

The Genus *Lissonota* (Hymenoptera: Ichneumonidae) from North China

by Mao-Ling SHENG

Abstract

Sixteen species of the genus *Lissonota* GRAVENHORST, 1829, collected in the Palaearctic part of North China are reported. Nine species are new for science: *L. terebrans*, *L. striata*, *L. neixiangica*, *L. clypeator similis*, *L. petiolata*, *L. carinulata*, *L. serrulota*, *L. filiformis*, *L. sheni*; Seven species are new for China: *L. carbonaria*, *L. catenator*, *L. clypeator clypeator*, *L. frontalis*, *L. histrio*, *L. obsoleta* *L. setosa*; and some with new host records,

Key words: Hymenoptera, Ichneumonidae, *Lissonota*, new species, host record, China.

Introduction

The genus *Lissonota* GRAVENHORST, 1829, a large genus belonging to subfamily Banchinae, family Ichneumonidae, has an almost worldwide distribution. 360 species are known in the world (YU, 1997). The genus has been little studied in China, and although the country is very large with Oriental and Palaearctic regions, only 8 species are known: *L. chinensis* (CUSHMAN, 1922); *L. conflagrata* GRAVENHORST, 1829; *L. hamus* (UCHIDA, 1940); *L. kaiyuanensis* UCHIDA, 1942; *L. longispiracularis* (UCHIDA, 1940); *L. mandschurica* (UCHIDA), 1942; *L. oblongata* CHANDRA et GUPTA; *L. pleuralis* BRISCKE, 1880. In a recent study 8 new species, 1 new subspecies, 7 new records for China, some with new host records, have been collected in the Palaearctic part of North China, (3 from south margin of Palaearctic part, Henan Province), have been found. Specimens are deposited in the collections of the General Station of Forest Pest Management, The State Forestry Administration, P. R. China.

1. *Lissonota terebrans* SHENG, sp. nov. (Figs. 1, 11)

Female: Body 8-9 mm long. Fore wing 6.5-7 mm long.

Colouration: Black. Inner orbits, middle parts of mandibles and front lateral flecks of mesoscutum yellow. Apical half of clypeus, Subapex of mandible, front sides of front and middle femora, front and middle tibiae and

tarsi, all spurs brown. Palpi, hind sides of front and middle femora dark brown. Tegulae, stigmata and veins brownish black. Hind margin of second abdominal tergite, sometimes third tergite, narrowly red; hind margins of tergites (4)5-7 sometimes white very narrowly.

Face 0.59-0.63 time as long as wide, convex centrally, with dense punctures. Clypeal suture distinct. Clypeus evenly convex, with dense punctures along clypeal suture and very sparse and shallow punctures on the rest part. Basal section of mandible wide, upper margin in parallel with lower margin at its apical half; upper tooth a little longer than lower tooth. Malar space 0.6-0.7 time as long as basal width of mandible. Temple with fine and shallow punctures, evenly convergent backward. Vertex and stemmaticum with punctures like as face. Postocellar line about 1.4 times as long as ocular-ocellar line. Frons flat with rough granular surface and dense punctures. Antenna filiform with 31-33 flagellar segments; first flagellum 1.23-1.38 times as long as second flagellum, the latter 1.03-1.12 times as long as third flagellum. Occipital carina complete. Front margin of pronotum punctured unclearly, its median part weakly rough, hind part with distinct punctures; without epomia. Mesoscutum evenly convex, without notaulus. Mesoscutum, mesopleurum and metapleurum with punctures that are like as face with. Mesopleural fovea consisting of a transverse shallow groove, its front end hollow; speculum small. Mesosternum with dense fine punctures. Scutellum evenly convex and with punctures like as face with. Propodeum a little rough, weakly convex centrally, with dense punctures; pleural carinae and apical transverse carina complete, the latter weak; spiracle oblique elliptic. Wing brownish hyaline; basal vein bend forward; nervulus distad of basal vein about 0.29-0.35 time as the length of nervulus; areolet quadrilateral, with a short petiolate, receiving second recurrent vein distad of its middle; nervellus vertical, intercepted at its lower 0.25; axillus short, its end reaching or nearly reaching to the hind margin of hind wing. Basal tarsus of hind leg about 0.83-0.84 time as long as the total of the rest tarsi (from the second to the fifth tarsus); claw small, only the base of hind claw distinctly pectinate. Abdominal tergites 1-3 with dense punctures except very narrow hind margins; the rest

tergites punctured unclearly or without puncture; first tergite 1.42-1.60 times as long as its apical width; second as long as or a little shorter than its apical width; third tergite a little transverse; the rest transverse. Subgenital plate big, reaching to tip of abdomen. Ovipositor sheath 8-9 mm long, 2.64 times as long as hind tibia and 1.26 times as long as fore wing. Ovipositor relatively slender.

Material: Holotype female, Baotianman Natural Reserve, 600-700 m, Neixiang County, Henan Province, July 14, 1998. Mao-Ling SHENG. Paratypes: 2 females, Baotianman Natural Reserve, 1300-1500 m, Neixiang County, Henan Province, July 11-12, 1998; 7 females, data as holotype; 1 female, Laojieling Natural Reserve, 1500 m, Xixia county, Henan Province, July 16, 1998, Mao-Ling SHENG and Su-Ping SUN.

This species is similar to *L. coracinata* CHANDRA et GUPTA, 1977, and can be distinguished each other by the following characters. *L. terebrans* SHENG: postocellar line about 1.4 times as long as ocular-ocellar line; ovipositor sheath about as long as body, 1.26 times as long as fore wing, 2.64 times as long as hind tibia; first flagellum 1.23-1.38 times as long as second flagellum; second abdominal tergite about as long as its apical width. *L. coracinata* CHANDRA et GUPTA: postocellar line 1.0-1.3 times as long as ocular-ocellar line; ovipositor sheath longer than body, 1.5 times as long as fore wing, 3.7 times as long as hind tibia; first flagellum 1.5 times as long as second flagellum; second abdominal tergite 1.2-1.4 times as long as its apical width.

