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REVIEW OF SYMMOCINAE (LEPIDOPTERA: AUTOSTICHIDAE) IN NORTH AMERICA WITH THE DESCRIPTION OF A NEW GENUS AND SPECIES

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Abstract. The three species of Symmocinae (Autostichidae) known to occur in North America are reviewed, and imagos and male and female genitalia are illustrated. A new genus and new species of Symmocinae are described and novel morphological characters are illustrated.

Additional key words: Gelechioidea, morphology, confocal microscopy, spore-like structure

The Symmocinae (Lepidoptera: Autostichidae) includes 170 species of moths in 42 genera, with highest diversity in xeric areas of the Palearctic Region (Gozmány 1957, 1959, 1963, 1964; Hodges 1983). Larvae are known to feed on decaying plant materials (Gozmány 1963; Griffith 1890; Powell 1960). Three species have been reported from North America: *Sceptea aequepulvella* (Chambers) (Figs. 1, 5) *Oegoconia quadripuncta* (Haworth) (Figs. 2, 6), and *Symmoca signatella* Herrich-Schäffer (Figs. 3, 7), with the latter two species introduced from the Palearctic Region (Hodges 1983; Powell 1960). Specimens of an unknown symmocine, initially collected in Mississippi and later from other states, have been identified here as a new species as well as a new genus.

The classification and phylogenetic position of *Symmoca* and related genera have been unstable. In recent years, the Symmocinae has been treated as a family (Gozmány 1963), a subfamily of Blastobasidae (Hodges 1983), and a subfamily of Autostichidae (Hodges 1999; Kaila 2004).

Hodges (1999) defined the Autostichidae by homoplasous characters of an articulated gnathos (Fig. 8) and presence of spiniform setae on abdominal terga (Fig. 12). He further defined the Symmocinae by homoplasous characters of a forewing with CuP absent (Fig. 10A), female with retinaculum composed of a series of anteriorly directed scales between CuA and R (Fig. 16), abdominal terga crossed by bands of slender, spiniform setae, sometimes deciduous, and the gnathos forming a mesial hook (Fig. 8).

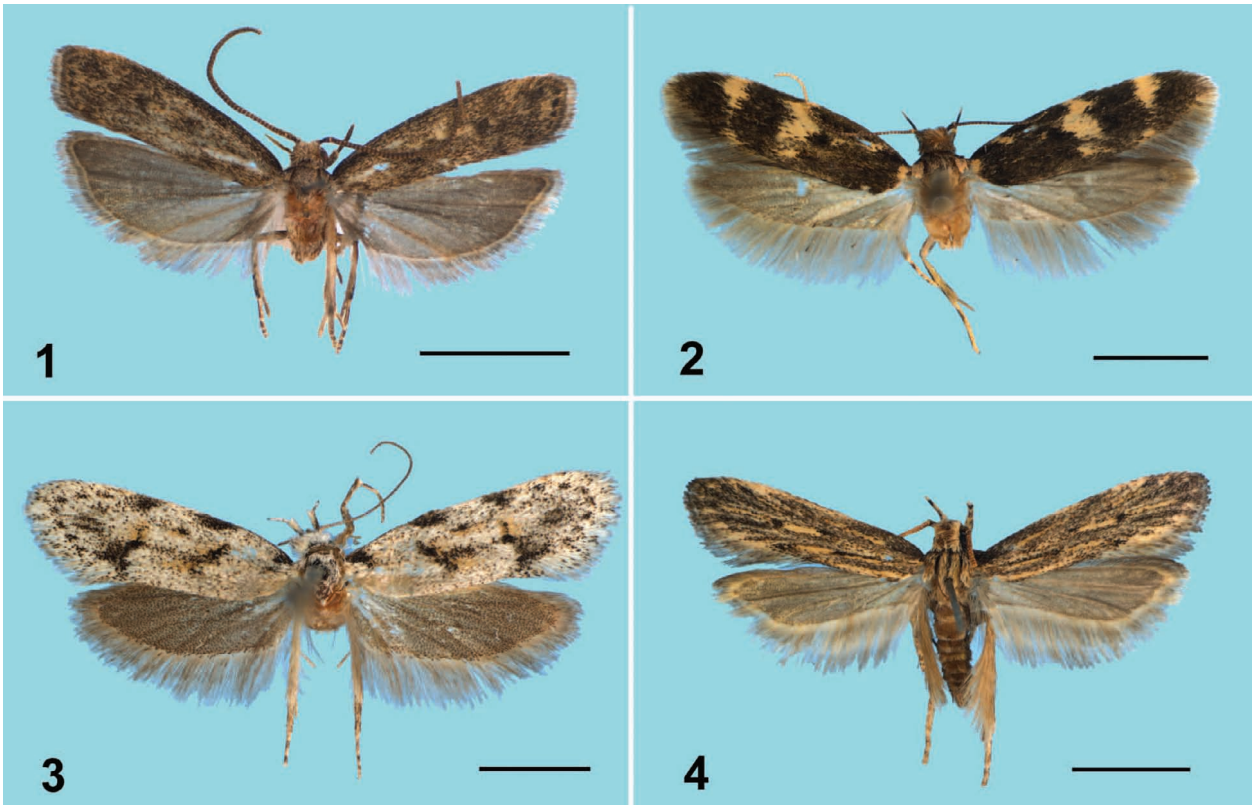
The purpose of this study is to review and illustrate North American species of Symmocinae and describe novel morphological characters of a new genus and species that may be valuable for resolving the phylogenetic relationships of gelechioid taxa in future studies.

METHODS

Published figures of 139 species representing 42 genera, including male genitalia of 38 type species, were examined. Figures of male genitalia are lacking for type species of five genera, including *Tenieta* Gozmány, *Hamartema* Gozmány, *Symmoletria* Gozmány, *Sceptea* Walsingham, and *Gigantoletria* Gozmány, the latter four described to include species represented only by females.

One to two male and female specimens of the following species were borrowed from the National Museum of Natural History (USNM): *Amselina oxybiella* (Millière), *Aprominta designatella* (Herrich-Schäffer), *Nestorellus meyricki* Gerasimov, and the three species in North America, *Sceptea aequepulvella* (Chambers), *Oegoconia quadripuncta* (Haworth), and *Symmoca signatella* Herrich-Schäffer.

Dissection and slide mounting methods for genitalia followed Clarke (1941), except the preparations were stained in eosin and mounted in euparol. Wing



FIGS. 1–4. Adults of Symmocinae in North America. **1**, *Sceptea aequepulvella* (Cham.). **2,** *Oegoconia quadripuncta* (Haw.). **3,** *Symmoca signatella* (H.-S.). **4,** *Spinitibia hodgesi*. Scale bar: 1.0 mm.

