Sawflies (Hymenoptera: Symphyta, Tenthredinidae) from Vietnam and China

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Haris, A. Sawflies (Hymenoptera: Symphyta: Tenthredinidae) from Vietnam and China.
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Key words: Hymenoptera; Symphyta; Tenthredinidae; Vietnam; China; new species.
Nine new species are described from Vietnam: *Beleses sapaensis* spec. nov., *Brykella tamdaoensis* spec. nov., *Caliroa vietnamensis* spec. nov., *Darjilingia bicoloricornis* spec. nov., *Mallachiella achterbergiana* spec. nov., *Clypea hogenesi* spec. nov., *Neothrinax dejongei* spec. nov., *Neothrinax achterbergi* spec. nov., *Nesoselandria alborobusta* spec. nov. and *Tenthredo (Tenthredella) achterbergi* spec. nov. The unknown male of *Tenthredo (Tenthredina) nigricornis* Malaise, 1945 is described. *Beleses tianmuensis* spec. nov. is described from China. *Abeleses versicolor* Malaise, 1961, *Abusarbidea infumata* Wei & Nie, 1999, *Athlophorus mimicarius* (Malaise, 1947), *Clypea sino-birmana* Malaise, 1961, *Eusunoxa semipunctata* Smith & Saini, 2003, *Eutomostethus metallicus* (Sato, 1928), *Indotaxonus tricoloricornis* (Konow, 1898), *Tenthredo appendicella* Malaise, 1945, *Tenthredo cyanata* Konow, 1898 and *Tenthredo genitalis* Malaise, 1945 are new for Vietnam.

Introduction

In the first part of this study, 35 new species are published from Vietnam (Haris, 2006). In the second part (Haris, 2007), all other collected species are listed with the description of additional four new species. In the present paper, the Tenthredinidae material of the last Vietnamese expeditions is elaborated. In addition to the Vietnamese material, one other species from China is described that had been collected during the same expeditions by Prof. van Achterberg.

The fragile condition of the insects didn't make the female genitalia (lancet) dissection possible without risking the destruction of some types. In these cases, the genitalia dissections are not necessary since the other described morphological features easily differentiate the new species from all their relatives.

The material is deposited in the Nationaal Natuurhistorisch Museum (Naturalis), Leiden with duplicates in the Institute of Ecology & Biological Resources, Hanoi (Vietnam).

Sawflies (Tenthredinidae) from Vietnam

Abeleses versicolor Malaise, 1961: 1 ♂, N. Vietnam, Vinh Phuc, Tam Dao N. P., Van Tú, c. 300 m, 09-12. xi.2001, pine forest. Penis valve in fig. 21. (New record for Vietnam.)

Abusarbidea infumata Wei & Nie, 1999: 3 ♀, NW. Vietnam, Tonkin, Hoang Lien N. R., 15 km W. Sa Pa, Sin Chay, 20.x.1999, c. 2000 m. (Figs 13 and 29). (New record for Vietnam.)

Athlophorus mimicarius (Malaise, 1947): 1 ♂, N. Vietnam, Ninh Binh, Cuc Phuong N. P., nr. centre, c. 225 m,10.ii.-15.iii.2000. (New record for Vietnam.)

Clypea sino-birmana Malaise, 1961: 1 ♀, Lao Cai, Hoang Lien res., Fansipan Mt., 16-21.x.1999. (New record for Vietnam. Figs 1, 11, 33).

Eusunoxa semipunctata Smith and Saini, 2003: 2 ♂, C. Vietnam, Thua Thien Hue, Phong Dien N. R., nr. base camp, 12 km W. Phon My, c. 60 m, 24.iii.-06.iv.2001, Mal. trap. (New record for Vietnam. For description see Smith & Saini, 2003.)

Eutomostethus metallicus (Sato, 1928): 1 ♂, N. Vietnam, Ninh Binh, Cuc Phuong N. P., nr. centre, c. 225 m, 14.iv.-01.v.2000. (New record for Vietnam, for description see Sato, 1928.)

Indotaxonus tricoloricornis (Konow, 1898): 1 ♂, N. Vietnam, Ninh Binh, Cuc Phuong N. P., nr. centre, c. 225 m, 14.iv.-01.v.2000. (New record for Vietnam.)

Oralia fulva Wei & Nie, 1998: 3 ♀, Tonkin, Hoang Lien N. R., 10 km W. of Sa Pa, c. 1550 m, 24.x.1999.

Neostromboceros takeuchii Wei, 1997d: 1 ♂, N. Vietnam, Ninh Binh, Cuc Phuong N. P., nr. entrance, c. 225 m, 01-15.v.2000; 1 ♂, N. Vietnam, Ninh Binh, Cuc Phuong N. P., nr. centre, c. 225 m, 01.xi.-20.xii.2000.

Neostromboceros nigrifemur Saini and Vasu, 1999: 1 ♀, Tonkin, Hoang Lien N. R., 10 km W. of Sa Pa, c. 1550 m, 24.x.1999. (New record for Vietnam.)

Nesoselandria sulciceps (Malaise, 1944): 1 ♀, S. Vietnam, Dong Nai, Cat Tien N. P., Ficus trail, Mal. traps 1-8, c. 100 m, 01-09.x.2005. 1 ♀, N. Vietnam, Ninh Binh, Cuc Phuong N. P. nr. centre cc. 225 m, 14.iv.-01.v.2000.

Tenthredo appendicella Malaise, 1945: 1 ♀, S. Vietnam, Lam Dong, Bidoup Nujba N. P. nr. Da Lat, Mal traps 15-18., 1600-1650 m., 12-19.x.2005. (New record for Vietnam.)

Tenthredo cyanata Konow, 1898: 2 ♂, Tonkin, Hoang Lien N. R., 10-15 km W. of Sa Pa, c. 1900 m, 15-21.x.1999; 1 ♂, Lao Cai, Sa Pa, Khoang (at light), 22.ix.2003. (New record for Vietnam.)

