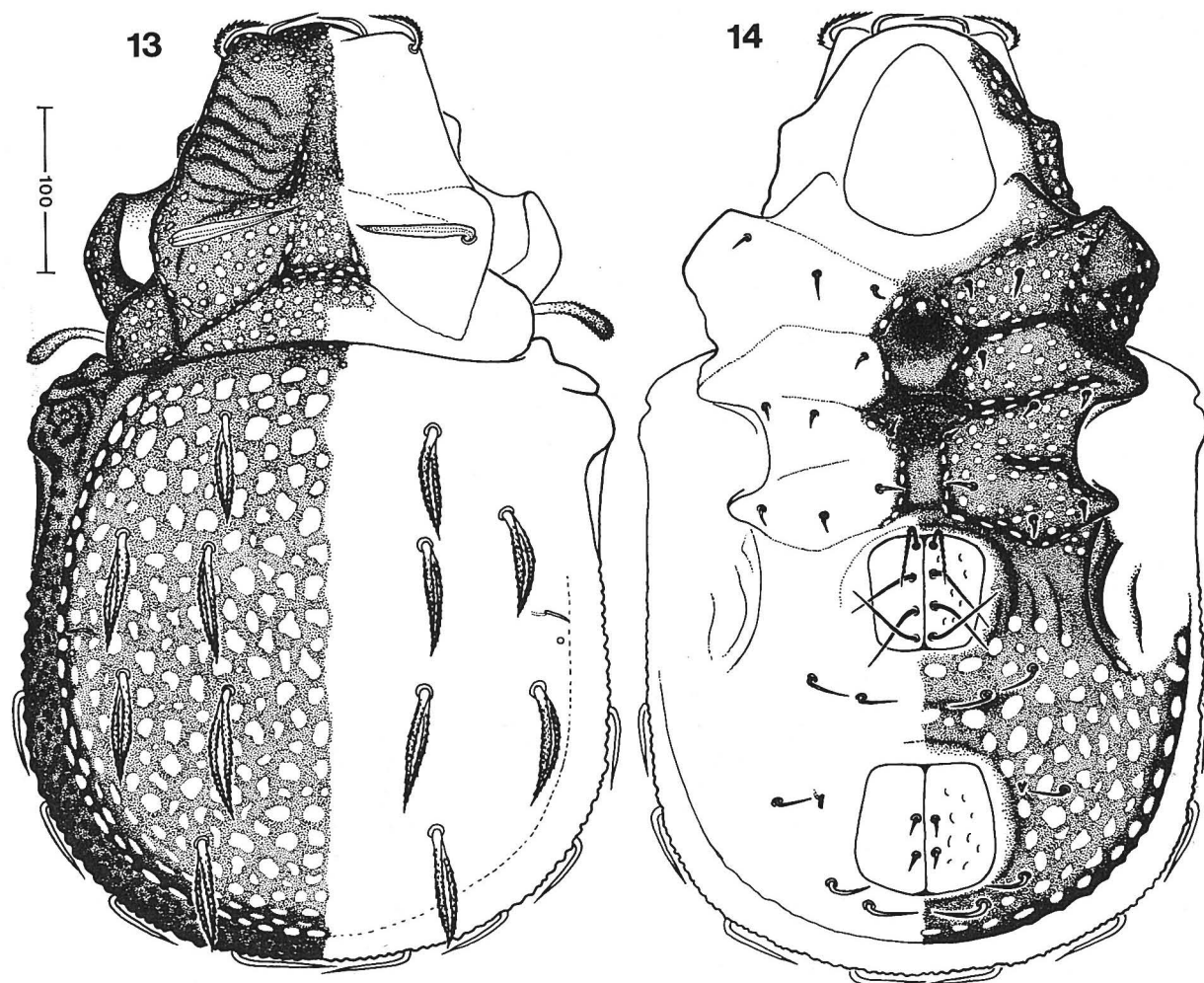
Most body surfaces foveate-reticulate. Dorsosejugal depression shallow, widest medially, bottom foveate. Interlamellar region with medial depression and weakly developed lateral protuberances. Sensilli narrowly clavate, minutely barbed. Circumgastric depression present. Notogastral setae dimorphic; central notogastral setae phylliform, barbed, grooved dorsally, setae *lm* L/W 7.5-14.5, *lm/lm-lp* L/D 0.61-0.84, c_2 inserted anterior to *lm*; postero-marginal setae setiform, attenuate, strongly arched mediad and appressed to body surface, p_1/p_1-p_1 L/D 0.39-0.79. Two pairs of aggenital setae present. Setae (*u*) of tarsus I attenuate, tarsi II-IV short, scale-like.

ADULT

Measurements. Total length : ♀ 561 (530-600), ♂ 522 (470-580). Width : ♀ 339 (320-370), ♂ 302 (280-340). Height : ♀ 277 (250-300), ♂ 247 (225-280).