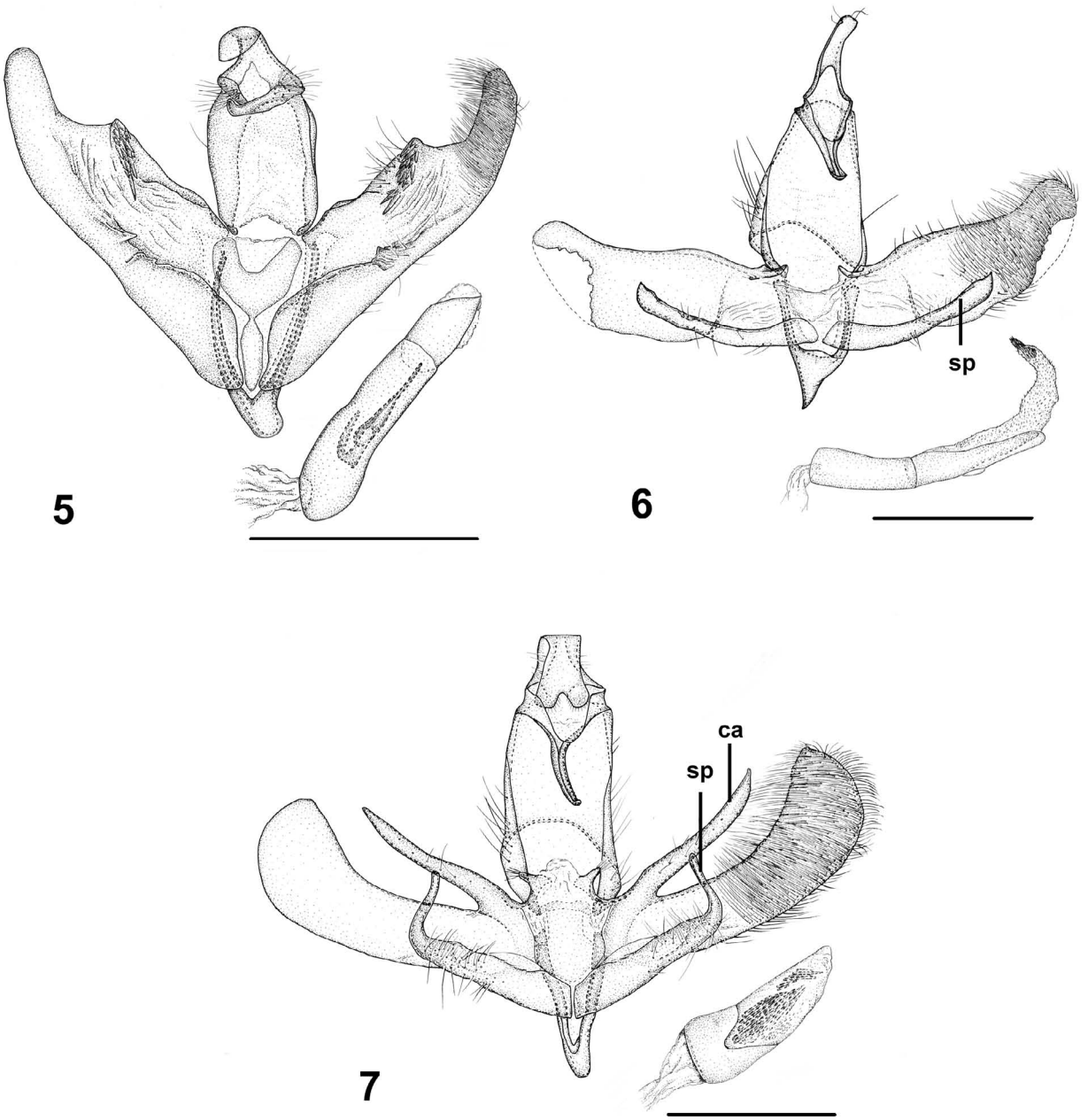
venation slides were made with the same method used for genitalia, except the denuded wing was stained in eosin overnight. A hind leg from each species of the known Symmocinae in North America was cleaned of scales, stained, and slide mounted separately. Whole body mounts of the new species were made following methodology of Lee & Brown (2006), and these were compared with whole body mounts of the following taxa: *Agonopterix thelmae* Clarke, *Antaeotricha humilis* (Zeller), *Antaeotricha leucillana* (Zeller), *Autosticha kyotensis* (Matsumura), *Blastobasis glandulella* (Riley), *Callima argenticinctella* Clemens, *Calosima lepidophaga* (Clarke), *Coleophora cratipennella* Clemens, *Dichomeris ligulella* Hübner, *Durrantia piperatella* (Zeller), *Ethmia longimaculella* (Chambers), *Ethmia trifurcella* (Chambers), *Eupragia hospita* Hodges, *Gelechia albisparsella* (Chambers), *Gerdana caritella* Busck, *Glyphidocera democratica* (Meyrick), *Glyphidocera lactiflosella* (Chambers), *Inga sparsiciliella* Clemens, *Homaledra heptathalma* Busck, *Machimia tentoriferella* Clemens, and *Pseuderotis obiterella* (Busck).

A Leica MZ 125 Stereo-Microscope and Olympus Compound Microscope were used for examining specimens and slide mounts. Images were made with a Leica TCS NT confocal laser scanning microscope, LEO S360 scanning electron microscope, and a Leica stereoscope with Image Pro Plus 5.1 program for autoformatting. For scanning electron microscopy, specimens were air dried and mounted on aluminum stubs with silver paste, coated with gold-palladium, and examined at an accelerating voltage of 5kV. Distributional data are based on publications and on specimens in collections of the Mississippi Entomological Museum (MEM) and USNM.

DNA samples were extracted from two pairs of hindlegs from two pinned specimens of the new species following the protocol for Qiagen's DNeasy Tissue Kit. Five of ten clones could be sequenced and checked in GenBank using the BLAST function to determine the identity of spore-like structures associated with the hindlegs.

Symmocinae

Symmocinae Gozmány, 1957, Annales. Historico-Naturales Musei. Nationalis Hungarici, 8 (n. s.), 326; Bradley *et al*., 1972, A Check List of British Insects; Hodges, 1978, Moths America North of Mexico, 7; Hodges, 1999, Lepidoptera, Moths and Butterflies