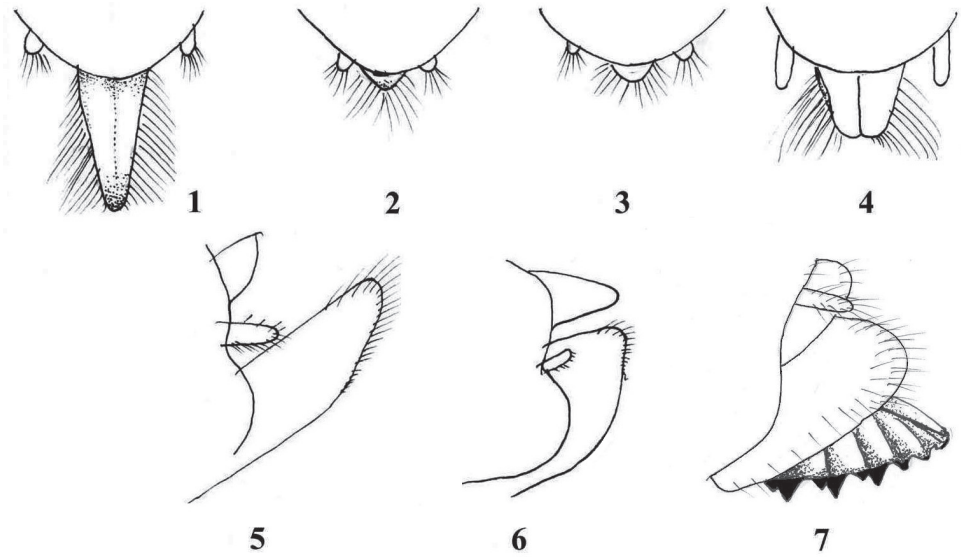
Tenthredo genitalis Malaise, 1945: 2 ♀, 1 ♂, Tonkin, Hoang Lien N. R., 10-15 km W. of Sa Pa, c. 1550-1900 m, 18-23.x.1999. (New record for Vietnam.)

Descriptions

Beleses sapaensis spec. nov.
(figs 2, 6, 8, 22)

Material.— Holotype, ♀ (RMNH): "NW. **Vietnam**, Tonkin, Hoang Lien N. R., 10 km SW. Sa Pa, c. 1550 m, 24.x.1999, C. v. Achterberg, RMNH 99".

Female.— Head golden yellow with large black spot extending from clypeus to hind margin of head; spot narrowed between antennae, widened on ocellar area forming a pentagonal patch and narrowed again on vertex. Two black bands connect upper hind margins of eyes with hind margin of head. Posterior surface of head behind vertex and temples black. Palpi and mouthparts yellow except dark brown apices of mandibles. Scape black except a yellow line on outer surface. Pedicell and antennal segments 3-4 black. Fifth antennal segment black with white apex. Antennal segments 6-9 white. Thorax black with following yellow: hind corner and wide lateral margin of pronotum, parapteron, arrow-shaped spot on apical corner of middle mesonotal lobes, yellow rounded spot on anterior part of mesopleuron, longitudinal zigzag band on posterior part of mesopleuron, posterior band on katepimeron, entire metepisternum, mesoscutellum (but not mesoscutellar appendage), cenchri, elongated spots behind cenchri, oval central spot on metascutellum and area behind metascutellum (fig. 22). Legs dark yellow. Black: basal spot on hind coxae, hind tibial ring, basal third of hind basitarsus (except a narrow yellow ring at very base), apical 2 tarsal segments of anterior leg and all claws. Wings hyaline. Venation dark brown. Costa yellow with dark brown apex. Stigma dark brown with white yellow basal spot. Abdomen dark brownish black with following yellow: triangular membrane and wide posterior margin of propodeum, narrow anterior margins of tergites 2-7, narrow posterior middle margin of tergite 8, tergite 9 dominantly (except a larger marginal spot and a small middle spot on each side) and tergite 10 entirely. Margins of tergites laterally broadly and triangularly widened but



Figs 1-7. 1, Sawsheath in dorsal view of *Beleses tianmuensis* spec. nov. 2, Sawsheath in dorsal view of *Beleses sapaensis* spec. nov. 3, Sawsheath in dorsal view of *Nesoselandria alborobusta* spec. nov. 4, Sawsheath in dorsal view of *Caliroa vietnamensis* spec. nov. 5, Sawsheat in lateral view of *Beleses tianmuensis* spec. nov. 6, Sawsheath in lateral view of *Beleses sapaensis* spec. nov. 7, Lancet of *Caliroa vietnamensis* spec. nov.

not confluent. Basal sternites entirely yellow, apical 2 sternites black with yellow hind margin. Ovipositor black with 2 elongated yellow basal spot. Head sporadically punctured, shiny but moderately densely and moderately deeply punctured on frontal area. Clypeus truncate. Pentagonal frontal area missing. Fore ocellus sunken. Middle supra-antennal pit elongated. Malar space missing. Postocellar furrows shallow, straight and reach hind margin of head. OOL : POL : OCL = 13 : 8 : 15. Maxillar palp very long. Antenna long, filiform, about 0.9 × as long as total length of body. Ratio of antennal segments: 15 : 13 : 50 : 71 : 36 . 20 : 17 : 15 : 17. Pronotum and mesonotal lobes slightly shiny with moderately dense but not uniform shallow punctures. Mesoscutellum with small, shallow and hardly visible punctures, dull. Mesoscutellar appendage slightly shiny with horizontal wrinkles. Metascutellum granulated. Mesosternum and posterior part of mesopleuron smooth and shiny. Most of mesopleuron uniformly, moderately densely and deeply punctured, moderately shiny. Mesoscutellum flat. Length of inner hind tibial spur : apical width of hind tibia: 21 : 13. Length of hind basitarsus : length of inner hind tibial spur: 68 : 21. Subapical tooth of claw shorter than apical (fig. 8) without basal lobe. Sawsheath short and blunt in dorsal and in lateral views (figs 2 and 6). Length: 9.5 mm.

Male.— Unknown.

