A Revision of the Subgenus Tarsandrena of the Genus Andrena of Eastern Asia (Hymenoptera, Andrenidae)

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A Revision of the Subgenus Tarsandrena of the Genus Andrena of Eastern Asia (Hymenoptera, Andrenidae)

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Abstract. East Asian species of the subgenus Tarsandrena of the genus Andrena are revised, and 6 species are recognized from China and Mongolia. Three new species, Andrena (Tarsandrena) truncatella, A. (Tarsandrena) niveimonticola, A. (Tarsandrena) shawanensis are described. Three species, A. ehnbergi Morawitz, A. tarsata baicalensis Cockerell and A. angarensis Cockerell are newly recorded from China.

Key words: taxonomy, Hymenoptera, Andrenidae, Andrena, Tarsandrena, eastern Asia, new species, revision.

Introduction

The Palearctic subgenus Tarsandrena of the genus Andrena was defined by Osytshnjuk in 1984, and 4 species were allocated in this subgenus. The nominate type species Andrena tarsata Nylander was formerly placed in the subgenus Polialldrena by Warncke in 1968, but the species of the subgenus Tarsandrena are easily separated from the species of the subgenus Tarsandrena by the ill-defined propodeal enclosure and broadened posterior spur of hind tibiae in female. In the present study, we recognized 6 species of this subgenus from China and Mongolia including 3 new species. The types will be deposited in the Institute of Zoology, Academia Sinica, Beijing, and some paratypes are also deposited in the Entomological Laboratory, Kyushu University, Fukuoka.

Subgenus Tarsandrena Osytshnjuk


Diagnosis: Medium-sized bees; facial quadrangle broader than long or about quadrate; facial fovea close to inner margin of eye, various; mandible bidentate or tridentate in female; process of labrum convex, truncate; galea short, spear-shaped, outer
margin with apical third concave; maxillary and labial palpi normal; pronotum with humeral angle and ridge or lacking; propodeal corbicula well developed; propodeal enclosure well defined by lateral sutures; dorsal face outlined by raised ridges along sutures; hind tibia cuneate with extremely short scopal hairs; metasomal terga with hair bands. Male clypeus yellowish white; occasionally lower paraocular area maculae; flagellar segments as in female, FL1 longer than or equal to FL2+3; sternum 6 flat apically.

Key to species of the subgenus *Tarsandrena* in eastern Asia

**Female**

1. Length 11-13 mm: metasomal terga densely essellate with tight minute PP, terga 1-4 with complete white hair bands; [mesoscutum with strongly crowded PP, dull roughened; clypeus with distinct median impunctate space] .............................. *ehnbergi* Morawitz

- Length less than 11 mm; metasomal terga 2-4 with white hair bands, complete or broadly interrupted .............................. 2

2. Mandible tridentate ................................................................. 3

- Mandible bidentate ........................................................................ 5

3. Facial fovea sharply narrowing below; clypeus coarsely punctate, strongly roughened; terga 2-4 with interrupted hair bands; [hairs on body scanty] .......................................................... *truncatella* n. sp.

- Facial fovea not narrowing below; clypeus not roughened; terga 2-4 with complete hair bands .......................................................... 4

4. Pronotum with distinct humeral angle and ridge; clypeus with large crowded PP, median impunctate line obscure; metasomal terga with distinct crowded PP .............................. *shawanensis* n. sp.

- Pronotum with weak humeral angle and ridge crossed by depressed sutures; clypeus with small crowded PP, median impunctate space obvious; metasomal terga with weak, sparse PP ........................................... *tarsata baikalensis* Cockerell

5. Clypeus with broad, polished median impunctate space; mesoscutum finely tessellate with weak and sparse minute PP; dorsal propodeal face densely tessellate, not roughened; metasomal terga with weak, sparse minute PP ..... *niveimonticola* n. sp.