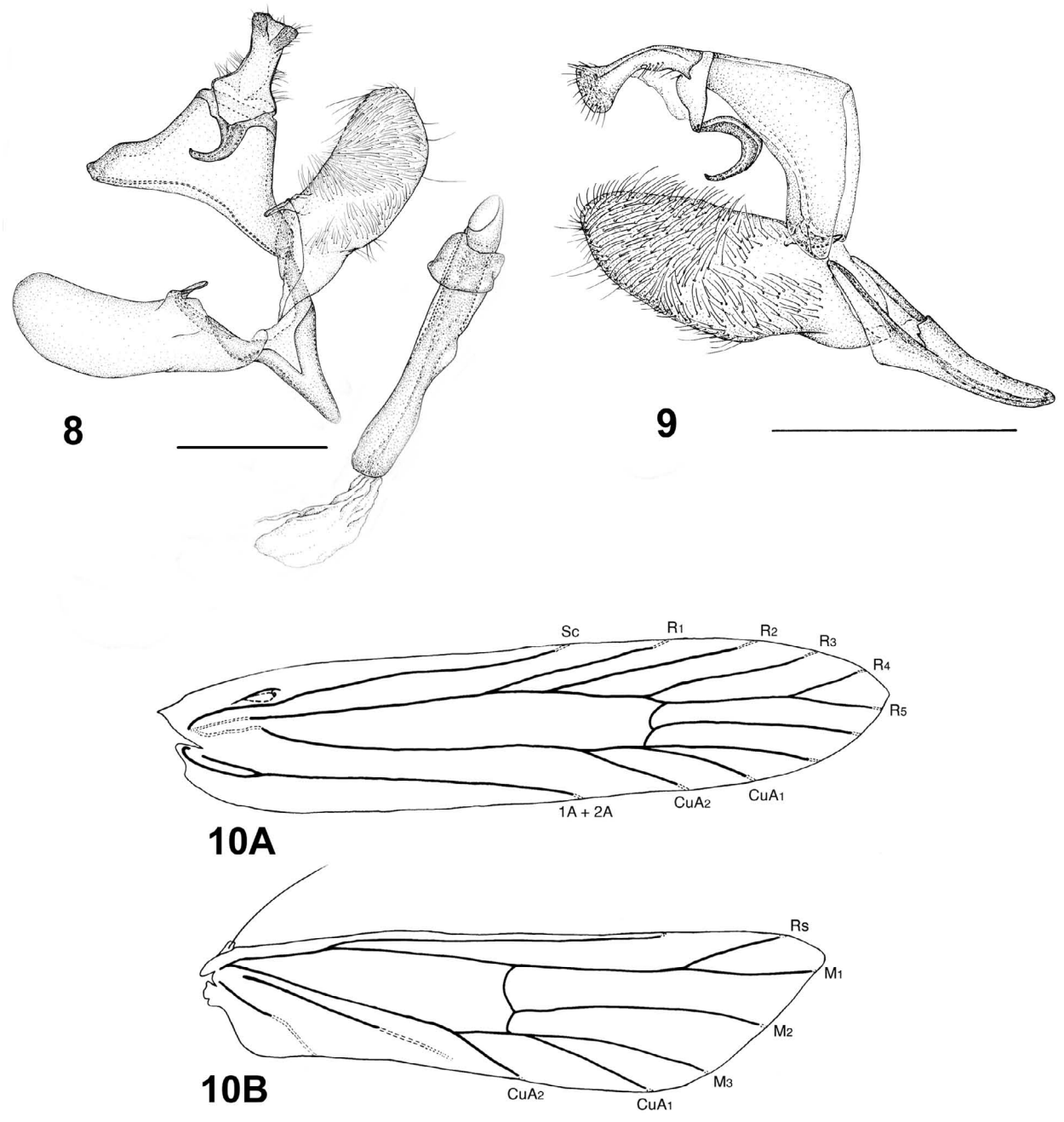
FIGS. 5–7. Male genitalia of Symmocinae in North America. **5,** *Sceptea aequepulvella* (Cham.). **6,** *Oegoconia quadripuncta* (Haw.). **7,** *Symmoca signatella* (H.-S.). Scale bar: 0.5 mm.

Vol. 1: Evolution, Systematics, and Biogeography, 146.

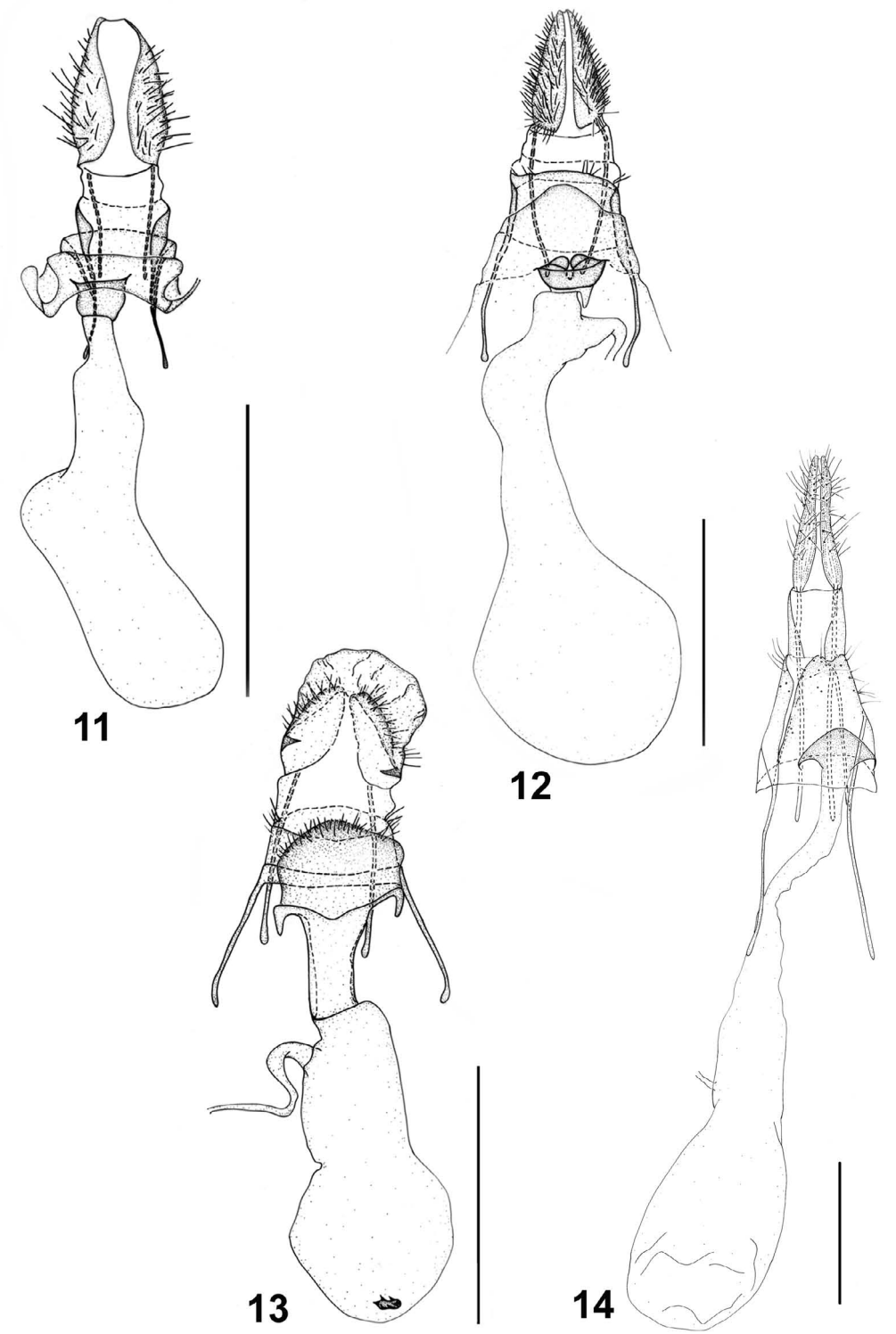
Type-genus: *Symmoca* Hübner, 1825

Symmocidae Gozmány, 1963, Acta Zoologica Academiae Scientiarum Hungaricae, 9: 67.