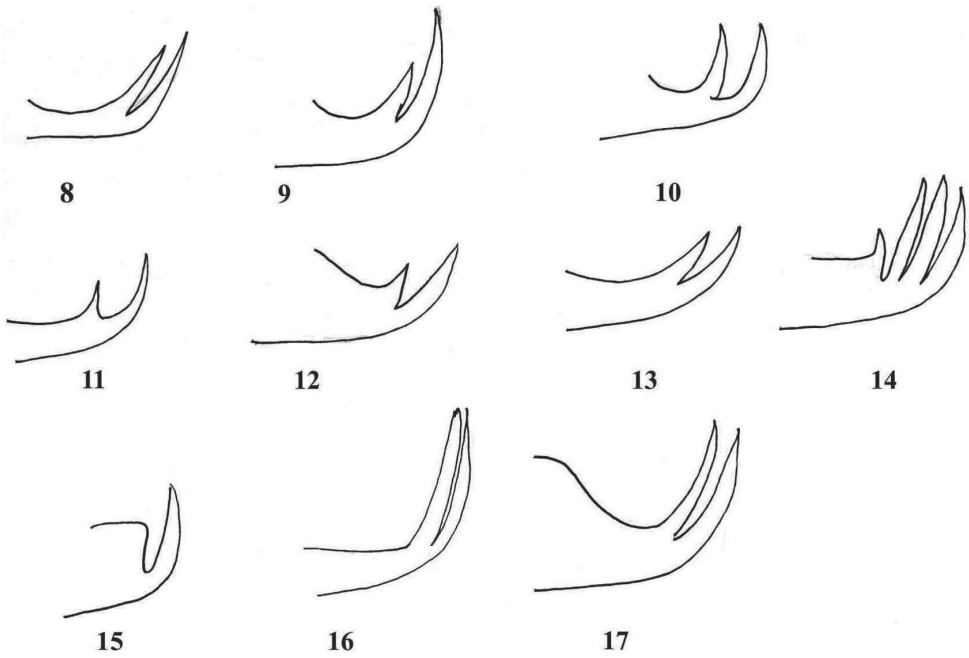
Notes.— Although several new species of *Beleses* were described recently from the Oriental region (Wei, 2002; Wei & Nie, 2002), the new species does not show any similarity with them. It is related to *B. tianmuensis* spec. nov. from China. The differential diagnosis of the two species is given at the end of the next description. The specific name refers to the place of capture.

Beleses tianmuensis spec. nov.
(figs 1, 5, 8, 23)

Material.— Holotype, ♀ (RMNH): "SE. **China**, Zheijang, Tianmu Mt., 400-800m, 23.ix.1999, C. v. Achterberg RMNH 99".

Female.— Head golden yellow with large black spot extending from clypeus to hind margin of head. This spot narrowed between antennae, widened on ocellar area forming a pentagonal patch and narrowed again on vertex. Posterior surface of head behind vertex and temples black. Two small black bands from posterior surface of temples towards but not reaching eyes. Upper hind margin of eye with narrow black band. Palpi and mouthparts yellow except dark brown apex of mandible. basal 5 antennal segments black and apical 4 white. Thorax black. Yellow: hind corner and wide lateral margin of pronotum, arrow-shaped spot on apical corner of middle mesonotal lobes, yellow rounded spot on anterior part of mesopleuron, longitudinal zigzag band on posterior part of mesopleuron, parapteron, posterior band on katepimeron, entire metepisternum, mesoscutellum (but not mesoscutellar appendage), posterior margin of cencher, metascutellum and small spot on hind margin of lateral mesonotal lobe (fig. 23). Legs dark yellow. Black: hind coxa (except apex), apical fifth of hind femur, hind tibial ring and all claws. Wings hyaline. Venation dark brown. Costa yellow with dark brown apex. Stigma dark brown with brownish yellow basal spot. Abdomen dark brownish black. Yellow: triangular membrane of propodeum, narrow anterior margins of tergites 2-4, tergite 9 dominantly (except larger marginal spot and small middle spot on each side) and tergite 10 entirely. Tergites 2-3 laterally confluently yellow. Tergite 4 with slightly broadened anterior margin. Ninth abdominal segment ventrally and laterally black. Tenth segment entirely yellow. Basal sternites not visible, apical 2 sternites black. Ovipositor black but 2 elongated basal spots and narrow lower margin on apex yellow. Head sporadically punctured, shiny but moderately densely and moderately deeply punctured on frontal area. Clypeus truncate. Pentagonal frontal area missing. Fore ocellus sunken. Middle supra-antennal pit elongated. Lateral supra-antennal pits deep and rounded, about as large as front ocellus. Malar space missing. Postocellar furrows shallow, straight and reach hind margin of head. OOL : POL : OCL = 15 : 9 : 17. Maxillary palp very long. Antenna long, filiform and about 0.9x as long as total body length. Ratio of antennal segments: 16 : 14 : 60 : 68 : 36 . 17 : 12 : 11 : 13. Pronotum and mesonotal lobes moderately shiny with moderately dense, moderately deep punctures. Mesoscutellum shiny with moderately deep and moderately dense punctures. Mesoscutellar appendage mostly smooth and shiny with few deep sporadic punctures. Metascutellum smooth and shiny. Mesosternum and posterior part of mesopleuron partly smooth and shiny and partly with moderately deep sporadic punctures. Most of mesopleuron uniformly, moderately densely and deeply punctured, moderately shiny. Mesoscutellum flat. Length of inner hind tibial spur : apical width of hind tibia: 30 : 21. Length of hind basitarsus : length of inner hind tibial spur: 74 : 30. Subapical tooth of claw shorter than apical (fig. 8) without basal lobe. Sawsheath elongated and subacute in lateral view. Elongated and triangular in dorsal view (figs 1 and 5). Length: 11.6 mm.

Male.— Unknown.



Figs 8-17. 8, Claw of *Beleses sapaensis* spec. nov. 9, Claw of *Beleses tianmuensis* spec. nov. 10, Claw of *Darjilingia bicoloricornis* spec. nov. 11, Claw of *Neothrinax achterbergi* spec. nov. 12, Claw of *Neothrinax dejongei* spec. nov. 13, Claw of *Nesoselandria alborobusta* spec. nov. 14, Claw of *Brykella tamdaoensis* spec. nov. 15, Claw of *Caliroa vietnamensis* spec. nov. 16, Claw of *Mallachiela achterbergiana* spec. nov. 17, Claw of *Tenthredo (Tenthredella) achterbergi* spec. nov.