2. *Lissonota striata* SHENG, sp. nov. (Figs. 2, 12)

Female: Body 6.5-7.5 mm long. Fore wing 4.6-5 mm long.

Colouration: Black. Clypeus, mandibles (except teeth), palpi, tegulae, front coxae, apical parts of middle coxae, yellow to yellowish brown. Front sides of scape and pedicel unclearly yellowish brown. Legs and hind margins of second to fifth abdominal tergites each reddish brown. Stigmata yellowish brown. Veins brownish black.

Face 0.61-0.69 time as long as wide, with granular surface and unclear punctures. Clypeal suture distinct. Clypeus small, evenly convex, front margin convex forward. Both teeth of mandible sharp, upper tooth longer than lower tooth. Malar space 0.55-0.67 time as long as basal width of mandible. Temple with rough granular surface, strongly convergent backward. Vertex weakly rough. Postocellar line about 1.1-1.2 times as long as ocular-ocellar line. Frons flat. Antenna filiform, basal section a little thinner than apical section, with 29-31 flagellar segments; first flagellum 1.32-1.38 times as long as second flagellum, the latter 1.14-1.19 times as long as third flagellum. Occipital carina complete. Front margin and hind part of pronotum with fine punctures; without

epomia. Mesoscutum with weak and dense punctures, without notaulus. Mesopleurum with punctures (more denser and clearer than mesoscutum with), without speculum; mesopleural fovea consisting of a transverse shallow groove, its front end hollow. Scutellum weakly convex, with dense and fine punctures. Metapleurum with dense and fine punctures. Propodeum evenly convex, rough and weakly punctured; with pleural carinae and apical transverse carina, the latter strong; spiracle small, round. Wing brownish hyaline; basal vein bend forward; nervulus distad of basal vein about 0.56-0.63 time as the length of nervulus; areolet oblique quadrilateral, sessile, receiving second recurrent vein far distad of its middle; nervellus vertical, intercepted at its lower 0.25. Legs normal; basal tarsus of hind leg about 0.94-1.0 time as long as the total of the rest tarsi (from the second to the fifth tarsus); male claws small, pectinate at its base or basal half. First tergite of abdomen 1.43-1.54 times as long as its apical width, median part weakly convex, with distinct longitudinal wrinkles or short wrinkle-like punctures; spiracle round, weakly raised; second and third tergites with distinct punctures, wider than its own length; the rest distinctly transverse. Subgenital plate big, reaching to tip of abdomen. Ovipositor sheath 4.8-5.1 mm long, 2.25-2.45 times as long as hind tibia and about as long as fore wing.

Material: Holotype female, Baotianman Natural Reserve, 1300 m, Neixiang County, Henan Province, July 12, 1998. Mao-Ling SHENG. Paratypes: 7 females, data as holotype; 2 females, 1100 m, July 13, 1998; 1 female, 600-700 m, July 15, 1998, data as holotype; 1 female, Shenyang, May 15, 1990, Mao-Ling SHENG.

Hosts: borers in dead wood of *Quercus* sp.

This species is similar to *L. oblongata* CHANDRA et GUPTA, 1977, and can be distinguished each other by the following characters. This one: postocellar line about 1.1-1.2 times as long as ocular-ocellar line; claws pectinate at its base or basal half; ovipositor sheath about as long as fore wing and 2.25-2.45 times as long as hind tibia; thorax black. *L. oblongata*: postocellar line about 1.5-2.0 times as long as ocular-ocellar line; claws pectinate entirely; ovipositor sheath about 0.8 time as long as fore wing and 2.5-2.8 times as long as hind tibia; mesoscutum and upper part of mesopleurum red.

3. *Lissonota neixiangica* SHENG, sp. nov. (Figs. 3, 10)

Female: Body 6 mm long and relatively slender.

Colouration: Black. Inner orbits, clypeus, mandibles (except black teeth), palpi, front lateral margins and upper hind corner of pronotum, front lateral flecks of mesoscutum, tegulae, subtegular ridges, hind lower corner of mesopleurum, coxae and trochanters of front and middle

legs yellow. Femora and tibiae of front and middle legs yellowish brown to brown, their tarsi dark brown. Hind coxae and trochanters yellow with dark brown flecks; inner sides of hind femora yellowish brown. Outsides of hind femora, hind tibiae and tarsi brownish black. Stigmata brown. Veins brownish black.