Diagnosis of subfamily. Defined by forewing with CuP absent (parallelism with other Gelechioidea), female with retinaculum consisting of a series of anteriorly directed scales between CuA and R (parallelism with other Gelechioidea), second abdominal sternum with venula, venula + apodeme, or apodeme (polymorphy), forewing with R_5 terminating on outer margin or on costa (polymorphy). Gnathos a slender band fused to tegumen, forming non-articulated mesial hook, abdominal terga II–VII crossed by bands



FIGS. 8–10. Genitalia and wing venation of *Spinitibia hodgesi*. **8-9,** Male. Scale bar: 0.5mm. **10.** A, forewing. B, hindwing. Scale bar: 1.0 mm.



FIGS. 11–14. Female genitalia. **11,** *Sceptea aequepulvella* (Cham.). **12,** *Oegoconia quadripuncta* (Haw.). **13,** *Symmoca signatella* (H.-S.). **14.** *Spinitibia hodgesi*. Scale bar: 1.0 mm.

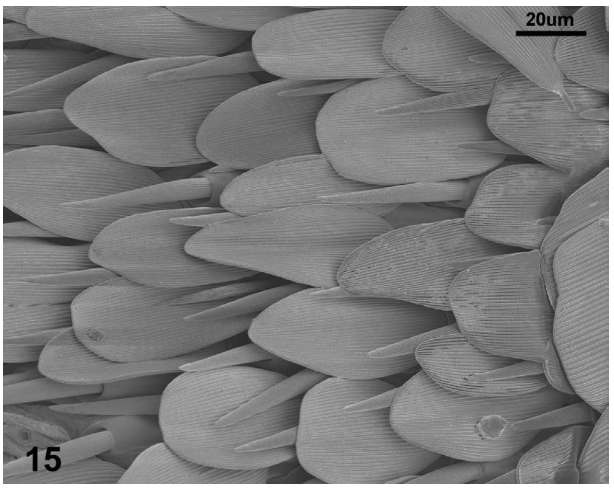


FIG. 15. *Spinitibia hodgesi*, abdominal spiniform setae.

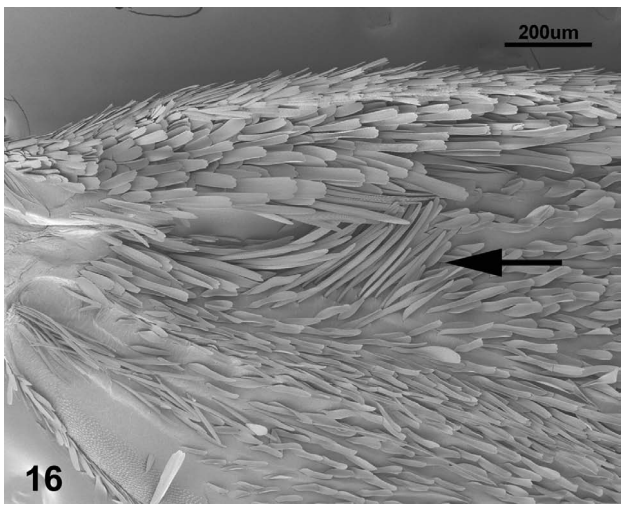


FIG. 16. *Spinitibia hodgesi*, forewing retinaculum (arrow).

or entirely covered by spiniform setae, sometimes deciduous (Hodges 1999).

Sceptea aequepulvella (Chambers) (Figs. 1, 5, 11, 20)

Gelechia aequepulvella Chambers, 1872, The Canadian Entomologist 4: 192.

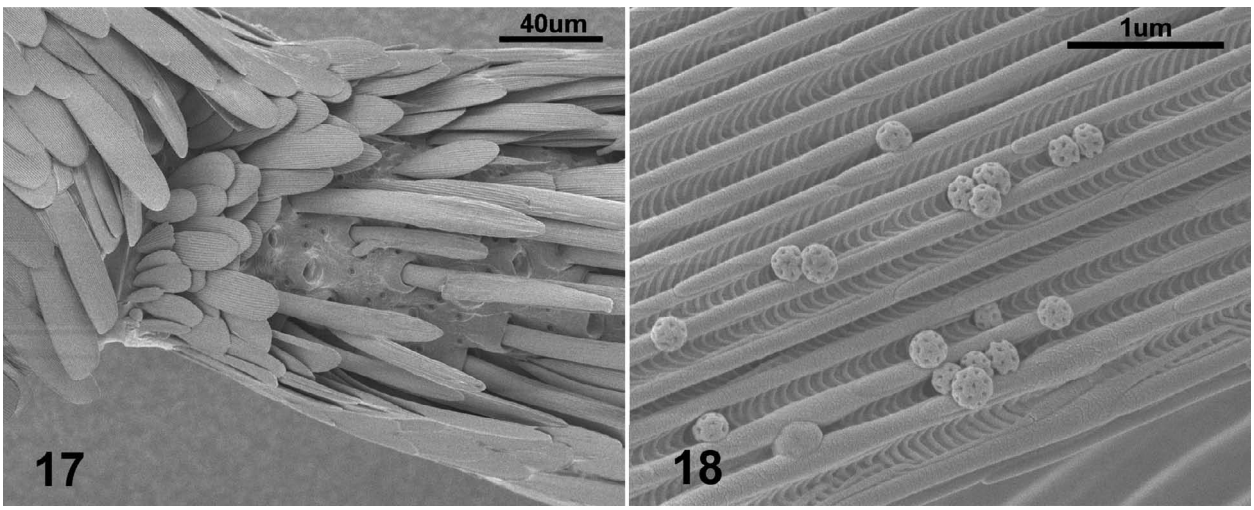
Glyphidocera aberratella Busck, 1907, Journal of the New York Entomological Society 15: 138.

Sceptea aequepulvella: Hodges, 1983, Check List of the Lepidoptera of America North of Mexico, p. 14.