Notes.— The new species is closely related to *Beleses sapaensis* spec. nov. The differences are: *B. tianmuensis* spec. nov. is 11.6 mm but *Beleses sapaensis* spec. nov. only 9.5 mm; fifth antennal segment in *Beleses sapaensis* dominantly black but entirely white in *B. tianmuensis*; lateral mesonotal lobes in *B. tianmuensis* with yellow spot but entirely black in *B. sapaensis*; sawsheath elongated in *B. tianmuensis* but short and blunt in *B. sapaensis* and apex of hind femur black and hind basitarsus yellow in *B. tianmuensis* but hind femur entirely yellow and basal half of hind basitarsus black in *B. sapaensis*. The new species is also related to *Beleses multipicta* Rohwer in colour of head and thorax. However, the head of Beleses multipicta with only few poorly defined punctures around the anterior ocellus. In opposite, the head of the new species deeply and moderately densely punctured all over from hind margin of vertex and temples down to the clypeus. In *Beleses multipicta* the thorax shiny and practically impunctate, while in the new species the thorax clearly punctured. *Beleses multipicta* Rohwer has black head including black hind orbit. The new species has white head with black posterior part and frontal black spot but hind orbits white. In *B. multipicta* the anterior legs are yellowish white and posterior legs are rufo testaceous. In the new species all legs are yellowish red more or less marked with black. In *B. multipicta*, the upper margin of sawsheath slightly concave but straight in the new species. Furthermore, the abdomen of *B. multipicta* yellow and basal portion of tergites brownish to brownish black, the new species

has abdomen entirely dark brownish black (except last two tergites) in dorsal view and the yellow colour restricted to the deflexed lateral side of tergites and to the sternites as well. The specific name refers to the place of capture.

Brykella tamdaoensis spec. nov.
(figs 14, 19, 24)

Material.— Holotype, ♂ (RMNH): "N. **Vietnam**, Vinh Phuc, Tam Dao N. P., c. 1000 m, 19.iv.2001, R. de Vries. RMNH 01".

Male.— Head, antenna and palpi black. Clypeus and labrum white. Scape and pedicell brownish white. Thorax black. Posterior and lateral margin of pronotum and tegula brownish white. Cenchri white. Legs white. Middle and hind femora with wide brown longitudinal band on their basal third. This brown band reaches nearly the apex on fore femur. Basal ⅔ of all coxae, narrow ring on hind tibia, all tarsi and all tibial spurs black. Abdominal tergites 1-5 brownish red. Tergites 5 and 7 black with narrow longitudinal brownish red line in middle. Last (8th) abdominal tergite black (fig. 24). Abdominal sternites black. Wings brown infuscate but radial cells and cubital cells 1 and 2 with darker brown suffusion. Number of cubital cells: 3. Third cubital cell long elongated. Basalis and first recurrent vein parallel. Anal vein of fore wing forked, both branches straight, inner branch shorter. Hind wing with one closed middle cell. Anal cell of hind wing with long petiole. Nervellus meets petiole at its posterior three quarters. Head densely, uniformly and moderately deeply punctured, moderately shiny. Hind margin of head simple, without occipital carina. Hind corner of temple rounded. Head narrowed behind eyes. Pentagonal frontal area small and connected by 2 furrows to eyes and by 2 furrows to antennal bases. Clypeus truncate. Gena very short, linear. OOL : POL : OCL = 5 : 6 : 5. Ratio of antennal segments: 10 : 6 : 25 : 21 : 18 : 12 : 10 : 7 : 10. Mesonotal lobes with shallow, moderately dense and small punctures, moderately shiny. Mesoscutellum nearly smooth and shiny with only few sporadic punctures. Mesoscutellar appendage and postscutellum smooth and shiny. Mesopleuron with sparse minute punctures, shiny. Mesosternum smooth and shiny. Abdominal tergites smooth and shiny. Length of inner hind tibial spur : length of hind basitarsus : apical width of hind tibia: 11 : 33 : 9. Claw in fig. 14. Penis valve in fig. 19. Length: 8.8 mm.

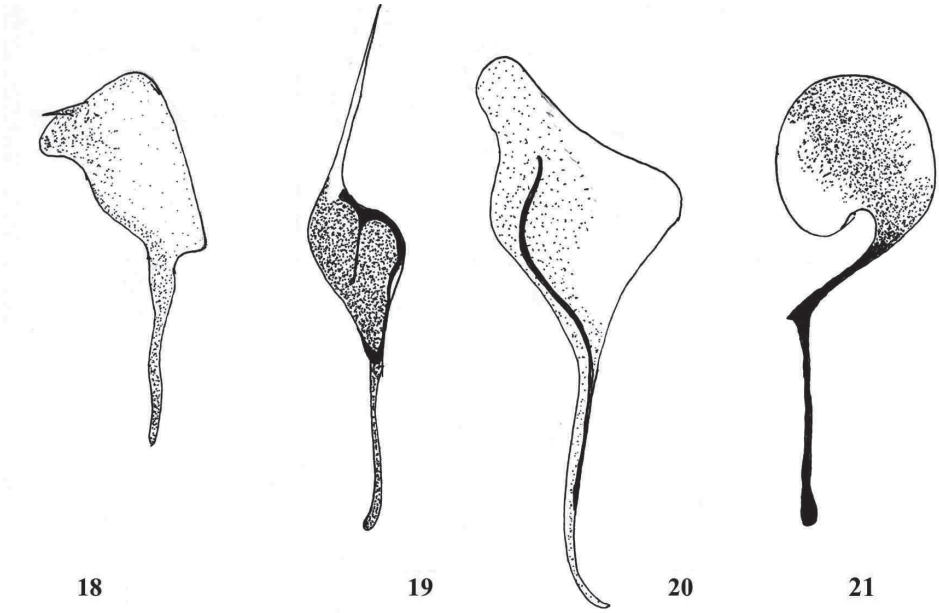
Female.— Unknown.

Notes.— The new species is related to *Brykella hainana* Wei & Nie, 2002. *Brykella hainana* Wei & Nie has narrow and weekly sclerotised penis valve, figured in Wei & Nie, 2002 and black hind femur. The new species has wide and strongly sclerotised penis valve and hind femur is white. The specific name refers to the place of capture.

Brykella heinrichi Malaise, 1943 has scape and pedicel black, tergites 6-8 with white median triangles. *Brykella brevis* Wei, 2003 has pronotum and four anterior trochanters black. The males of *B. heinrichi* and *B. brevis* are unknown.

Caliroa vietnamensis spec. nov.
(figs 4, 7, 15, 25)

Material.— Holotype, ♀ (RMNH): "N. **Vietnam**, Ninh Binh, Cuc Phuong N. P. nr. centre cc. 250 m, 10. ii.-15.iii.2000, Mai Phu Quy, RMNH 00".



Figs 18-21. 18, Penis valve of *Abeleses devriesi* spec. nov. 19, Penis valve of *Brykella tamdaoensis* spec. nov. 20, Penis valve of *Tenthredo (Tenthredina) nigricornis* Malaise, 1945. 21, Penis valve of *Tenthredo (Tenthredella) achterbergi* spec. nov.