Integument. Brown to black, most body cuticle foveate-reticulate and covered with minute tubercles. Thin inconspicuous cerotegument covers body.

Prodorsum (Figs. 13, 15, 16). Prodorsal length : ♀ 199 (160-210), ♂ 201 (185-225). Fovea weakly developed or absent on interlamellar protuberances and lamellae, lamellar surfaces with transverse ridges. Dorsosejugal depression shallow, widest in middle, bottom with fovea. Lateral protuberances in interlamellar region weakly developed. Rostral, lamellar and interlamellar setae setiform, arched mediad; *ro* glabrous, 25-40 long, overlapping medially; *le* barbed, 25-40 long, two to three times thickness of *ro* in dorsal view, inserted on lateral margin of lamella near tip; *in* glabrous, 58-100 long, attenuate, grooved dorsally, tips may overlap



FIGS. 13-14 — *Carabodes phylliformis* n. sp., adult, gnathosoma and legs removed.
13. — Dorsal aspect. 14. — Ventral aspect. Scale bar in micrometers.

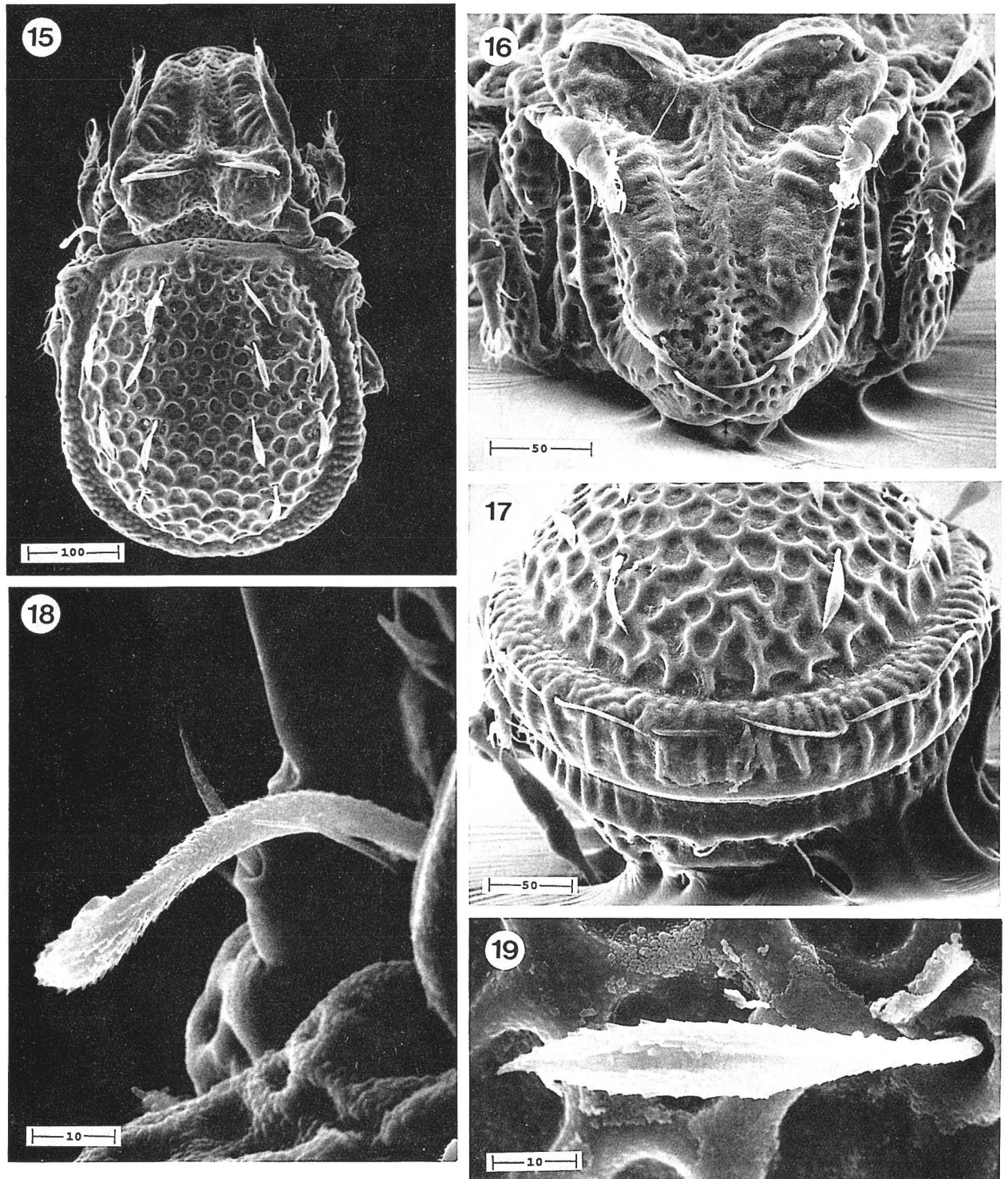
medially, inserted laterally on lamellae near base. Sensilli long, narrowly clavate, minutely barbed along entire length (Fig. 18). Bothridial rim notched.