Fore wing 5 mm long. Face 0.73 time as long as wide, strongly convex centrally, with very weak and unclear punctures. Clypeal suture distinct. Clypeus convex, 1.9 times as long as wide, front margin convex forward. Mandible relatively small, teeth sharp, upper tooth distinctly longer than lower tooth. Malar space nearly glossy, about as long as basal width of mandible. Temple nearly glossy, with unclear punctures, strongly convergent backward. Stemmaticum weakly convex; postocellar line about 1.27 times as long as ocular-ocellar line. Frons nearly flat, weakly rough. Antenna filiform, about as long as body, with 32 flagellar segments; first flagellum 1.5 times as long as second flagellum, the latter 1.05 times as long as third flagellum. Occipital carina complete and strong. Pronotum glossy, lateral groove with short oblique wrinkles; epomia weak and indistinct. Mesoscutum convex, with dense shallow punctures; notaulus weak (nearly indistinct). Mesopleurum with dense punctures; speculum big; mesopleural fovea consisting of a pit. Scutellum weakly convex and with punctures. Metapleurum obliquely convex, with dense punctures (more dense in center part). Propodeum evenly convex, a little rough, pleural carinae and apical transverse carina complete, with unclear transverse wrinkles before apical transverse carina and longitudinal wrinkles on petiolar area; spiracle small, round. Wing brownish hyaline; basal vein bend forward; nervulus distad of basal vein about 0.53 time as the length of nervulus; without areolet; intercubitus short, about 0.5 time as long as the length between it and second recurrent vein; postnervulus intercepted a little below its center; nervellus inclivous, intercepted about at its lower 0.25. Legs relatively long, basal tarsus of hind leg about 0.73 time as long as the total of the rest tarsi (from the second to the fifth tarsus); claws pectinate at its basal half. First tergite of abdomen 1.54 times as long as its apical width, a little rough, with a shallow median longitudinal groove, punctured indistinctly; second to five tergites with unclear transverse lines; second tergite 1.1 times as long as its apical width; third tergites about as long as second, 1.1 times as long as its apical width; the fourth a little transverse; the rest distinctly transverse. Subgenital plate big, reaching to tip of abdomen. Ovipositor sheath 5.8 mm long, 3.4 times as long as hind tibia and about 1.16 times as long as fore wing.

Material: Holotype female, Baotianman Natural Reserve, 1300 m, Neixiang County, Henan Province, July 12, 1998. Mao-Ling SHENG.

This species is similar to *L. nigrominiata* CHANDRA et GUPTA 1977, and can be distinguished each other by the following characters. This one: propodeum with weak transverse wrinkles; punctures indistinct; nervellus incli-

vous; first abdominal tergite 1.54 times as long as its apical width; cheek, metapleurum and abdominal tergites black. *L. nigrominiata*: propodeum evenly densely and coarsely punctate; nervellus reclivous; first tergite about 2 times as long as its apical width; cheek and a big fleck of metapleurum yellow; hind margins of middle tergites reddish.

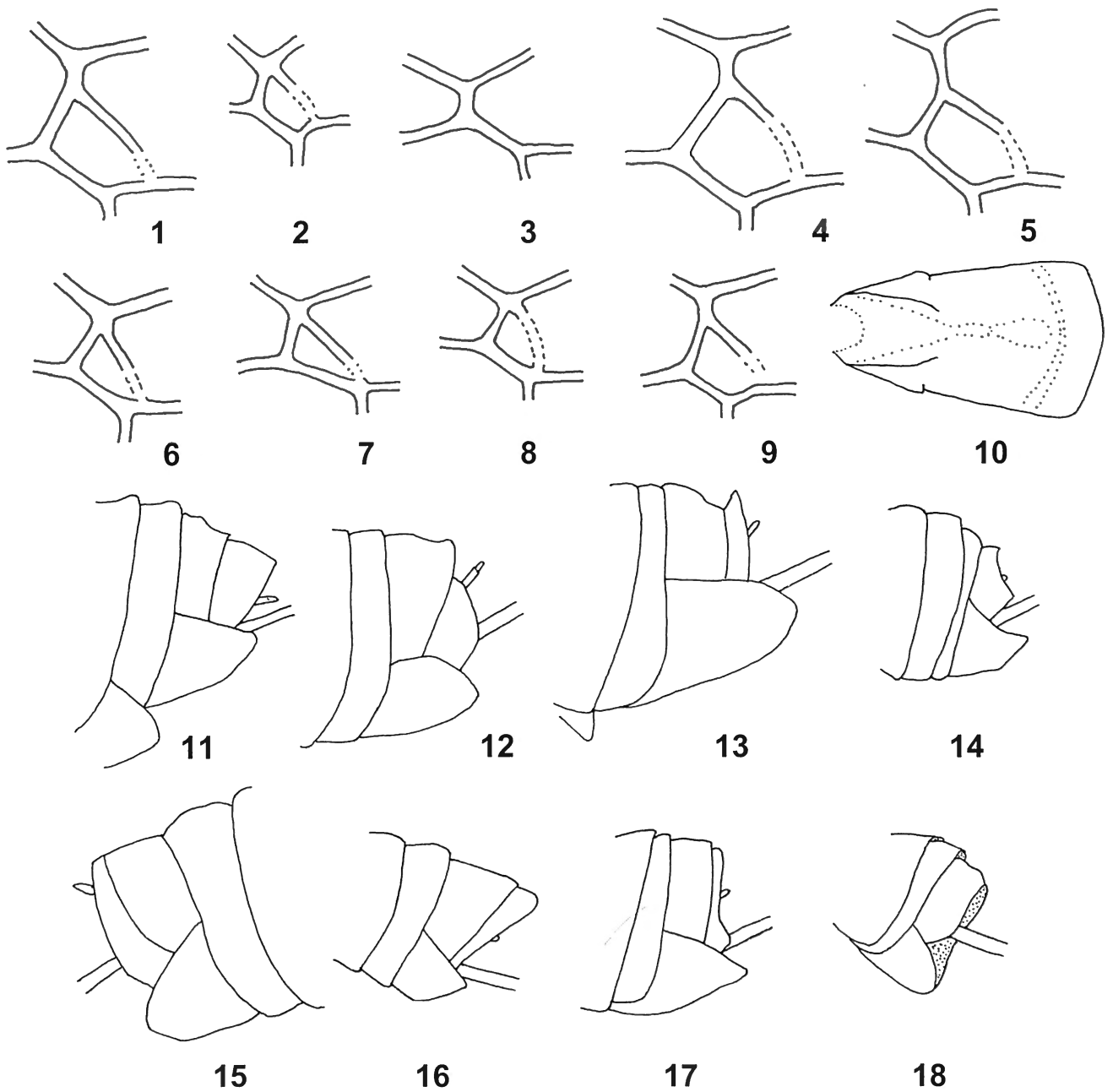
4. *Lissonota clypeator similis* SHENG, subsp. nov.