Female.— Head and thorax black (fig. 25). Apical third of mandible dark yellow except reddish black apical margin and apex. Cenchri greyish brown. Abdomen dark brown. Legs brown. Longitudinal band on inner side of anterior tibia, anterior tarsal segments 1-4 and all tibial spurs, middle basitarsus, 2nd, most of the 3rd and 5th tarsal segments and hind basitarsus whitish. Wings uniformly brown infuscate. Costa and venation dark brown. Hind wing without closed cubital and middle cell (Rs and M). (Right hind wing with closed cubital cell but it extremely short and rectangular therefore second cubital cell extremely elongated. Probably aberration.) Stigma dark brown with narrow pale lower margin and apex. Postocellar furrows short, deep, straight and divergent, reaching hind margin of head. Head contracted behind eyes. Malar space missing. Temples and vertex sporadically punctured, shiny. Frontal area, minutely, deeply, uniformly and moderately densely punctured, moderately shiny. Frontal area simple, without pentagonal area and not raised or sunken above or below frontal level. Middle and lateral supra-antennal pits shallow and rounded, about as large as middle ocellus. Hind margin of head smooth without occipital carina. Ratio of antennal segments: 5 : 3 : 19 : 11 : 8 : 7 : 6 : 5 : 4. OOL : POL : OCL = 8 : 14 : 7. Antenna short, about 0.8 × as long as head and thorax combined. Anterior and lateral lobes of mesonotum densely, uniformly punctured with small deep punctures, moderately shiny. Mesoscutellum moderately densely punctured with small deep punctures, shiny. Mesoscutellar appendage with hardly visible minute and deep punctures. Metatscutellum smooth and shiny. Mesopleuron moderately shiny with very slight coriaceous sculpture and moderately dense small punctures. Abdominal tergites (including propodeum) with slight

coriaceous sculpture, moderately shiny. Sawsheath in lateral view short and widely rounded. Sawsheath in dorsal view in fig. 4. Lancet in fig. 7. Tetth of lancet acute (fig. 7). Claws without inner tooth but with well developed basal lobe (fig. 15). Anal cell with very short petiole. Length: 4.0 mm.

Male.— Unknown.

Notes.— The new species is related to *Caliroa caviserrula* Wei, 1997 (Wei, 1997c). *Caliroa caviserrula* Wei has greyish brown tarsi and hind wing with one closed middle cell. The new species has all tarsi yellowish white and hind wings without closed middle cell. Furthermore, *C. caviserrula* has narrow and long sheat in lateral view. The sheath of the new species is short and widely blunt definitely not narrow as figured in Fig. 4. Serrulae of the ovipositor simple and protruding without small spines (fig. 7) in opposit of those of *C. caviserrula* that has serrulae with flattened teeth and each teeth with small spines (Wei, 1997c). The specific name refers to the habitat of the new species.

Darjilingia bicoloricornis spec. nov.
(figs 10, 26)

Material.— Holotype, ♂ (RMNH): "N. **Vietnam**, Ninh Binh, Cuc Phuong N. P., nr. centre, c. 225 m, 01. xi.-20.xii.2000, Mai Phu Quy, RMNH 00".

Male.— Head black. Clypeus, labrum, most of mandible and palpi white. Narrow basal and ventral margin of mandible reddish black, apical half reddish brown. Antenna black, apical 3 segments white. Thorax black. Pronotum, parapteron, long band on the upper side of mesopleuron, large rounded spot on mesoscutellum, mesoscutellar appendage, metascutellum and cenchri white. Legs yellowish brown. Middle tarsal segments dorsally brown. Hind tibia with wide black apical ring. Hind basitarsus black (except narrow white hind margin). Hind tarsus white (except basitarsus). Coxae with narrow black base. Abdomen dark blackish brown. Tergites 1-4 with white hind margin. Sternite 3 white, sternite 4 whitish brown and other sternites dark blackish brown (fig. 26). Sternite 1 and 2 invisible, covered by the elongated hind coxae. Wings slightly infuscate. Costa, stigma and venation dark brown. Body smooth and shiny. OOL : POL : OCL = 11 : 5 : 10. Ratio of antennal segments: 11 : 5 : 21 : 21 : 20 : 17 : 11 : 10 : 13. Apical 2 antennal segments compressed. Clypeal emargination rounded, trapezoidal and about half as deep as clypeal median length and simple, clypeal margin smooth. malar space ⅔ × as wide as diameter of front ocellus. Inner margins of eyes parallel. Head contracted behind eyes. Occipital carina present. Postocellar furrows parallel and not reaching hind margin of head. Middle supra-antennal pit large, oval and longitudinally elongated, reaching front ocellus. Entire body smooth and shiny. Length of inner hind tibial spur : length of hind basitarsus : apical width of hind tibia: 10 : 33 : 7. Basal lobe of claw invisible (probably absent). Subapical and apical teeth of claws subequal (fig. 10). Length: 6.0 mm.

Female.— Unknown.

Notes.— The new species runs to *Darjlinigia similis* Saini and Vasu, 1996 in Saini and Vasu, 1996. Similarities are: mesopleuron with white long band, malar space is ⅔ × as wide as diameter of front ocellus, apical two antennal segments are compressed, antennal segments 3 and 4 are equal, posterior margin of tergite 2 white and postocellar area nearly as long as broad. The differences are: *D. similis* has a whitish-yellow supraclypeal triangle, fulvous scape and pedicell, inner tooth of claw larger than apical tooth and

OOL : POL : OCL: 1 : 1 : 1; the new species has the supraclypeal area and middle mesonotal lobes black, inner and apical teeth of claws subequal, and OOL : POL : OCL: 11 : 5 : 10 (approximately 2 : 1 : 2).

Mallachiella achterbergiana spec. nov.
(figs 16, 27)

Material.— Holotype, ♂ (RMNH): "C. **Vietnam**, Thua Thien Hué, Phong Dién N. R., nr. base camp, 15 km W. Phong My, c. 100 m, 22.iii.-06.iv.2001, Mal. traps 1-3. c. 225 m, C. v. Achterberg & R. de Vries. RMNH 01".