Notogaster (Figs. 13, 15, 17). Circumgastric depression present, area medial to depression foveate, pit diameter 2-10, shelf lateral to depression tuberculate, vertical surface lateral to shelf with dorsoventrally directed ridges. Notogastral setae dimorphic; central setae phylliform, barbed, grooved dorsally (Fig. 19), lm L/W 7.5-14.5, $lm/lm-lp$ L/D 0.61-0.84; posteromarginal setae p_{1-3} and h_3 setiform, attenuate, strongly arched mediad

and appressed to body surface, p_1/p_1-p_1 L/D 0.39-0.79. Seta c_2 inserted anterior to lm forming two medial rows of four (c_2-h_1) and two lateral rows of two setae (la and h_2).

Gnathosoma. Palp setal formula 0-2-1-3-9 (+1 solenidion). Mentum foveate.

Ventral surface (Fig. 14). Fovea on epimera similar in size to those on prodorsum, fovea on ventral plate similar in size to those on central notogastral region, genital and anal plates with sparse, small fovea. Medial depressions present between epimera I-III. Epimeral formula 3-1-3-3, setae $1b$, $4a$, $4b$ and $4c$ 9-15 long, approximately



FIGS. 15-19 — *Carabodes phylliformis* n. sp., adult.
15. — Dorsal aspect. 16. — Prodorsum, anterior view. 17. — Notogaster, posterior view. 18. — Sensillus. 19. — Seta *lm*. Scale bars in micrometers.

twice length of remaining epimeral setae. Anogenital region formula 4-2-2-3; genital setae long, setiform, g_1 minutely barbed, g_2 longest, approximately 0.36-0.65 length of genital plate, g_2 and g_3 directed laterad, g_4 directed anterolaterad; aggenital setae setiform, directed mediad; anal setae short, spiniform; adanal setae setiform, arched mediad, ad_1 and ad_2 thicker than ad_3 , ad_3 inserted lateral to and two or more times its length from anterolateral angle of anal plate. Lyrifissure iad medial between ad_3 and edge of anal plate.

Lateral surface. Small tubercles on surface above acetabula II-IV and below bothridial and notogastral margins, fovea on most other surfaces.

Legs. Fovea on all or part of abaxial surfaces of femora I and II and trochanters and femora III and IV. Ventrodistal spurs present on femora III and IV. Setation of legs I-IV (solenidia in parentheses), trochanters 1-1-2-1, femora 4-4-3-2, genua 3(1)-3(1)-1(1)-2, tibiae 4(2)-3(1)-2(1)-2(1), tarsi 15(2)-15(2)-15-12. Distal tarsal setae (p) (except tarsus I), (a), (it) and (tc) end in "shepherd's crook." Setae (u) of tarsus I long, tarsi II-IV short, scale-like.

Immatures. Unknown.

MATERIAL EXAMINED.

Holotype. Adult ♀, U.S.A. : North Carolina : Macon Co., 16.5 km SW Franklin, Rock Gap, Nantahala National Forest, 16/20.VIII.1990, S. O'KEEFE, sifted hardwood leaf litter, moss by logs (RMR90-46); 600 long, 360 wide, 280 high. *Paratypes.* 2943 adults, same data as holotype.

Carabodes phylliformis has been found along the Appalachian Mountains from central Pennsylvania to central Georgia and Mississippi (Fig. 20). The state and county records for the 1006 additional adult specimens examined are : U.S.A. : Pennsylvania (Huntington Co.), Virginia (Smyth Co.), West Virginia (Morgan and Pocohantas Cos.), Kentucky (Whitney Co.), Tennessee (Great Smoky Mountains National Park), North Carolina (Burke, Caldwell, Clay, Graham, Macon, Swain and Yancey Cos.), South Carolina (Oconee Co.), Georgia (Habersham, Putnam and Rabun Cos.), and Mississippi (Noxubee and Tishomingo Cos.).