(Figs. 4, 13)

Female: Body 9.8-12.5 mm long. Fore wing 7.5-9.0 mm long.

Colouration: Black. Palpi dark brown to blackish brown. Apical 0.6 of clypeus, tegulae, first trochanters dark brown. Mandibles (except black teeth) darkish red. Front and middle legs, second trochanters, femora and tibiae of hind legs reddish brown. Apices of hind tibiae and hind tarsi darkish to blackish brown. Stigmata brown to dark brown. Veins blackish brown. Apex of first tergite, basal center and apex of second tergite, fleck on third tergite, basal margin of fourth tergite narrowly unclearly reddish.

Face glossy, 0.57-0.60 time as long as wide, strongly convex centrally, with even and dense punctures. Clypeal suture distinct. Clypeus glossy, with very sparse punctures and weak transverse lines on base, convex at basal 0.4, front margin evenly convex forward. Mandible relatively short, weakly convergent toward apex, its teeth sharp, upper tooth about as long as or a little longer than lower tooth. Malar space 0.74-0.93 time as long as basal width of mandible, with fine leathery texture surface and sparse unclear punctures. Temple with even punctures (sparser than face with), weakly convergent backward. Frons nearly flat, with dense punctures (finer than face with), lower lateral part weakly convex. Vertex with relative sparse punctures; stemmaticum with dense fine punctures; postocellar line about as long as ocular-ocellar line. Antenna filiform, with 35-41 flagellar segments; first flagellum 1.29-1.45 times as long as second flagellum, the latter 1.17-1.23 times as long as third flagellum; terminal segment long, 2.8 times as long as its basal diameter. Occipital carina complete. Pronotum, mesoscutum and metapleurum with punctures like as face with; without epomia; without notaulus. Mesopleural fovea deep; speculum small, smooth, sometimes with punctures. Scutellum weakly convex, with dense punctures (sparser than mesoscutum with). Metapleurum obliquely convex. Propodeum with dense punctures and fine transverse wrinkles (before apical transverse carina); pleural carinae and apical transverse carina complete; spiracle long elliptic. Wing brownish hyaline; basal vein weakly bend forward; nervulus distad of basal vein about 0.32-0.44 time as the length of nervulus; areolet quadrilateral, petiolate, receiving second recurrent vein at or a little distad of its middle; postnervulus intercepted at its lower 0.3; nervellus reclivous, intercepted below or a little below its centre; axillus nearly unpigment, its apical section bending forward hind margin of hind wing. Legs



Figs. 1, 11 — *Lissonota terebrans* SHENG, sp. nov.;
 2, 12 — *Lissonota striata* SHENG, sp. nov.;
 3, 10 — *Lissonota neixiangica* SHENG, sp. nov.;
 4, 13 — *Lissonota clypeator similis* SHENG, subsp. nov.;
 5, 14 — *Lissonota petiolata* SHENG, sp. nov.;
 6, 15 — *Lissonota carinulata* SHENG, sp. nov.;
 7, 16 — *Lissonota serrulota* SHENG, sp. nov.;
 8, 17 — *Lissonota filiformis* SHENG, sp. nov.;
 9, 18 — *Lissonota sheni* SHENG, sp. nov.;
 1, 2, 4-9. areolets; 3. Intercubitus; 10. first tergite; 11-18. apical parts of abdomens, lateral view.

normal, middle and hind coxae with punctures (sparser than thorax with); basal tarsus of hind leg about 0.78-0.81 time as long as the total of the rest tarsi (from the second to the fifth tarsus); claws sparsely pectinate at its basal. Abdominal tergites glossy, with irregular transverse wrinkles; tergites 1-3 with disperse punctures; first tergite 1.52-1.67 times as long as its apical width, evenly convex; second tergite 0.97-1.0 times as long as its apical width; third tergite 0.86-0.89 time as long as its apical width; the rest distinctly transverse, without punctures. Subgenital plate big, reaching past tip of abdomen. Ovipositor sheath 14.0-16.5 mm long, about 5 times as long as hind tibia and about 1.8 times as long as fore wing.

Male: Body 8.5-9.8 mm long. Fore wing 6-7 mm long. Antenna filiform, with 38-40 flagellar segments. Front, middle coxae, front sides of their trochanters, facial orbits (sometimes entirely black), basal part of clypeus, middle parts of mandibles, tegulae, apices of front and middle femora, bases of tibiae, yellow. Abdominal tergites black or hind margins of tergites 2-4 darkish red narrowly.

Variation: body size, color of abdominal tergites sometimes are variance.

Material: Holotype female, Huhehaote, Inner Mongolia, Sep. 2, 1995, Mao-Ling SHENG. Paratypes: 6 males, data as holotype; 1 female, Damao, Inner Mongolia, Sep. 2, 1995; 1 female, Urumuchi, Xinjiang, 860 m, Sep. 19, 1993, Mao-Ling SHENG.

This subspecies is similar to *L. clypeator sapporensis* UCHIDA, 1928, and can be distinguished each other by the following characters. This subspecies: second tergite 0.97-1.0 time as long as its apical width; third tergite 0.86-0.89 time as long as its apical width; legs red (except coxae); apical transverse carina of propodeum strong. *L. clypeator sapporensis*: second and third tergite each longer than its own apical width; legs mainly black; apical transverse carina of propodeum weak.

5. *Lissonota petiolata* SHENG, sp. nov. (Figs. 5, 14)

Female: Body 9 mm long. Fore wing 6.5 mm long.