Male.— Head, thorax and antenna black (fig. 27). Labrum, mandible, palpi, legs and abdomen brown. White: all trochanters, apices of coxae, narrow bases of middle and hind femora, longitudinal lines on fore and middle tibiae, basal 2 segments of anterior tarsi, basal quarter of middle basitarsus. Cenchri light brownish white. Wings brownish infuscate. Costa, stigma and venation brown, basal fifth of costa whitish. Basal and first recurrent vein parallel. Number of cubital cells: 4. Anal cell of fore wing with strongly oblique crossvein (about 45°) placed in middle. Hind wing without closed middle cells. Hind margin of head simple without postocellar carina. Temples very narrow behind eyes. Head behind eyes constricted. Postocellar furrows straight and divergent not reaching hind margin of head. Ratios of antennal segments: 7 : 5 : 22 : 16 : 15 : 12 : 8 : 7 : 6. OOL : POL : OCL: 10 : 8 : 7. Clypeus truncate. Inner margins of eyes straight and converging below. Pentagonal frontal area missing. Lateral and middle supra-antennal pits rounded and deep about as large as diameter of front ocellus connected by deep furrow. Malar space missing. Eyes large. Hind orbits very narrow. Head shiny, moderately densely and uniformly punctured with small punctures. Mesonotal lobes moderately densely punctured with minute punctures, shiny. Mesoscutellum sporadically punctured with small punctures, moderately shiny. Mesoscutellar appendage and metascutellum smooth and moderately shiny. Mesopleuron moderately densely, superficially punctured with minute punctures, moderately shiny. Length of hind basitarsus : length of inner hind tibial spur : apical width of hind tibia: 25 : 9 : 8. Apical and subapical tooth of claw equal (fig. 16).

Female.— Unknown.

Notes.— The new species is related to *Mallachiella nigerrima* Muche, 1987. However, *M. nigerrima* has the clypeus deeply emarginated, the frontal area clearly indicated and abdominal tergite 8 with triangular membrane. Although, the deeply emarginated clypeus is not a generic feature of this genus according to Malaise, 1963, otherwise all other features perfectly match to genus *Mallachiella* Malaise, 1934 and this feature clearly differs the new species from all other species of the genus: *Mallachiella albipes* Wei, 1998; *M. heteronerva* Wei, 1997; *M. interstitialis* Wei, 1997; *M. malaisei* Saini & Deep, 1993 and *M. rufithorax* Malaise, 1934 The new species is dedicated to Prof. Dr Cees van Achterberg, scientific leader of the Vietnam-project.

Neothrinax dejongei spec. nov.
(figs 12, 28)

Material.— Holotype, ♂ (RMNH): "S. **Vietnam**, Dong Nai, Cat Tien N. P., Dong trail, Mal. traps 13-16, c. 100 m, 01-09.x.2005, C. v. Achterberg & R. de Vries. RMNH 05".

Male.— Head black. Clypeus and labrum white. Palpi brownish white. Antenna black, apical half of scape white. Thorax black (fig. 28). White: hind and lateral margins of prothorax, tegula, 2 elongated but small triangular spots at lateral sutures of mesonotal middle lobes, anterior third of mesoscutellum, cenchri, parapteron and a subtriangular-oval spot on the mesopleuron. Mesopleural spot connected to parapteron at one point. Legs dark brownish black, apical part of femora (ventral ⅓ and dorsal ⅕) and ventral half of front tibia white. Abdomen dark brownish black. Wings slightly infuscate-subhyaline. Stigma, costa and venation dark brownish black. Head smooth and shiny. Small and deep pit above each antennal base (lateral supra-antennal pit). Frontal area slightly sunken and slightly emarginated, oval but acute downwards. Postocellar furrows very short. Clypeus broadly and roundly emarginated. Clypeal emargination about ⅓ × as deep as clypeal median length. Hind margin of head smooth, occipital carina absent. OOL : POL : OCL = 8 : 8 : 15. Antenna relatively short, about 0.8 × as long as head and thorax combined. Ratio of antennal segments: 9 : 5 : 23 : 20 : 16 : 12 : 10 : 9 : 10. Thorax smooth and shiny. Presternal furrow invisible. Mesoscutellum flat. Fore wing with 3 cubital cells. First cubital cell with a small brown spot in its apical third. Basal vein and first cubital vein convergent. Anal cell without cross vein. Hind wing with 2 closed middle cells. Anal cell of hind wing with very short petiole. Nervulus of the hind wing meets apical part of the anal cell. Abdomen shiny. First tergite smooth. Other tergites with very shallow hardly visible undefined surface sculpture. Each tibial spur short and simple. Length of inner hind tibial spur : apical width of hind tibia = 6 : 7. Inner tooth of claw small (fig. 12). Basal lobe invisible (missing?). Length: 6.0 mm.

Female.— Unknown.

Notes.— The new species does not match to any of the Indian species (Saini et al., 1998), having black mesonotum and mesoscutellum but slightly resembles to *N. corvina* Malaise, 1944 having black tergites, coxae, trochanters and pedicell and mesoscutellum with white spot. However, in the new species the clypeus is roundly emarginated, the head lacks any bluish tinge, the pedicel is white, and the abdominal sternites are dark blackish brown. The new species is dedicated to Dr de Jonge, scientific leader of my Synthesis project that started this research.

Neothrinax achterbergi spec. nov.
(figs 11, 29)

Material.— Holotype, ♂ (RMNH): "NW. **Vietnam**, Tonkin, Hoang Lien N. R., 15 km W. Sa Pa. 15-21.x.1999, c. 1900 m, Malaise traps, C. v. Achterberg. RMNH 99".

Male.— Body black (fig. 29). White: clypeus, labrum, mandible, palpi, scape, pedicel, longitudinal dorsal line on 3rd antennal segment, entire legs (except apical 3 segments of hind tarsus), pronotum, tegula, wide margin of propleuron, parapteron, large triangular spot on mesopleuron, small upper mesopleural spot, most of metepisternum, metasternum, abdominal sternites (except apical 3) and narrow triangular membrane on propodeum. Light brown: ventral part of 4 apical antennal segments and cenchri. Wings slightly brownish infumate. Costa, stigma and venation dark brown. Antenna long and filiform. Length of antenna : length of head and thorax combined (excluding propodeum)

= 83 : 58. Ratio of antennal segments: 7 : 6 : 15 : 19 : 13 : 7 : 7 : 6 : 7. OOL : POL : OCL = 9 : 3 : 7. Head with sporadic, moderately deep punctures, shiny (except frontal area). Frontal area pentagonal and sunken. The surface of this area wrinkled in radial direction. Postoccipital furrows divergent, reaching hind margin of head. Clypeus deeply, widely and roundly emarginated. Clypeal emargination about half as deep as clypeal median length. Gena about ⅔ × as long as diameter of front ocellus. Head contracted behind the eyes. Hind margin of head simple, postoccipital carina absent. Mesonotal lobes moderately densely, but not uniformly punctured, shiny. Mesoscutellum, mesoscutellar appendage, metascutellum and mesopleuron smooth and shiny. Abdominal tergites (including propodeum) with fine coriaceous surface sculpture, shiny. Length of hind basitarsus : length of inner hind tibial spur : apical width of hind tibia =15 : 5 : 4. Claws without basal lobe, subapical tooth smaller than apical (fig. 11). Length: 4.0 mm.