This species has been collected from hardwood

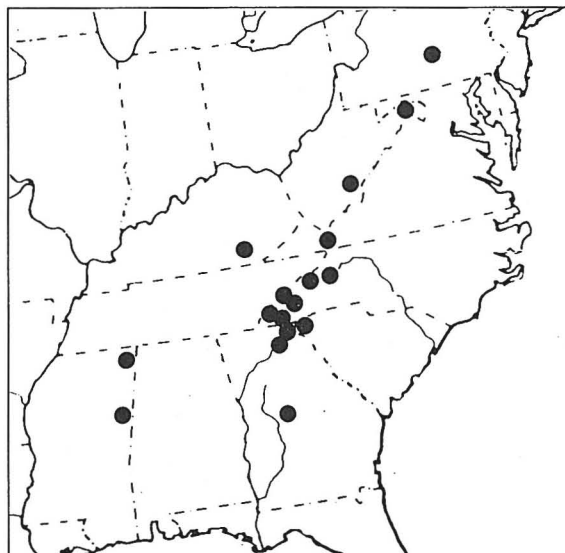


FIG. 20 — Collection locations of *Carabodes phylliformis* n. sp.

and coniferous leaf litters, rotten wood, and moss, with the highest numbers found in hardwood leaf litter.

This species is named for the phylliform central notogastral setae.

REMARKS

This is the only known species of *Carabodes* from North America with phylliform central notogastral setae. It is most similar to *C. clavatus* in the shape of the interlamellar region and dorsosejugal depression, sensilli, posteromarginal notogastral setae, and body shape, color and size. It differs in the shape of the central notogastral setae (clavate in *C. clavatus*) and the abruptness by which the medial depression of the interlamellar region descends to the dorsosejugal depression (the slope is more gradual in *C. clavatus*). *Carabodes phylliformis* is similar to *C. niger*, *C. gibbiceps*, *C. floridus*, *C. falcatus*, *C. clavatus*, *C. polyporetetes*, *C. erectus*, *C. interruptus* and *C. cherokee* in the shape and arrangement of the genital setae, the form of the *ro*, *le* (except *C. interruptus*) and *in* setae, and by having a well-developed circumgastric depression and two pairs of aggenital setae.

Carabodes nantahalaensis n. sp.

Figs. 21-32

Diagnostic Characters

Body cuticle mostly foveate-reticulate. Dorsosejugal depression deep, uniform width, anterior margin entire. Sensilli short, clavate. Circumgastric depression present. All notogastral setae bacilliform, minutely barbed, grooved dorsally, *lm* L/W 11.7-21.0, *lm/lm-lp* L/D 0.57-0.82, *c*₂ inserted anterior to *lm*, *p*₁/*p*₁-*p*₁ L/D 0.39-0.63. Two pairs of aggenital setae. Setae (*u*) of all tarsi short, scale-like.

ADULT

Measurements. Total length : ♀ 462 (385-500), ♂ 429 (400-460). Width : ♀ 272 (225-300), ♂ 244 (220-265). Height : ♀ 240 (200-260), ♂ 211 (180-230).

Integument. Brown to black, body surfaces mostly foveate-reticulate and covered with minute tubercles. Thin inconspicuous cerotegument covers body.

Prodorsum (Figs. 21, 23, 24, 28). Prodorsal length : ♀ 159 (145-175), ♂ 153 (140-170). Surface foveate-reticulate, fovea oftentimes irregularly coalesced, lamellae granulate with transverse ridges. Dorsosejugal depression deep, of nearly uniform width, anterior margin entire and weakly arched anteriorly, bottom foveate. Rostral, lamellar and interlamellar setae setiform, arched mediad; *ro* glabrous, 20-28 long; *le* barbed, 18-28 long, 2-3 times thickness of *ro* in dorsal view, inserted on lateral margin of lamellae near tip; *in* minutely barbed, attenuate, grooved dorsally (Fig. 25), 48-65 long, inserted laterally on lamellae near base. Sensilli short, narrowly clavate, minutely barbed, directed posterodorsad (Fig. 27). Bothridial rim notched.

Notogaster (Figs. 21, 23, 24, 30). Circumgastric depression present, area medial to depression foveate-reticulate, shelf lateral to depression ridged. Notogastral setae bacilliform, minutely barbed, grooved dorsally (Fig. 26), setae *lm* L/W 11.7-21.0,

lm/lm-lp L/D 0.57-0.82, posteromarginal setae shorter and arched mediad, *p*₁/*p*₁-*p*₁ L/D 0.39-0.63. Setae *c*₂ inserted anterior to *lm* forming two medial rows of four (*c*₂-*h*₁) and two lateral rows of two setae (*la* and *h*₂).

Gnathosoma. Palp setal formula 0-2-1-3-9 (+1 solenidion). Mentum foveate.

Ventral surface (Fig. 22, 29, 31). Most surfaces foveate, genital and anal plates with small fovea. Medial depressions between epimera I-II and III-IV. Epimeral formula 3-1-3-3, setae short (7-9), spiniform. Anogenital region formula 4-2-2-3; genital setae setiform, 20-40 long, *g*₁ barbed, directed posteriad, *g*₂ longest, 0.44-0.74 length of genital plate, *g*₂ and *g*₃ directed laterad, *g*₄ directed lateroanteriorly; aggenital setae setiform, directed mediad; anal setae short, spiniform; adanal setae setiform, 12-28 long, arched mediad, *ad*₃ inserted lateral to anterior margin of anal plate and three times its length from anal plate margin. Lyrifissure *iad* between *ad*₃ and margin of anal plate.