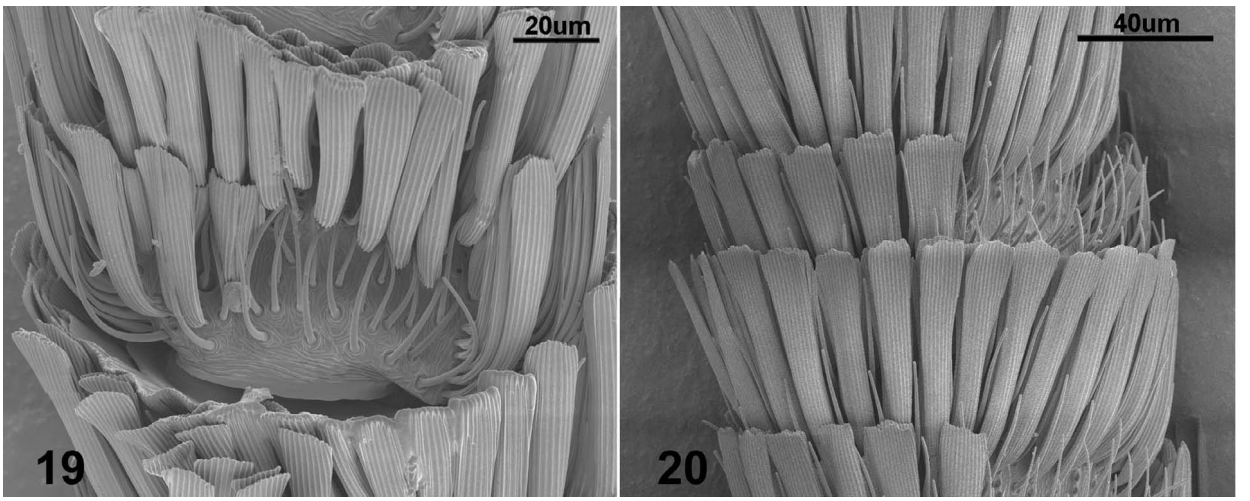
The description of this species was based on an unknown number of specimens collected from Kentucky. Catalogs of type specimens in the Museum of Comparative Zoology (Miller & Hodges 1990) and the National Museum of Natural History, Smithsonian Institution (Brown *et al*. 2004) do not mention this species, and the location of the type specimen is unknown. The following description is based on specimens that were identified by early workers in the USNM and more recently collected specimens that were compared to older material.

Description. *Imago.* Head and thorax dark gray scaled; labial palpus ascendant, reaching top of head. Forewing length 5.0–6.0 mm, brown intermixed with almost equal numbers of yellowish scales throughout wing, but with variable concentrations of brown scales in some specimens with brown concentrated on basal half of costa, as one or two spots in discal cell, as spot between R_4 and R_5 near apex, as spot near tornus, and as spots between veins at termen. Hindwing pale grayish brown. Second abdominal sternum with venula + apodeme.

Male genitalia (Fig. 5). Uncus with rounded apex; gnathos with apex weakly curved dorsally; juxta forming a wide U-shaped plate dorsally; tegumen below juxta forming sclerotized lateral arms, weakly sclerotized medially; valva with short, costal projection at 2/3 length, with a series of spiniform setae extending ventromedially from costal projection, valva narrowing from costal projection to a rounded apex; sacculus without projection, with medial fold terminating at 1/2 length



FIGS. 17–18. *Spinitibia hodgesi*, metatibial spiniform setae. **17,** enlarged sockets (arrow) in cluster of spiniform setae. **18,** spiniform seta with spore-like structure.



FIGS. 19–20. Scales and setae on ventral surface of antenna. **19,** *Spinitibia hodgesi*. **20,** *Sceptea aequepulvella*.

of valva; phallus tubular, cornutus spiniform, basally hook shaped.

Female genitalia (Fig. 11). Papillae anales sparsely setose. Posterior apophyses slightly shorter than papillae anales. Anterior apophyses slightly shorter than posterior apophyses, divided near middle to form dorsal branch extending to eighth tergum and ventral branch extending to eighth sternum. Ostium bursae encircled by sclerotized ring of ductus bursae, ductus bursae with membranous portion subequal in length with papillae anales, gradually widening anteriorly to an elongate, elliptical corpus bursae. Signum absent.

Distribution. USA (District of Columbia, Illinois, Kentucky, Mississippi, New Jersey, Ohio, Pennsylvania).

Oegoconia quadripuncta (Haworth) (Figs. 2, 6, 12)

Recurvaria quadripuncta Haworth, 1828, Lepidoptera Britannica Part IV, p. 557.

Oegoconia quadripuncta: Stainton, 1854, Insecta Britannica. Lepidoptera: Tineina 3, p. 162.

Symmoca novimundi Busck, 1915, Proceedings of the Entomological Society of Washington 17: 84.

This Palearctic species occurs throughout Europe (Gozmány & Riedl 1996) and was introduced into the northeastern United States sometime before 1915 with subsequent dispersal to other states including California (Powell 1992).

Description. *Imago.* Head brown; labial palpus ascendant, reaching top of head; thorax dark gray with tegulae brown basally, pale yellow apically. Forewing length 5.5–7.0 mm, dark brown with pale yellow spots at base and below costa at 1/4 length, and transverse bands extending from costa to dorsum beyond 1/2 length and at 3/4 length, the latter broken near CuA_1. Hindwing pale grayish brown. Second abdominal sternum with venula + apodeme.

Male genitalia (Fig. 6). Uncus with rounded apex; gnathos longer and more strongly curved apically than in *S. aequepulvella*; tegumen hood-like, evenly sclerotized; valva tapered to rounded apex, costa without projection; sacculus with apical half forming a free projection, projection slightly curved dorsomedially, apex pointed; phallus slender, tubular, everted vesica with microtrichia, apex of vesica with dense group of cornuti composed of unsocketed microspines.

Female genitalia (Fig. 12). Papillae anales densely setose. Posterior apophyses slightly longer than papillae anales. Anterior apophyses slightly longer than posterior apophyses. Ostium bursae with cup-shaped antrum, posterior margin divided medially and forming two invaginated pockets laterally. Ductus bursae membranous, more than 2× length of papillae anales, gradually widening anteriorly to spherical corpus bursae. Signum absent.

Distribution. USA (California, District of Columbia, Illinois, Indiana, Maine, Massachusetts, Maryland, New Jersey, New York, Pennsylvania, Vermont, Virginia), Europe.