Colouration: Black. Middle sections of mandibles darkish red. Middle sections of frontal orbits and tegulae yellow. Front trochanters, hind tibiae and tarsi blackish brown. Apical 0.6 of clypeus, front and middle femora, tibiae and tarsi brown. Hind femora dark-reddish brown. First (except its base), second and third tergites red. Stigmata and veins brownish black.

Head and thorax glossy. Face 0.62 time as long as wide, weakly convex centrally, with even and dense punctures. Clypeal suture distinct. Clypeus transversely convex, basal 0.3 with punctures like as face with, the rest glossy, punctate indistinctively. Mandible long, upper and lower

margins nearly parallel (its base a little wider), upper tooth a little longer than lower tooth. Malar space about as long as the basal width of mandible, with punctures (sparser than face with). Temple with shallow and fine punctures, distinctly convergent backward. Vertex (on lateral side of stemmaticum) with a small leathery texture surface; stemmaticum with dense punctures; postocellar line 1.46 times as long as ocular-ocellar line. Frons nearly flat, with punctures like as face with. Antenna filiform, basal section weakly wider than the rest, with 43 flagellar segments; first flagellum 1.4 times as long as second flagellum, the latter 1.11 times as long as third flagellum. Occipital carina complete. Thorax and propodeum with distinct dense punctures; without epomia; without notaulus. Mesopleural fovea consisting of a transverse shallow groove, its front end weakly hollow; without speculum. Propodeum with strong and complete apical transverse carina and weak upper sections of pleural carinae; spiracle oblique long, its long diameter 1.7 times as long as its short diameter. Wing brownish hyaline; basal vein bend forward; nervulus distad of basal vein about 0.61 time as the length of nervulus; areolet quadrilateral, with long petiole, receiving second recurrent vein distad of its middle; bulla of second recurrent vein strong zigzag outward; nervellus nearly vertical (a little reclivous), intercepted at lower 0.25; axillus bending forward hind margin of hind wing and nearly reaching hind margin. Middle and hind coxae with dense punctures; outsides of middle and hind tibiae with short thorns; basal tarsus of hind leg about 0.8 time as long as the total length of the rest tarsi (from the second to the fifth tarsus); claws weakly pectinate at its base. Abdominal tergites 1-3 (except narrow hind margins glossy) and base of tergite 4 with dense punctures; first tergite about 1.5 times as long as its apical width; second tergite about 1.08 times as long as its apical width; third tergite 1.11 time as long as its apical width, lateral sides parallel; tergite 4 weakly transverse, lateral sides parallel; the rest distinctly transverse, with fine leathery texture surface. Subgenital plate big, reaching past tip of abdomen. Ovipositor sheath 11.5 mm long, about 1.77 times as long as fore wing.

Material: Holotype female, Huhehaote, Inner Mongolia, Sep. 29, 1995. Mao-Ling SHENG.

This species is similar to *L. compar* FONSCOLOMBE 1854 and *L. conflagrata* GRAVENHORST 1829, and can be distinguished from them by the following characters. This species: areolet receiving second recurrent vein distad of its middle; ovipositor sheath about 1.77 times as long as fore wing; lateral side of vertex, near frontal orbit with a small yellow fleck; hind tibiae without yellow fleck; propodeum with dense punctures. *L. compar*: areolet receiving second recurrent vein basad of its middle; ovipositor sheath about 1.3 times as long as fore wing; vertex without yellow fleck; base of hind tibiae usually with yellow mark. *L. conflagrata*: areolet receiving second recurrent vein basad of its middle; propodeum with dense wrinkle-punctures or rugose; ovipositor sheath a little longer than fore wing.

6. *Lissonota carinulata* SHENG, sp. nov.
(Figs. 6, 15)

Female: Body 8 mm long. Fore wing 6 mm long.

Colouration: Black. Facial orbits, upper marks of frontal orbits, mandibles (except teeth), front and middle trochanters, upper-hind corners of pronotum, yellow. Tegulae light yellow. Clypeus, palpi, front and middle legs (except tarsus 5 dark brown), hind coxae, trochanters and femora brown. Hind tibiae, tarsi dark brown. Stigmata brown. Veins dark brown. Hind margins of middle tergites each sometimes narrowly brownish.

Face 0.65 time as long as wide, with dense yellowish white hairs, shallow fine punctures and a weak ridge on upper half center, strongly convex. Clypeal suture relatively wide. Clypeus weakly convex, median section of its apical margin truncate, nearly impunctured. Mandible relatively short and evenly convergent toward apex, upper tooth a little longer than lower tooth. Malar space about 0.67 as long as the basal width of mandible, a little rough, without puncture. Temple and vertex with leathery texture surface, without puncture; the former evenly convergent backward. Stemmaticum weakly convex. Postocellar line 1.4 times as long as ocular-ocellar line. Frons flat, rough, punctures indistinct. Antenna filiform, with 31 flagellar segments; first flagellum 1.29 times as long as second flagellum, the latter 1.06 times as long as third flagellum. Occipital carina complete. Pronotum with deep transverse dorsal groove, longitudinal wrinkle-punctures on front-lateral margin, short transverse wrinkles in lateral groove and distinct punctures on upper-hind part; without epomia. Mesoscutum strongly convex, with even and distinct punctures; without notaulus. Mesopleurum, mesosternum and metapleurum glossy, with dense punctures; speculum big; mesopleural fovea consisting of a distinct deep groove. Scutellum weakly convex, with shallow punctures. Propodeum weakly rough and evenly convex; lateral sides with weak punctures; basal center with a shallow longitudinal groove; median part (before apical transverse carina) with weak transverse wrinkles; pleural carinae and apical transverse carina complete, the former weak; spiracle round. Wing brownish hyaline; basal vein bend forward; nervulus distad of basal vein about 0.58 time as the length of nervulus; areolet quadrilateral, with short petiole, receiving second recurrent vein far distad of its middle; nervellus weakly inclivous, intercepted at lower 0.2; axillus relatively long, apical part bending forward hind margin of hind wing and reaching to hind margin. Basal tarsus of hind leg about 0.8 time as long as the total length of the rest tarsi (from the second to the fifth tarsus); claws small, basal halves of hind claws pectinate. First tergite relatively short, about 1.41 times as long as its apical width, weakly widened backward and strongly bending upward, subapex with transverse depression, hind half punctate centrally, lateral and hind margin with weak longitudinal wrinkles; second tergite about 0.91 time as long as its apical width, rough, with weak transverse wrinkles, sub-