Female.— Unknown.

Notes.— The new species runs to *Neothrinax corvina* Malaise, 1944 in Saini's et al. key (Saini et al., 1998) having black tergites and white sternites. However, the new species lacks white spots on the scutellum and middle mesonotal lobes, and the legs and basal 2 antennal segments are entirely white. The new species is dedicated to Prof. Dr Cees van Achterberg, scientific leader of the Vietnam-project.

Nesoselandria alborobusta spec. nov.
(figs 3, 13, 30)

Material.— Holotype, ♀ (RMNH): "N. **Vietnam**, Ninh Binh, Cuc Phuong N. P. nr. centre cc. 250 m, 10. ii.-15.iii.2000, Mai Phu Quy, RMNH 00".

Female.— Head and antenna black (ventral side of scape light brown). Scape whitish brown, palpi white. Thorax black, tegula and cenchri whitish brown. Legs entirely white, only claws brown. Abdomen brown (fig. 30). Wings brown infuscate. Costa, stigma and venation dark brown. Number of cubital cells: 3. Basal and first recurrent vein convergent. Costa strongly swollen. Hind wing with 2 closed middle cells. Anal cell with long petiole. Nervellus meets in middle of petiole. Head shiny, shallowly, minutely and moderately densely punctured. pentagonal frontal area hardly indicated. Head simple, without postoccipital horizontal furrow or postoccipital carina. Head narrowed behind eyes. Lateral supra-antennal pits simple, rounded, moderately deep and about as large as the front ocellus. Supra-antennal furrow very short, deep, about as long as distance between antenna and curved downwards (intermediate form between subgenera *Nesoselandria* Rohwer, 1910 and *Corrugia* Malaise, 1944). Clypeal emargination wide, rounded and shallow, about 0.25 × as deep as clypeal median length. Anterior margin of clypeus carinated. OOL : POL : OCL = 1 : 1 : 1. Ratio of antennal segments: 7 : 5 : 19 : 15 : 10 : 7 : 6 : 6 : 4. Antenna short and stout, shorter than head and thorax combined. Malar space missing. Inner margin of eyes slightly but clearly converging below. Thorax smooth and shiny. First abdominal tergite smooth and shiny, other tergites with dense, shallow microstriation, shiny. Inner tooth of claw slightly shorter than apical (fig. 13). Basal lobe invisible. Inner hind tibial spur short, about as long as apical width of hind tibia. Sawsheath very short, hardly visible above (fig. 3). Length: 5.5 mm.

Male.— Unknown.

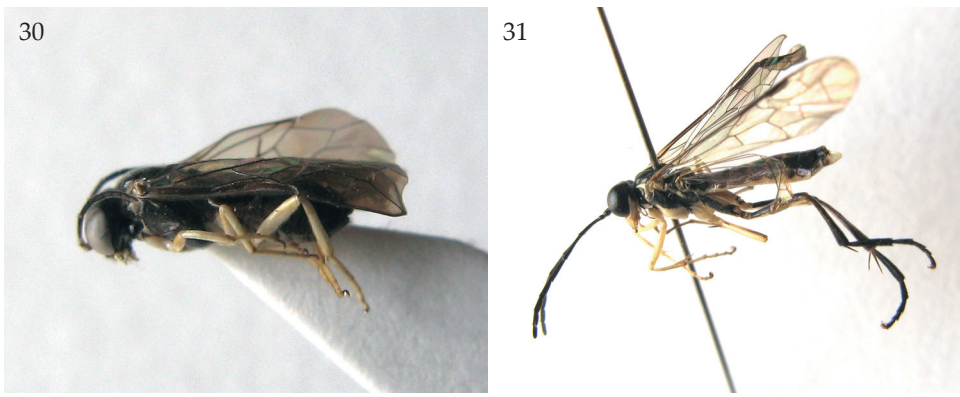
Figs 22-29. 22, *Beleses sapaensis* spec. nov. 23, *Beleses tianmuensis* spec. nov. 24, *Brykella tamdaoensis* spec. nov. 25, *Caliroa vietnamensis* spec. nov. 26, *Darjilingia bicoloricornis* spec. nov. 27, *Mallachiella achterbergiana* spec. nov. 28, *Neothrinax dejongei* spec. nov. 29, *Neothrinax achterbergi* spec. nov.

Notes.— The new species closely related (in size and colour in general) to *Nesoselandria acuminiserra* Wei, 1997 (Wei, 1997a). The most important differences are: the new species has very short and blunt sawsheath, hardly visible dorsally and laterally, and the abdominal sternites are brown; *N. acuminiserra* Wei has extremely long and acute sawsheath and white abdominal sternites (Wei, 1997a). The specific name refers to the relatively large size of the insect (within the genus *Nesoselandria*) and to the entirely white legs. In Malaise's key of genus Nesoselandria (Malaise, 1944), the new species runs to *Nesoselandria shanica* Malaise, 1944. The differences are: in *N. shanica*, the pronotum with white margin, hind tarsus and bases of coxae infuscate (except basitarsus), half of tegula plae, petiole of anal cell short, abdomen black. In the new species, the pronotum entirely black, tegula entirely light brown, abdomen brown (neither dark brown nor black!), legs entirely white including hind tarsus and bases of coxae and petiola of anal cell long. The downwardly curved supra-antennal furrow (instead of supra-antennal pit) is very specific character of the new species and never seen or mentioned anywhere else.