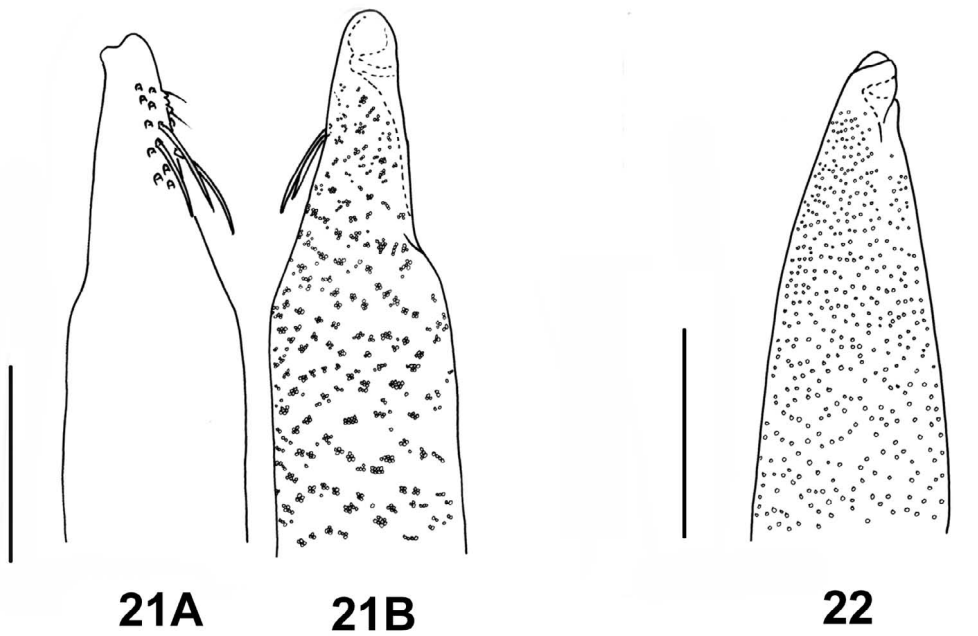
Symmoca signatella Herrich-Schäffer (Figs. 3, 7, 13, 22)

Symmoca signatella Herrich-Schäffer, [1855,] 1854, Systematische Bearbeitung der Schmetterlinge Europa, 5: 111.

This Palearctic species is widespread in Europe and was first reported from the United States as an introduced species in Los Angeles, Riverside, and Orange Cos., California (Powell 1960).

Description. *Imago.* Head and thorax pale gray; labial palpus ascendant, extending beyond top of head. Forewing length 8.0–9.0 mm; ground color pale gray, apices of many scales brown to dark brown giving a peppered appearance, costa with dark brown spots at base, 1/3 length, and 2/3 length, basal 1/3 of wing with dark brown line angled from discal cell towards tornus, outwardly bordered by 1–2 pale yellow spots, a dark brown longitudinal streak on Rs near 1/2 wing length, bordered by pale yellow spot in discal cell, apical 2/3 of wing with triangular dark brown spot extending from apex of discal cell to tornus, bordered by pale yellow spot in discal cell, two dark brown, longitudinal streaks on M_1 and M_2 apical to discal cell, outer margin with dark brown spots between veins. Hindwing grayish brown. Second abdominal sternum with venula + apodeme.

Male genitalia (Fig. 7). Uncus with notched apex; gnathos large, strongly hook shaped; valva gradually widening apically, costal and apical margins forming right angle at apex, costal appendage long, extending from base of valva to near apex; saccular projection narrowed at 1/4 length and sharply curving dorsally over valva and



FIGS. 21–22. Metatibial base. **21,** *Spinitibia hodgesi*, lateral (A) and medial (B). **22,** *Symmoca signatella*. Scale bars: 0.25 mm.

extending beyond the costa; phallus short, stout, tubular, with numerous spiniform cornuti.

Female genitalia (Fig. 13). Papillae anales short, moderately setose. Posterior apophyses almost 2× length of papillae anales. Anterior apophyses slightly shorter than posterior apophyses. Ductus bursae short, sclerotized from ostium bursae to near ductus seminalis, widened and membranous from ductus seminalis to corpus bursae. Signum present on anterior end of corpus bursae, bidentate.

Distribution. USA (California, Illinois, Maryland, Massachusetts, New Jersey, New York, Oregon), Europe.

Spinitibia gen. nov.

Description. Head loosely scaled; labial palpus scaled, ascendant, reaching top of head, second and third segments subequal in length, third segment with acute apex, scales appressed, organ of vom Rath absent; antennae simple, apices of scales truncated; ocellus absent; posterior area of sitophore with four campaniform sensilla on posterior area in trapezoid pattern. Thorax with metascutellum wider than long, anterior margin rounded; dorsomedial margins of the epinotum separated. Metathoracic tibia with group of spiniform setae on dorsobasal surface, with much larger sockets than adjacent scales, scale sockets clustered into groups on medial surface and weakly defined rows on lateral surface. Forewing with apex angled between R_4 and R_5; eleven veins present; Sc–R_4 to costa; R_5–CuA_2 to termen; R_4 and R_5 stalked, $M_2$and M_3 fused, CuA_1 and CuA_2 present, CuP absent, 1A and 2A with distinct basal fork. Hindwing subquadrate, apex slightly pointed between Rs and M_1; all veins present; Rs and M_1 stalked; M_2 closer to M_3 than to M_1; M3(should be subscript) shortly stalked with CuA_1; CuA_2 and CuP present. Abdomen with second sternum having apodeme + venula; terga II–VII with bands of spiniform setae interspersed with scales.

Male genitalia. Uncus slender basally, widened and finely setose apically. Tegumen subtriangular, with widened ventral base. Gnathos large, heavily sclerotized, hooklike, non-articulated. Valva elongate, apex rounded, without costal and saccular process, with well-developed basocostal projection. Vinculum forming narrow, triangular band. Saccus not developed. Phallus tubular, cornuti absent.

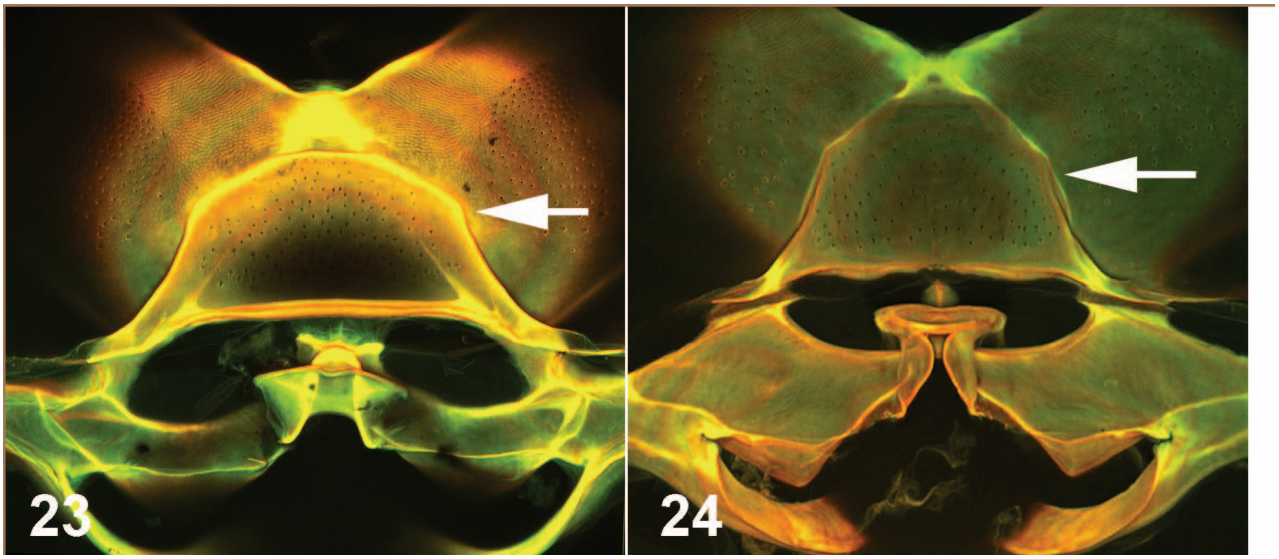
Female genitalia. Papillae anales sparsely setose. Posterior apophyses longer than length of papillae anales. Anterior apophyses slightly shorter than length of posterior apophyses. Ostium bursae covered by subtriangular lamella antevaginalis. Ductus bursae long, membranous, gradually widening to spherical corpus bursae. Signum absent.