apex with weak transverse depression, apical margin with oblique-transverse wrinkles; third tergite 0.85 time as long as its apical width, weakly rough, with weak transverse wrinkles; the rest tergites distinctly transverse; tergites 4 and 5 with weak transverse wrinkles. Subgenital plate big, not reaching to tip of abdomen. Ovipositor sheath 11 mm long, about 1.38 times as long as body, 1.83 times as long as fore wing.

Material: Holotype female, Huinan, Jilin Province, July 12, 1991, Fang CHEN. Paratype: 1 female, data as holotype.

This species is similar to *L. impressor* GRAVENHORST 1829, and can be distinguished from it by the following characters. This species: upper half of face with a weak median longitudinal ridge; frons rough, punctures unclear; ovipositor sheath about 1.38 times as long as body. *L. impressor*: face without longitudinal ridge; frons with distinct punctures; ovipositor sheath as long as or shorter than body.

7. *Lissonota serrulota* SHENG, sp. nov.
(Figs. 7, 16)

Female: Body 5-5.5 mm long. Fore wing 4.2-4.5 mm long.

Colouration: Black. Clypeus brownish black. Labrum and tegulae yellow. Base ventral sides of antennae yellowish. Front and middle legs yellowish brown (tibiae relatively lighter). Hind coxae, trochanters and femora reddish brown; tibiae and tarsi blackish brown. Stigmata yellowish brown; veins reddish brown. Hind margins of abdominal tergites yellowish red narrowly.

Head weakly rough, without puncture. Face 0.44-0.46 time as long as wide, weakly convex centrally. Clypeal suture weak. Clypeus convex, nearly smooth, front median part flat or weakly concave, median section of its apical margin truncate. Mandible small and strongly convergent toward apex, teeth sharp, upper tooth longer than lower tooth. Malar space 1.3-1.56 times as long as the basal width of mandible. Temple short, strongly convergent backward. Stemmaticum weakly convex; postocellar line 1.16-1.4 times as long as ocular-ocellar line. Frons flat. Antenna short, with 21 flagellar segments; first flagellum 1.33-1.37 times as long as second flagellum, the latter 1.16-1.2 times as long as third flagellum. Occipital carina complete. Pronotum rough, with unclear punctures on upper margin, sometimes with fine longitudinal wrinkles; epomia weak or lack. Mesoscutum convex, weakly rough, with punctures on hind part; notaulus distinct. Mesopleurum weakly rough, with weak longitudinal wrinkles, sometimes with unclear punctures; mesopleural fovea consisting of a shallow groove; speculum big. Median longitudinal groove of mesosternum evenly widened and deepened backward. Scutellum glossy and punctate. Metapleurum rough (sometimes weakly netty). Propodeum rough, with irregular wrinkles; apical transverse carina and pleural carinae complete, the

latter weak; spiracle round and raised. Wing brownish hyaline; basal vein weakly bend forward; nervulus distad of basal vein about 0.67-0.93 time as the length of nervulus; areolet oblique triangular to oblique quadrilateral, with short petiole or sessile, receiving second recurrent vein at or a little basad of its outer corner; second recurrent straight and inclivous; nervellus vertical or weakly inclivous, intercepted a little below its middle; axillus short and parallel with hind margin of hind wing, apical part bending forward hind margin. Basal tarsus of hind leg about 0.71-0.76 time as long as the total length of the rest tarsi (from the second to the fifth tarsus); claws small, only its base pectinate. First abdominal tergite short and wide, about as long as apical width, rough, with dense and unclear punctures, convex at central part, subapical with weak transverse depression, apical margin glossy; second tergite strongly transverse, about 0.58-0.6 time as long as wide, with rough and dense punctures, subapex with weak transverse depression, apical margin glossy; third tergite about 0.5 time as long as wide, with rough and dense punctures (sparser than second tergite with); fourth tergite a little rough; the rest tergites nearly glossy. Subgenital plate big, its tip far before the tip of abdomen. Ovipositor sheath 2.8-3 mm long, about 1.92-2 times as long as hind tibia, 0.67 time as long as fore wing. Upper valve of ovipositor tip with 3 weak teeth.

Male: Body 5 mm long. Fore wing 3.5 mm long. Flagellum 24 segments. Face, clypeus, mandibles (except teeth), palpi, cheek, lateral sides of frons, ventral sides of antennae, lateral sides of propleurum, lower part of pronotum, front lateral sides of mesonotum, tegulae, lower transverse bands of mesopleurum, coxae, trochanters, yellow. The rest characters are the same as female.

Material: Holotype female, Shenyang, Liaoning Province, May 14, 1994, Mao-Ling SHENG. Paratypes: 1 female, May 10, 1992; 1 female, May 16, 1993; 1 male, May 5, 1995; the rest data as holotype.