- Clypeus with crowded large PP without median impunctate line; mesoscutum and metasomal terga with distinct close PP; dorsal propodeal face roughened ............................. *angarensis* Cockerell

**Male**

1. Clypeus and lower paraocular area yellow; hairs on body uniform, whitish; [flagellar segment 1 equal to the next two segments together] .............................. *angarensis* Cockerell

- Clypeus yellow and lower paraocular area with small yellow maculae or not; hairs on body various ........................................................................ 2

2. Pronotum without humeral angle and ridge; metasomal terga with weak, scattered microscopic PP, irregular in distribution ........................................... *niveimonticola* n. sp.
- Pronotum with distinct or weak humeral angle and ridge; metasomal terga with
distinct PP, dense or sparse ............................................................... 3

3. Length 11 mm; metasomal terga 1-4 with complete white hair bands with large
and rather close PP ............................................................. *ehnbergi* Morawitz

- Length less 10 mm; metasomal terga 2-4 with interrupted hair bands with smaller
and sparser PP........................................................................... 4

4. Hairs on clypeus fulvous; humeral angle and ridge distinct, crossing by deeply de
pressed sutures; dorsal propodeal face coarsely roughened ........... *truncatella* n. sp.

- Hairs on clypeus whitish; humeral angle and ridge weak; dorsal propodeal face dense-
ly tessellate, not roughened.................................................. 5

5. Propodeal enclosure with longitudinal rugulae; metasomal terga densely punctate.
- Propodeal enclosure weakly shagreened; metasomal terga with sparse PP; IS = 1-2

............................ *shawanensis* n. sp.

1. *Andrena (Tarsandrena) ehnbergi* Morawitz

Siberia of Russia].

male, in key].

**Female:** BL 11.0-13.0 mm, WL 8.5-10.5 mm (n= 8).

**Color:** Flagellum reddish brown beneath; mandible with apical third reddened; wing
membranes subhyaline, veins and pterostigma reddish brown; tibial spurs yellowish;
posterior depressions of metasomal terga dark reddish brown.

**Pubescence:** Hairs on head and thorax dense, white to fulvous; those on clypeus about
400μ, white; those on vertex 600μ, fulvous; those on genal area white: facial fovea
yellowish brown above, white below. Hairs on mesoscutum and scutellum 500-600μ,
fulvous; those on mesepisternum 750μ, white; propodeal corbicula well developed, white
mixed with a little brown, internal hairs simple; trochanteral flocus perfect, whitish;
femoral flocus dense; tibial scopal hairs extremely short, simple, whitish below, bright
brown above. Hairs on metasomal terga extremely short, brown, whitish laterally except
tergum 1 with long whitish hairs; terga 1-4 with complete white hair bands; caudal
fimbria brown, white laterally; sterna 2 5 with white subapical fimbriae.

**Structure:** **Head:** HL/HW = 0.75. HW:MsW:MtW = 4.0 : 3.7 : 4.0. Vertex
shagreening with crowded PP. OOD:POD:OCD = 0.7 : 0.5 : 0.4. FL1 > FL2+3. FL2 =
FL3 broader than long. Eyes with inner margins subparallel. Facial fovea extending
below a line at lower margins of antennal fossae, narrow, deeply depressed, separated
from inner margin of eye by smooth space, FVL = 1.3 mm, FWV = 0.4 mm. Face above
antennal fossae with longitudinal striates, interrugal space with coarse PP, dull
shagreened. Facial quadrangle slightly broader than long (about 2.7 : 2.5). Clypeus
finely convex, surface with crowded PP, O 20μ, IS < 0.1, dull roughened, with median
longitudinal impunctate space, weakly tessellate, CPL = 1.2 mm. Process of labrum
large, deeply truncate with rounded apical margin. Mandible bidentate. Lower paraocular area shagreening with crowded PP, $\phi$ 10$\mu$, IS < 0.1. Malar space almost linear. Genal area as broad as eye, GW:EW = 0.9 : 0.9, surface densely tessellate posteriorly, weakly tessellate with close PP near eye. Mesosoma: Pronotum with humeral angle and weak ridge crossed by shallow pronotal suture, surface densely tessellate. Mesoscutum with tight PP, $\phi$ 10$\mu$, IS < 0.1, dull shagreening. Scutellum shagreening as in mesoscutum. Propodeal enclosure well defined, weakly roughened with rugulae laterally; dorsal face strongly tessellate, dull roughened. Mesepisternum densely tessellate with PP, $\phi$ 20$\mu$, IS = 1. Middle basitarsi normal. Vein 1st $m$-$cu$ meeting second submarginal cell at middle of cell. Metasoma: Metasomal terga densely tessellate with crowded PP, $\phi$ 10$\mu$, IS < 0.1; posterior depressions of terga broad, not well indicated; pygidial plate V-shaped with internal raised triangular area. Sterna 2-5 densely tessellate with fine PP, IS = 1 or more.