Lateral surface. Small tubercles on central body region above acetabula and below bothridial and notogastral margins; fovea on most other surfaces.

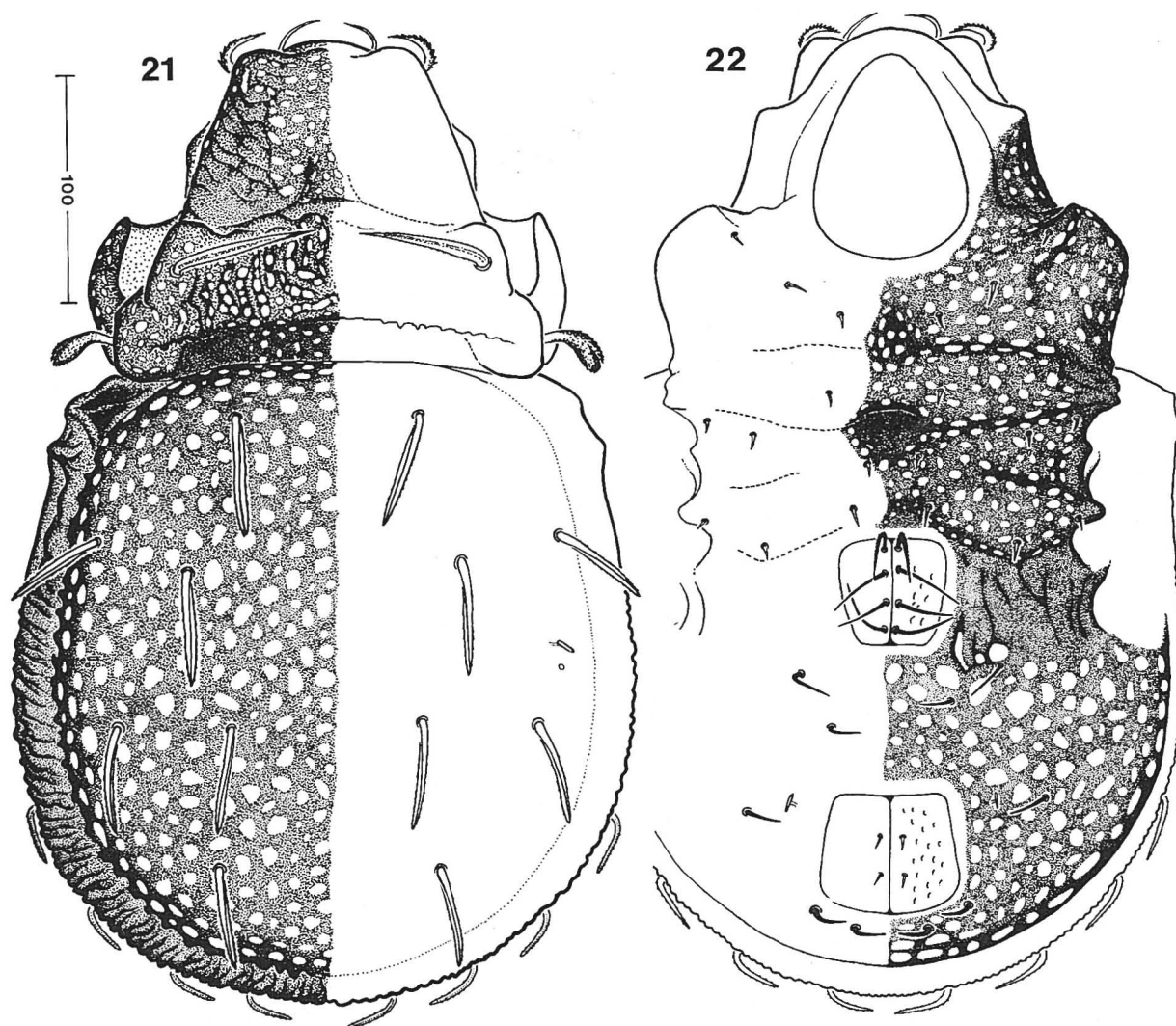
Legs. Part or all of abaxial surfaces of femora I and II and trochanters and femora III and IV foveate. Ventrodistal spur present on femora III and IV. Setation of legs I-IV (solenidia in parentheses), trochanters 1-1-2-1, femora 4-4-3-2, genua 3(1)-3(1)-1(1)-2, tibiae 4(2)-3(1)-2(1)-2(1), tarsi 15(2)-15(2)-15-12. Distal setae (*p*) (except tarsus I), (*a*), (*it*) and (*tc*) end in "shepherd's crook." Setae (*u*) of all tarsi short, scale-like.

Immatures. Unknown.