Hosts: bores in tree branch of *Crataegus pinnatifida* cr. *major*. (ROSACEAE).

This species is similar to *L. fundator* (THUNBERG, 1822), and can be distinguished each other by the following characters. This one: ovipositor sheath shorter than body; tergites 2 and 3 strongly transverse; face of male entirely yellow. *L. fundator*: ovipositor sheath longer than body; tergites 2 and 3 square; face of male with yellow fleck.

8. *Lissonota filiformis* SHENG, sp. nov. (Figs. 8, 17)

Female: Body 5-5.3 mm long. Fore wing 4-4.3 mm long.

Colouration: Black. Apical part of clypeus centrally, bases of antennae, stigmata and veins dark brown. Palpi yellowish brown. Most part of front and middle coxae,

front trochanters, tegulae, yellowish white. Front and middle femora, tibiae and tarsi, hind coxae, trochanters and femora brown. Hind tibiae and tarsi dark brown. Bases and apices of abdominal tergites 1, 2 and 3, hind margins of the rest tergites narrowly yellow.

Face about 0.67 as long as wide, with even and dense punctures, its center relatively to strongly convex. Clypeal suture deep to very deep, median section straight. Clypeus small, glossy, relatively to strongly convex; its base with punctures like as face with, apical part with very sparse punctures, apical margin evenly convex forward. Mandible small, upper tooth longer than lower tooth. Malar space about 0.78 time as long as the basal width of mandible, with dense punctures. Temple short, nearly glossy, with weak and sparse punctures, evenly convergent backward. Postocellar line 1.3-1.5 times as long as ocular-ocellar line. Frons flat, with punctures like as face with. Antenna filiform, with 31-32 flagellar segments; first flagellum 1.3-1.41 times as long as second flagellum, the latter 1.07-1.16 times as long as third flagellum. Occipital carina complete, its upper center weakly concave forward. Pronotum glossy, with dense and fine punctures, lateral groove with dense and short transverse wrinkles; without epomia. Mesonotum convex, front part rough, hind part with fine punctures; without notaulus. Mesopleurum and mesosternum glossy, with dense fine punctures; mesopleural fovea consisting of a deep short groove; speculum small. Scutellum weakly convex, with punctures. Metapleurum with punctures, sometimes with short lines among punctures. Propodeum with transverse wrinkles on central part and indistinct punctures laterally; apical transverse carina and pleural carinae complete, the former strong, the latter weak; spiracle small, round. Wing brownish hyaline; basal vein bend forward; nervulus distad of basal vein about 0.43-0.55 time as the length of nervulus; areolet oblique quadrilateral, with very short petiole or sessile, receiving second recurrent vein far distad of its middle; second recurrent vein straight, at least lower 0.8 weak; nervellus vertical, intercepted at lower 0.2; axillus evenly bending forward hind margin of hind wing. Legs normal, basal tarsus of hind leg about 0.8 time as long as the total length of the rest tarsi (from the second to the fifth tarsus); claws small, not or only its base pectinate. Middle section (tergites 2-4) of abdomen parallel laterally, with punctures and transverse lines; first tergite 1.43-1.47 times as long as apical width, evenly convex, with unclear transverse lines, its lateral sides weakly punctured, lateral margins with longitudinal wrinkles; apical margin smooth; second tergite 0.87-0.9 time as long as wide, apical margin glossy; third tergite 0.88-0.93 time as long as wide; tergite 4 and 5 nearly glossy. Subgenital plate big, distinctly reaching past tip of abdomen. Ovipositor sheath about 4 mm long, about 2.7 times as long as hind tibia, about (0.96 time) as long as fore wing.

Material: Holotype female, Benxi County, Liaoning Province, July 12, 1995, Mao-Ling SHENG. Paratype: 1 female, data as holotype.

This species is similar to *L. humerella* THOMSON, 1877, and can be distinguished each other by the following characters. This one: nervellus intercepted at lower 0.2; pronotum black; tergites 2 and 3 with punctures and fine transverse lines; bases and apices of tergites 1, 2 and 3 yellow. *L. humerella*: nervellus intercepted at lower 0.33; upper hind corner of pronotum nearly white; tergites 2 and 3 with granular surface, black.

9. *Lissonota sheni* SHENG

(Figs. 9, 18)

Female: Body 7.5-10 mm long. Fore wing 6.5-7.5 mm long.

Colouration: Black. Clypeus, mandibles (except apical teeth), tegulae, subtegular ridges, marks on front lateral sides of mesoscutum, yellow. Front and middle legs yellowish brown (except ventral sides of trochanters lightly yellowish). Apices of hind coxae and hind femora reddish brown; ventral sides of its trochanters yellowish; its tibiae and tarsi brownish black. Hind margins of tergites 2 and 3 sometimes very narrowly reddish.

Face glossy, 0.64-0.65 as long as wide, with even fine punctures and short white hairs, upper center strongly convex; inner orbits with fine leathery texture surface, without puncture. Clypeus nearly smooth, evenly convex, with a few unclear fine punctures, front margin evenly convex forward. Upper tooth of mandible longer than lower tooth. Malar space 0.45-0.57 time as long as the basal width of mandible, with fine leathery texture surface, without puncture. Temple short, with weak and indistinct punctures, strongly convergent backward. Vertex with shallow and fine punctures; stemmaticum with relative distinct punctures; postocellar line about as long as ocular-ocellar line. Frons flat, with fine leathery texture surface and indistinct punctures. Antenna filiform, nearly as long as body, with 38-40 flagellar segments; first flagellum 1.28-1.43 times as long as second flagellum, the latter 1.08-1.09 times as long as third flagellum. Occipital carina complete. Thorax nearly glossy; pronotum with dense and very fine punctures, lateral longitudinal groove weakly rough; without epomia. Mesonotum evenly convex, with dense fine punctures, without notaulus. Mesopleurum and mesosternum with dense fine punctures; mesopleural fovea consisting of an isolated pit; without speculum. Scutellum weakly convex, with dense punctures. Metapleurum with dense punctures. Propodeum evenly convex, with leathery texture surface and dense punctures; apical transverse carina weak to strong, complete or break centrally; pleural carinae complete, weak; spiracle elliptic. Wing hyaline, weakly brownish; basal vein bend forward; nervulus distad of basal vein about 0.31-0.39 time as the length of nervulus; areolet quadrilateral, with short petiole, receiving second recurrent vein distad of its middle; nervellus weakly inclivous, intercepted at lower 0.2; axillus relatively closed to hind margin of hind wing, basal 2/3 parallel