Diagnosis. *Spinitibia* is defined by the following apomorphies: 1) dorsobasal surface of metatibia with a group of enlarged spiniform setae having much larger sockets than adjacent scales (Figs. 17, 21); 2) antennal scales truncated (Fig. 19), instead of dentate (Fig. 20); 3) ocellus absent (shared with *Symmoca*, *Sceptea*, and *Oegoconia*); 4) organ of vom Rath absent (shared with *Sceptea*, and *Oegoconia*); 5) valva lacking saccular or costal projections (shared with *Sceptea* and *Exorgana*); 6) the clustering of scale sockets on the metatibia (Fig. 21B), in contrast to scattered (Fig. 22) or in rows, shared with Blastobasinae; 7) the metascutum with the anterior width greater than the length at middle and the anterior margin being rounded (Fig. 23), rather than the anterior margin being angled and longer at the middle (Fig. 24), an apomorphy shared with Autostichinae, and the terminal taxa of Peleopodidae, Amphisbatidae, and Gelechiidae in the phylogeny of Hodges (1999).

Etymology. The generic name, *Spinitibia*, refers the spiniform setae that are present on the hind tibia.

Spinitibia hodgesi sp. nov. (Figs. 4, 8–10, 14–19, 21, 23)

Description. *Imago.* Head and thorax yellowish white mixed with yellowish brown; prothorax with longitudinal median dark brown band and two lateral bands. Antennae yellowish white, 2/3 to 3/4 length of forewing, length of middle flagellomeres 2× width. Labial palpus with



FIGS. 23–24. Confocal images of metascutellum (white arrow) and epinotum (blue arrow). **23,** *Spinitibia hodgesi*. **24,** *Glyphidocera juniperella* (Glyphidoceridae).

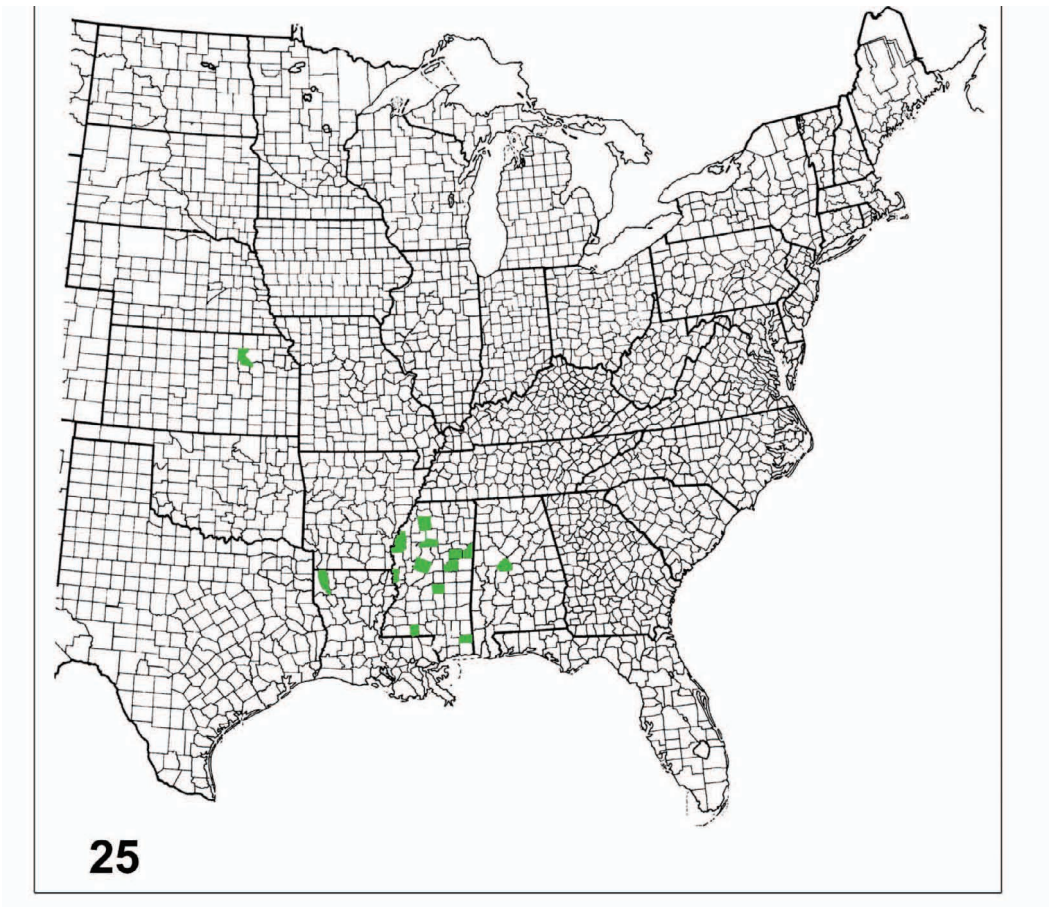


FIG. 25. Distribution of *Spinitibia hodgesi*.

second segment dark brown mixed with variable amount of yellowish white laterally, yellowish white with scattered dark brown scales ventrally and medially, apical segment with dark brown spots or bands basally and preapically. Forewing length 5.0–8.0 mm, ground color yellowish white, with scattered dark brown scales except for longitudinal streaks of yellowish-white between Sc and R and on dorsum near base, in discal cell and between Cu and 1A+2A at midlength, and between R_5 and M_1, apical half of costa and areas between veins at outer margin with variable amounts of yellowish white, basal 1/4 of wing along Cu with dark brown streak, apical 1/3 of wing with variable dark brown streaks along some R and M veins, pale area in discal cell bordered basally and apically by dark brown spots. Hindwing pale brownish gray. Forelegs dark brown except tarsi pale brown banded with yellowish-white, midlegs with dark brown femur, tibia and tarsi yellowish-white mixed with grayish-brown, hindlegs yellowish white mixed with grayish-brown, tibia with fringe of yellowish-white setiform scales on dorsal surface in both sexes. Abdomen yellowish-gray, except terga posteriorly lined with yellowish-white.

Male genitalia. As in description of genus.

Female genitalia. As in description of genus.