MATERIAL EXAMINED.

Holotype. Adult ♀, U.S.A. : NORTH CAROLINA : Macon Co., 16.5 km SW Franklin, Rock Gap, Nantahala National Forest, 16/20.VIII.1990, S. O'KEEFE, sifted hardwood leaf litter, moss by logs (RMR90-46); 470 long, 280 wide, 250 high. *Paratypes.* 126 adults, same data as holotype.

This species is found from West Virginia to Georgia (Fig. 32). The state and county records for the 192 additional adult specimens observed are : U.S.A. : West Virginia (Morgan and Pocohantas



FIGS. 21-22 — *Carabodes nantahalaensis* n. sp., adult, gnathosoma and legs removed.
21. — Dorsal aspect. 22. — Ventral aspect. Scale bar in micrometers.

Cos.), Virginia (Grayson, Smyth and Wythe Cos.), Kentucky (Menifee and Bath Cos.), North Carolina (Buncombe, Burke, Caldwell, Graham, Macon, Montgomery, Swain and Yancey Cos., Great Smoky Mountains National Park), and Georgia (Habersham, Putnam and Rabun Cos.).

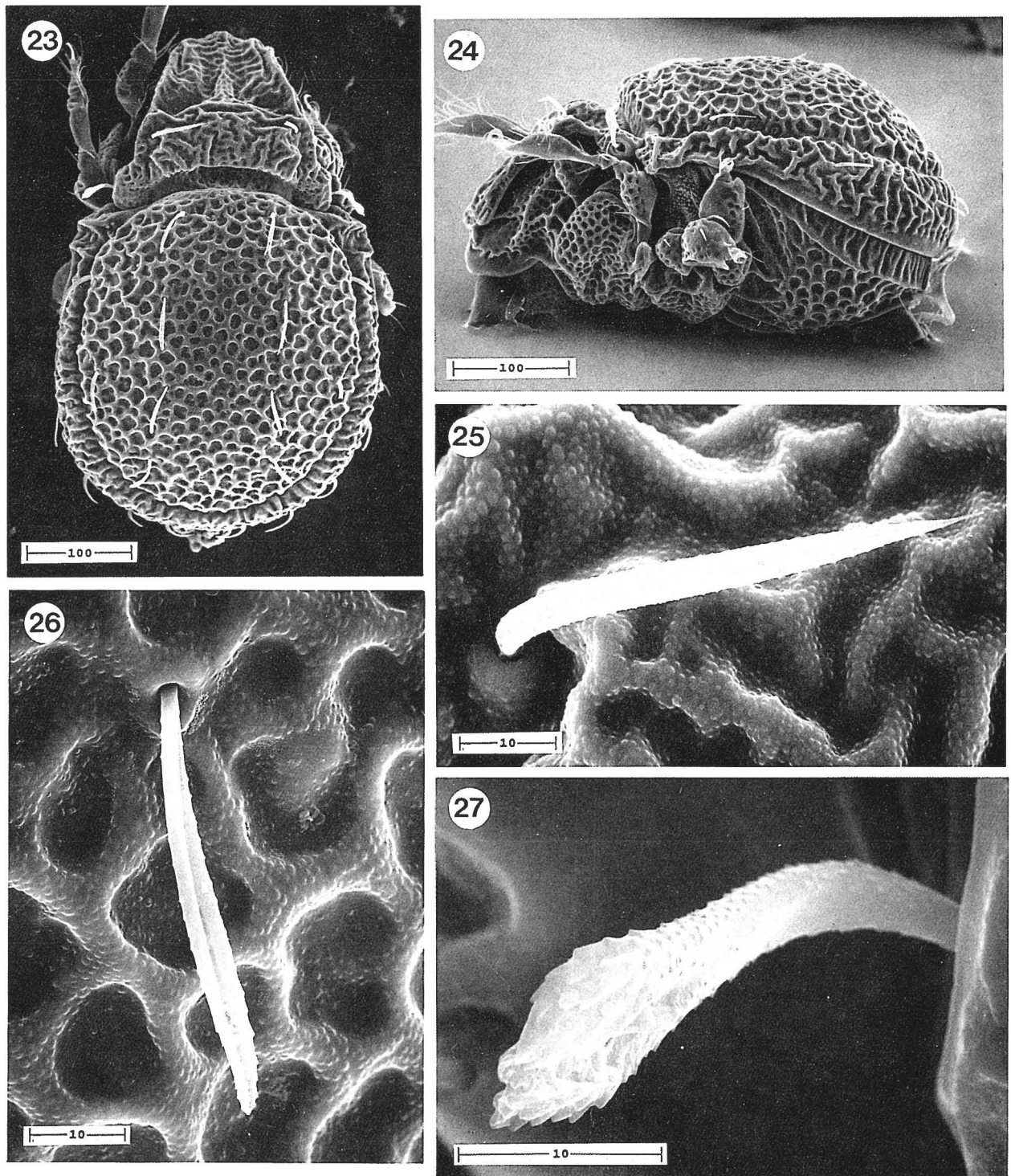
This species has been collected from conifer and hardwood leaf litters, rotten wood, moss, and *Trametes versicolor* (Fr.) Pil. Highest numbers have come from hardwood leaf litter.