with hind margin, about apical 1/3 bending forward and reaching to hind margin. Legs long; basal tarsus of hind leg about 0.78 time as long as the total length of the rest tarsi (from the second to the fifth tarsus); claws small, at least basal 0.7 pectinate. Middle section (tergites 2-4) of abdomen parallel laterally; first tergite evenly bending upward, 1.80-1.92 times as long as apical width, with dense punctures on its lateral sides, longitudinal leathery texture surface centrally and a small smooth space on apical center; second tergite 1.18-1.19 times as long as its apical width, with dense punctures; third tergite 1.04-1.09 times as long as its apical width; with dense punctures; tergite 4 a little transverse, with dense punctures on basal part; the rest tergites distinctly transverse. Subgenital plate big, reaching tip of abdomen. Ovipositor sheath 9.2-11.5 mm long, 3.54-3.55 times as long as hind tibia, 1.42-1.51 times as long as fore wing.

Material: Holotype female, Longyuwan Natural Reserve, 1050 m, Luanchuan County, Henan Prov., May 22, 1999, Mao-Ling SHENG. Paratypes: 3 females, data as holotype.

This species is similar to *L. prolixa* CHANDRA et GUPTA, 1977, and can be distinguished each other by the following characters. This one: first tergite 1.80-1.92 times as long as its apical width; second tergite 1.18-1.19 times as long as its apical width; hind tergites (after tergite 4) not transversely aciculated; nervellus intercepted at lower 0.2; hind coxae mainly black. *L. prolixa*: first tergite 2.3-2.8 times as long as its apical width; second tergite 1.5-1.7 times as long as its apical width; hind tergites (after tergite 4) transversely aciculated; nervellus intercepted at lower 0.4; hind coxae orange to orange-red.

10. *Lissonota carbonaria* HOLMGREN, 1860.

New record for China.

Specimens examined: 1 female, Huinan (in Changbai Mountains), Jilin Prov., July 12, 1991, Fang CHEN; 3 females, Fushun, Liaoning Prov., June 15, 1992, You DEKANG; 3 females, Xinbin, Liaoning Prov., June 10, 1999, Mao-Ling SHENG.

Host: *Coleophora dahurica* Flkv.

11. *Lissonota catenator* (PANZER), 1804

New record for China.

Specimens examined: 3 females, Qinhuangdao, Hebei Prov., July 12, 1996, Mao-Ling SHENG; 1 female, Lushi, Henan Prov., 1850 m, Aug. 25, 1996, Xiao-Cheng SHEN; 1 female, Songxian, Henan Prov., 1300 m, Aug. 14, 1997, Ying-Dang REN.

12. *Lissonota clypeator clypeator* (GRAVENHORST), 1829

New record for China.

Specimens examined: 4 females 5 males, Shenyang, Liaoning Prov., Sep. 24 to Oct. 5, 1991, Mao-Ling SHENG; 1 female, June 27, 1993, the rest data as the former.

13. *Lissonota frontalis* DESVIGNES, 1856

New record for China.

Specimen examined: 1 female, Xinbin, Liaoning Prov., May 29, 1994, Mao-Ling SHENG.

14. *Lissonota obsoleta* BRIDGMAN, 1889

New record for China.

Specimen examined: 1 female, Huinan, Jilin Prov., June 12, 1992, Fang CHEN.

15. *Lissonota histrio* (FABRICIUS), 1798

New record for China.

Specimen examined: 1 female, Yining, Xinjiang, Aug. 27, 1987, Xi-Yuan Bian.

16. *Lissonota setosa* (FOURCROY), 1785

New record for China.

Specimens examined: 1 female 1 male, Shenyang, Liaoning Prov., May 12, 1991, Mao-Ling SHENG; 1 female, May 20, 1991, the rest data as the former.

Hosts: borers in *Celtis bungeana* Bl. (Ulmaceae) and *Crataegus pinnatifida* cr. *major* (Rosaceae).

17. *Lissonota kaiyuanensis* UCHIDA, 1942

Specimens examined: 1 female, male, Qinhuangdao, Hebei Prov., July 20, 1991, M.L. SHENG. 1 female, Huinan, Jilin Prov., June 22, 1992, Fang CHEN. 3 females, Lianyungang, Jiangsu Prov., July 19, 1992, M.L. SHENG. 3 females 11 males, Shenyang, Liaoning Prov., July 8, 1990; 1 female 4 males, Shenyang, Liaoning Prov., July 2 to 6, 1991; 3 females 1 male, July 4, 1992; 2 females, Shenyang, Liaoning Prov., July 14 to 18, 1993; M.L. SHENG.

Hosts: borers in *Ulmus pumila* L. and *Celtis bungeana* Bl. (Ulmaceae).

Acknowledgements

The author is deeply indebted to Dr. GROOTAERT (Royal Belgian Institute of Natural Sciences, Belgium) for reviewing the manuscript.

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