Tenthredo (Tenthredella) achterbergi spec. nov.
(figs 17, 21, 31)

Material.— Holotype, ♂ (RMNH): "NW. **Vietnam**, Tonkin, Hoang Lien N. R., 15 km W. Sa Pa. 15-21.x.1999, c. 1900 m, Malaise traps, C. v. Achterberg. RMNH 99". Paratype, ♂ (RMNH): "NW. **Vietnam**, Tonkin, Hoang Lien N. R., 10 km SW. Sa Pa. 22-29.x.1999, c. 1550 m, Malaise traps, C. v. Achterberg. RMNH 99".

Male.— Head and antenna black (fig. 31). White: labrum, clypeus, mandible (except brown apex), palpi, supraclypeal area till bases of supra-antennal tubercles, supra-antennal tubercles, gena, lower hind orbit and narrow inner orbit. Thorax black above except white cenchri, hind and lateral margin of pronotum and an oval spot on mesoscutellum. Mesopleuron white but with wide black dorsal and anterior bands. Katepimeron black with white upper band. Metepimeron entirely and metepisternum above black. Remaining part of thorax white. Legs white. Black: wide longitudinal band on hind coxa, hind tibia and hind tarsus entirely, longitudinal line on hind femur and



Figs 30-31. 30, *Nesoselandria alborobusta* spec. nov. 31, *Tenthredo (Tenthredella) achterbergi* spec. nov.

middle tibia. Middle femur with short apical black strip (it may even occur on anterior femur as well, paratype). Anterior part of fore tibia more or less brown (paratype). First abdominal tergite black, other tergites dark brown. Abdominal tergites with narrow white hind margins. Tergites 3-5 with small whitish basal triangles placed centrally (blurred and hardly visible in paratype). Abdominal sternites white. Wings hyaline with very slight brownish infuscation at apex. Stigma, costa and venation brownish black. Head smooth and shiny. Clypeal emargination trapezoid and about 0.25 × as deep as clypeal median length. Head contracted behind eyes. Antenna long and slender, about as long as head, thorax and first 3 abdominal segments combined. Ratio of antennal segments: 14 : 8 : 39 : 40 : 35 : 28 : 20 : 19 : 21. OOL : POL : OCL: 3 : 7 : 3. Malar space linear. Supra-antennal tubercles moderately elevated but confluent with the frontal area. Frontal area narrow, very elongated surrounded by ridges. Head with postoccipital carina. Mesonotal lobes densely and uniformly punctured with small, moderately deep punctures, moderately shiny. Mesoscutellum densely and moderately roughly punctured, hardly shiny. Mesoscutellar appendage with fine microstriation. Metascutellum with dense, small but deep punctures in middle, moderately shiny. Mesopleuron with small, dense moderately deep and isolated punctures, moderately shiny. Punctures in middle of mesopleuron rough and moderately large. Mesosternum simple, without thorn. Mesopleuron hardly elevated. Mesoscutellum bluntly elevated. Abdominal tergites (including propodeum) with fine microstriation, shiny. Pubescence on head and thorax sparse, hyaline and very short, body nearly bald. Hind tibial spur straight and very long. Length of hind basitarsus : length of inner hind tibial spur : apical width of hind tibia: 63 . 40 : 15. Subapical tooth of claw as long as apical but wider (fig. 17). Penis valve in fig. 21. Length: holotype: 10 mm, paratype: 9.5 mm.

Female.— Unknown.

Notes.— The coloration of the new species slightly resembles to *Tenthredo smitensis* Singh & Saini, 1988: by its black body and white mandibles, face below antennae, lower ¾ of hind orbit, dorsal and ventral angles and posterior margin of pronotum, and mesoscutellum in part. The differences are: *Tenthredo smitensis* has the apical tooth of the claws much longer than subapical, black inner orbits, mesoscutellum with acute apex, distinctly punctured frontal area, and mesonotum with shiny interspaces between punctures (Singh & Saini, 1988; Saini, 2007); the new species has the apical and subapical teeth of the claws equal, white inner orbits, smooth and shiny frontal area, and mesonotum densely punctured without shiny interspaces. Otherwise the new species is not related to any other species of the genus.

Notes on other species

Tenthredo (Tenthredina) nigricornis Malaise, 1945
(fig. 20)

Material.— 1 ♂ (RMNH): "N. **Vietnam**, Vinh Phuc, Tam Dao N. P., c. 1000 m, 19.iv.2001, R. de Vries. RMNH 01".

Undescribed male.— Body brownish ferruginous with black and yellow pattern. Black: antenna (except scape and base of pedicel), narrow mesonotal, pronotal and

mesopleural sutures, longitudinal line of anterior and middle tibiae and that on hind femur, postocellar furrows and three rounded spots on head (two spots in lateral supra-antennal pits and one in middle of frontal area). Hind tarsi gradually darkened from brownish ferruginous to brownish black. Yellow: labrum (except narrow ferruginous upper margin), clypeus, most of mandibles (except brownish black apices), ridges around frontal area, supra-antennal tubercles (confluent with frontal ridges), narrow inner margin of eyes (blurred, not clearly visible), lower postorbital area (more or less blurred), narrow hind margin of pronotum, propleuron and a blurred spot on left mesopleuron (asymmetric). Wings yellowish with very slight infuscation on radial cells. Costa and stigma yellow. Venation brown. Clypeal emargination trapezoid (but more or less rounded) and about ⅓ × as deep as median length of clypeus. Gena about half as wide as diameter of front ocellus. Head shiny, irregularly and sporadically punctured with small and few large confluent and elongated punctures. Antenna short, about as long as head and thorax combined without propodeum. Ratio of antennal segments: 18 : 8 : 41 : 23 : 20 : 15 : 14 : 12 : 13. OOL : POL : OCL: 19 : 4 : 12. Head contracted behind the eyes. Supra-antennal tubercles and ridges around the frontal area elevated. Frontal area elongated. Postoccipital area present but hardly visible. Pronotum, mesonotal lobes and mesoscutellum shiny, sporadically punctured with small, moderately deep punctures. Mesoscutellar appendage and postscutellum smooth and shiny. Mesoscutellum blunt, subpyramidal. Mesosternum without thorn. Mesopleuron only slightly elevated. First abdominal tergite (propodeum) smooth and shiny. Second abdominal tergite with dense, deep and rough punctures in middle, moderately shiny. Other tergites with very rough, deep coriaceous surface sculpture, hardly shiny. Second and third abdominal segments narrowed. Penis valve in fig. 20. Claw without basal lobe but with subapical tooth. Subapical tooth about as long as apical but wider. Length: 11.8 mm.

Female.— Unknown.

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