This species is named for the Nantahala National

Forest, the type locality for this and the two previously described species.

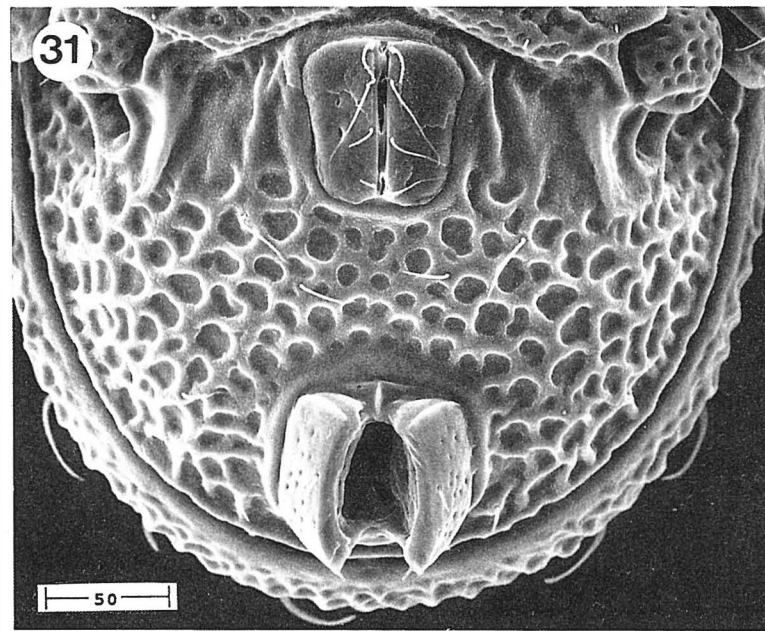
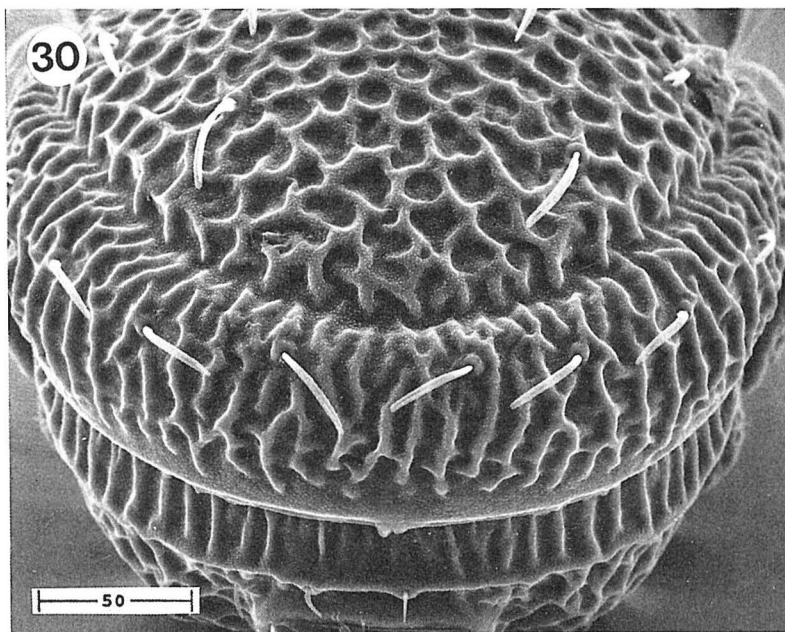
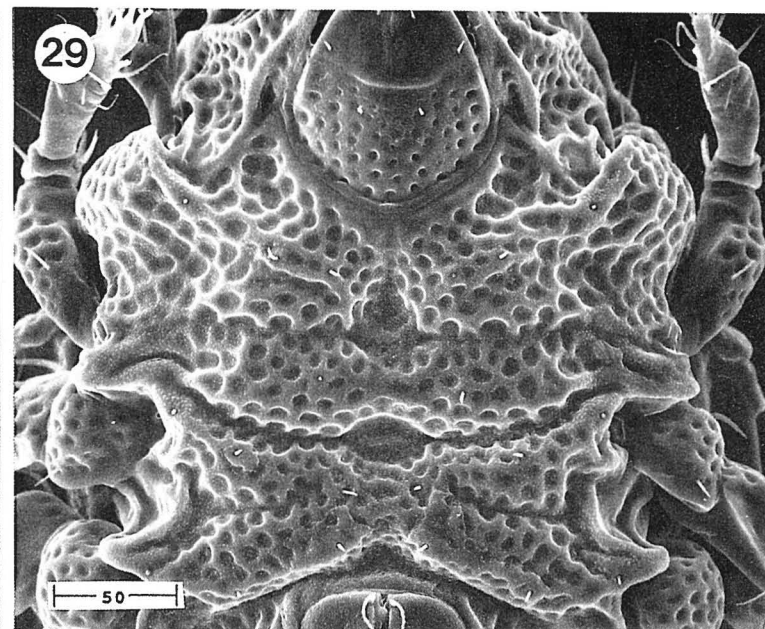
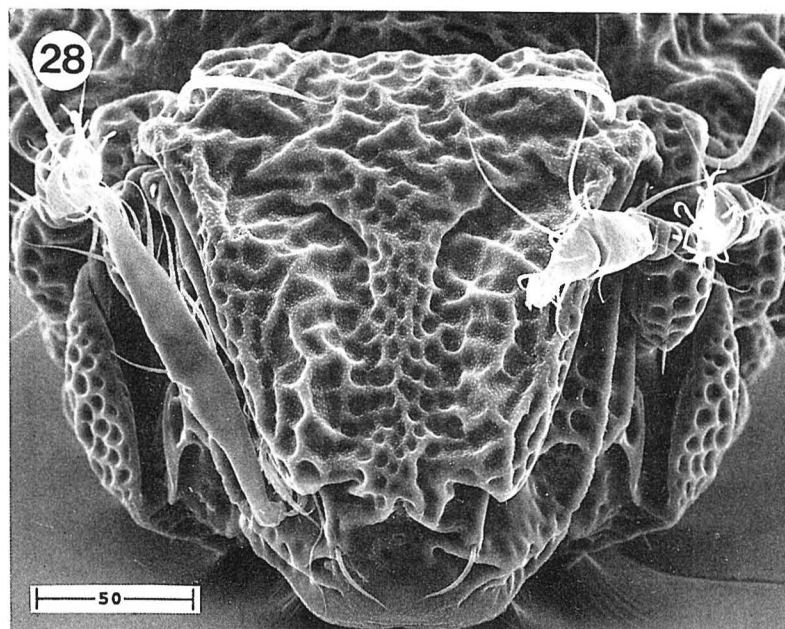
Remarks