**Male**: BL 11.2 mm, WL 9.4 mm (n=1).

**Color**: Flagellum brown beneath; mandible reddened apically; clypeus yellowish white; lower paraocular area with small maculae; wing membranes infumate, veins and pterostigma reddish brown; tibial spurs yellowish; posterior depressions of metasomal terga black.

**Pubescence**: As in female, white to fulvous; tergum 1 with long hairs laterally, weak fringe apically; terga 2-4 with complete white hair bands; sterna 2-5 with white subapical fimbriae.

**Structure**: Head: HL/HW = 0.85. HW:MsW:MtW = 3.3 : 2.7 : 2.7. Vertex densely tessellate with close and deep PP. OOD:POD:OCD = 0.76 : 0.45 : 0.45. FL1 > FL2+3, FL2 < FL3 which are broader than long. Eyes with inner margins converging toward mandibles. Facial quadrangle broader than long (about 2.3 : 2.0). Clypeus slightly convex, surface smooth and shiny with PP, $\phi$ 20$\mu$, IS < 0.5. CPL = 0.9 mm. Process of labrum convex apically, truncate. Mandible bidentate, long and decussate. Lower paraocular area with PP, $\phi$ 20$\mu$, IS < 0.5. Malar space linear. Genal area as broad as eye, GW:EW = 0.9 : 0.9, surface sculptured as in female. Mesosoma: Pronotum as in female. Mesoscutum densely tessellate anteriorly, weakly tessellate posteroomedially with crowded PP, $\phi$ 20$\mu$, IS < 0.5. Scutellum shagreening with crowded PP posteriorly, shiny with PP, $\phi$ 20$\mu$, IS < 0.5 medially. Propodeal enclosure weakly rugulose basally, roughened apically; dorsal face strongly tessellate, dull shagreening. Mesepisternum finely tessellate, feebly shiny with PP, $\phi$ 20$\mu$, IS < 1. Vein 1st $m$-$cu$ meeting second submarginal cell before middle of cell. Metasoma: Metasomal terga weakly tessellate, shiny with crowded PP, $\phi$ 20$\mu$, IS < 0.5; PP on terga 4-5 slightly sparser, IS < 1; posterior depressions of terga broad, not well indicated. Sterna 2-5 weakly tessellate, shiny with PP, $\phi$ 20$\mu$, IS < 0.5.


Remarks: This species is separated from the other members of Tarsandrena by the larger-sized body, the metasomal terga 1-4 with complete hair bands. Furthermore, the female has dull roughened mesoscutum with coarse PP. The male has fulvous hairs on the dorsum of thorax.

Distribution: China (new record: Beijing, Hebei Prov., Xinjiang Auton. Region); Mongolia; Russia (middle Siberia, Far East area).

Floral association: Potentilla sp.

2. Andrena (Tarsandrena) truncatella new species
(Fig. 1-10)

Female: BL 8.5-10.0 mm, WL 7.3-7.7 mm (n= 20).