Diagnosis. In addition to characters of the genus, *S. hodgesi* can be distinguished from other species of Symmocinae by the mesonotum having lateral and median longitudinal dark brown bands and the forewing having dark brown and yellow streaks.

Types. *Holotype.* ♂, Miss. Lowndes Co., Plymouth Bluff Center, 33º30'59"N, 88º29'56"W, 18 Jun 2007, R.L. Brown. MEM No. 38622. Deposited in U.S. National Museum of Natural History. The holotype is intact with all appendages present and is not dissected.

Paratypes (n = 56). *Alabama:* Bibb Co., Bibb Co. Glades Preserve 33º03'28"N, 87º02'21"W, 5 Jun 2003, R.L. Brown and S. Lee (1♀). *Kansas*: Riley Co., Konza Prairie R.N.A., 39º05'57"N, 96º35'14"W, 12 Jun 1999, R.L. Brown (2♂), same data except 39º05'11"N, 96º34'29"W, 14 Jun 1999, D.M. Pollock (1♂). *Louisiana*: Bossier Parish, Barksdale A.F.B., 32º29'19"N, 93º35'20"W, 9 May 1996, D.M. Pollock (1♂), same data except 32º31'13"N, 93º35'46"W, 21 May 1996, R.L. Brown and D. Pollock (1♂), same data except 32º29'29"N, 93º35'07"W, 8 Aug 1996 (1♂), 21 May 1996 (1♂, genitalia slide MEM 2187), R.L. Brown and D. Pollock, 24 Aug 1996 (1♂), 13 Sep 1996 (1♂), R.L. Brown. *Mississippi*: Bolivar Co., Mississippi River Levee, 33º36'29"N, 91º07'34"W, 17 Aug 1993, D.M. Pollock (2♂). George Co., 3 mi North of Lucedale, 5–18 Aug 1996 (1♂), 19 Aug–17 Sep 1996 (2♂), 18 Sep–11 Oct 1996 (1♂), R. Kergosien. Grenada Co., T22N R3E, Sec. 31NW, 7–13 Aug 1991 (1♂), 23–29 Oct 1991 (1♂), R.L. Brown, same data except T21N R2E, Sec. 7S, 18N; 28 Aug–3 Sep 1991, R.L. Brown (2♂), same data except T21N R2E, Sec. 12,13N & R3E, Sec 7S, 18N, 21–28 May 1991 (1♂, wholebody slide MEM 2188), 24–30 Jul 1991 (1♂), R.L. Brown. Holmes Co., Holmes Co. St. Pk. 3 Jun 2001, R.L. Brown (2♂). Issaquena Co., 2 mi E of Tallulah [Louisiana], 1–5 May 1996, R. Kergosien (1♂, wing venation slide MEM 2095, genitalia slide MEM 2186). Lowndes Co., Plymouth Bluff Center, 33º30'59"N, 88º29'56"W, 18 Jun 2007, R.L. Brown (3♂), T17N R16E, Sec. 5, 11 May 1991, D.M. Pollock (3♂, genitalia slide MEM 1030), same data except T17N R16E, Sec. 34, 3 Jun 1991 (1♂), 10 Jun 1994 (4♂), D.M. Pollock, 20 May 1992, R.L. Brown (1♂), 16 May 1993, R.L. Brown and D. Pollock (2♂,), 10 Jun 1993, D.M. Pollock (1♂,), 24 Aug 1993, R.L. Brown and D. Pollock (1♂,). Oktibbeha Co., T18N R14E, Sec. 23, 28 May 1989, R.L. Brown and B.B. Brown (1♂, wing venation slide MEM 2096), same data except T19N R15E, Sec. 16, 27 Apr 1991, D.M. Pollock (1♂), same data except 6 mi SW Starkville, 19 Jun 1986, R.L. Brown and B.B. Brown (1♂); Osborn, 33º30'41"N, 88º44'08"W, 13 Jun 1997(1♀), 17 Jul 2002 (1♂, genitalia slide MEM 1305), R.L. Brown. Panola Co., John W. Kyle St. Pk., 34º25'38"N, 89º48'21"W, 1–3 Jun 1997, R.L. Brown (1♂). Pike Co., Percy Quin State Park, 311051N, 903154W, 1–3 Jun 1998, R.L. Brown (1♂). Scott Co., 2 mi E Forest Harrell Hill Prairie, T6N R8E, Sec. 25&26, 8 Sep 1990, D. and M. Hildebrandt (1♂). Smith Co., Bienville Natl. Forest, 32º10'06"N, 89º20'54"W, 30 May 2000, R.L. Brown (1♂, genitalia slide MEM 1221). Winston Co., Noxubee N.W. Refuge, T16N R14E, Sec. 13SE, 14 Jun 1992, T.L. Schiefer (1♂), same data except Tombigbee Nat. Forest, 33º16'05"N, 89º06'01"W, 17 May 1999 (2♂), 10 Aug 1999 (1♀) J.A. MacGown, same data except 33º10'20"N, 89º03'55"W, 25 May 1999, R.L. Brown (1♀, genitalia slide MEM 1031), same data except 33º10'31"N, 89º02'38"W, 3 May 1999, D.M. Pollock (1♀). Paratypes are deposited in the Canadian National Collection (Ottawa), Mississippi Entomological Museum (Mississippi), National Museum of Natural History (Washington D.C.) and The Natural History Museum (London).

Distribution. Fifty-seven specimens (52 males, 5 females) have been collected during April–October in the midsouthern states and Kansas (Fig. 23).

Etymology. The species epithet is a patronym for Ronald W. Hodges, who first recognized this species as being a new genus and new species.

DISCUSSION

The assignment of *Spinitibia* to Symmocinae is validated by presence of an unarticulated gnathos, abdominal terga with bands of spines, hooked gnathos, unique form of the female retinaculum, and absence of forewing vein CuP. The forms of the uncus and female genitalia (Fig. 10) are similar to those in other genera of Symmocinae.

Spinitibia hodgesi is the second known endemic species of Symmocinae in North America. Most specimens have been collected in a variety of dry forests, but 18 specimens have been collected in prairies, cedar glades, inland dunes, and old fields.

Scanning electron microscopy revealed spore-like structures on the spiniform setae of the hindleg, some of which are imbedded between longitudinal ridges (Fig. 15). DNA sequences from the hindlegs revealed the presence of a basidiomycete mushroom (*Russula* sp.) in one clone, and basidiomycete yeasts (*Cystofilobasidium* sp. and *Asterotremella* sp.) in three clones. However, the spore-like structures are not considered to be of fungal origin, and they are smaller than the smallest yeast cells (Steven Miller personal communication); thus, their identity remains unknown. Similar spore-like structures were detected on the antenna of a specimen of *Sceptea aequepulvella* borrowed from the U.S. National Museum. Such spore-like structures have not been seen on bodies of a large number of species of Tortricidae and Gelechiidae in the MEM that have been examined previously with scanning electron microscopy.

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