This species is most similar to *C. polyporetes* in the size and distribution of fovea, and the shape of the dorsosejugal depression. It differs in that the central notogastral setae are narrower and the posteromarginal setae are thicker and grooved dorsally. This species, like *C. cherokee* and *C.*



FIGS. 23-27 — *Carabodes nantahalaensis* n. sp., adult.

23. — Dorsal aspect. 24. — Lateral aspect. 25. — Interlamellar seta. 26. — Seta *lm*. 27. — Sensillus. Scale bars in micrometers.



FIGS. 28-31 — *Carabodes nantahalaensis* n. sp., adult.

28. — Prodorsum, anterior view. 29. — Epimeral region. 30. — Notogaster, posterior view. 31. — Anogenital region. Scale bars in micrometers.

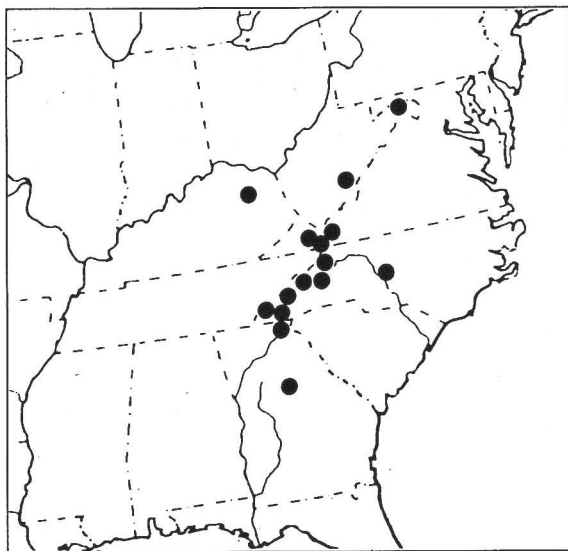


FIG. 32 — Collection locations of *Carabodes nantahalaensis* n. sp.

phylliformis, is similar to *C. niger*, *C. gibbiceps*, *C. floridus*, *C. falcatus*, *C. clavatus*, *C. polyporetes*, *C. erectus* and *C. interruptus* in the shape and arrangement of the genital setae, in the form of the *ro*, *le* (except *C. interruptus*) and *in* setae, and by having a well-developed circumgastric depression and two pairs of aggenital setae.

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ERRATUM

R. M. REEVES, 1993. — New *Carabodes* (Acari : Oribatida Carabodidae) from the southern Appalachian Mountains. *Acarologia*, **34** (4) 363-376. The fig. 12 on page 368, the map was printed upside down.