Color: Flagellum reddish brown beneath; mandible with apical half or less reddened; wing membranes subhyaline, moderately brown; veins and pterostigma reddish brown; tibial spurs ochraceous; posterior depressions of metasomal terga dark reddish brown.

Pubescence: Hairs on head, yellow to bright brown; those on clypeus 250μ, yellow; those on vertex 250μ, bright brown; those on genal area 500μ, yellow; facial fovea black. Hairs on thoracic dorsum scanty; those on mesepisternum 300-500μ, yellow; propodeal corbicula well developed with simple internal hairs, fulvous; trochanteral fuscous perfect, whitish, femoral fuscous dense; tibial scopal hairs extremely short, reddish brown. Hairs on metasomal terga scanty; terga 2-4 with interrupted whitish hair bands; caudal fimbria bright brown; sternum 2-5 with poor-formed whitish subapical fimbriae.

Structure: Head: HL/HW = 0.82. HW:MsW:MtW = 3.1 : 2.9 : 3.2. Vertex roughened with coarse PP. OOD:POD:OCD = 0.6 : 0.4 : 0.3. FL1 > FL2+3, FL2 subequal to FL3 which is broader than long. Eyes with inner margins subparallel. Facial fovea broad above, narrowing to below, extending beyond a line at lower margins of antennal fossae. FVL = 1.3 mm. FVV = 0.3 mm. Face above antennal fossae with weak longitudinal rugulae and interrugal PP. Facial quadrangle broader than long (about 2.2 : 2.0). Clypeus convex medially, surface shagreening with crowded PP, Ø 40μ, IS < 0.1, clypeus with obscure median impunctate ridge. CPL = 1.0 mm. Process of labrum trapezoidal, convex and truncated. Mandible tridentate. Malar space linear. Genal area as broad as eye. GW: EW = 0.8 : 0.8, surface densely tessellate posteriorly, weakly tessellate with close PP near eye. Mesosoma: Pronotum with distinct humeral angle and ridge crossed by deeply depressed suture, surface weakly tessellate, shiny with fine close PP. Mesoscutum finely tessellate, feebly shiny with deep and crowded PP, Ø 10-20μ, IS < 0.1. Scutellum with crowded PP, Ø 20μ, IS < 0.5, feebly shiny anteriorly, weakly shagreening posteriorly. Propodeal enclosure well outlined, weakly rugulose all over, dull shagreening; dorsal face dull roughened with coarse PP. Mesepisternum weakly tessellate, shiny with obscure PP. Middle basitarsi normal. Vein 1st m-cu meeting second submarginal cell at middle of cell. Metasoma: Metasomal terga weakly tessellate, shiny; terga 1-4 with crowded PP, Ø 10-20μ, IS < 0.5; PP on terga 3-4 sparser apically; posterior depressions of terga broad, 1/2 on tergum 2, 2/3 on terga 3-4, well indicated: pygidial plate V-shaped.

with raised internal area. Sterna 2-5 finely tessellate with PP, Ø 10μ, IS < 1 at apical areas.

**Male**: BL 7.5-9.5 mm, WL 6.3-8.5 mm (n= 14).

**Color**: Flagellum reddish brown beneath except basal portion; mandible reddened apically; clypeus yellow except two brown spots laterally and black apical margin; lower paraocular area with small yellow maculae, occasionally lacking; wing membranes infumate, veins and pterostigma reddish brown; tibial spurs yellowish; posterior depressions of metasomal terga yellowish brown.

**Pubescence**: Hairs on head and thorax sparse, fulvous; those on clypeus 500μ; those on vertex 300-500μ; those on mesoscutum 500μ; those on scutellum and propodeum 700μ; those on mesepisternum 800μ, dense. Hairs on metasomal terga extremely short and sparse, yellowish to brown; terga 2-5 with weak apical fringes laterally; sternum 2-5 with yellowish subapical fimbriae.
Figs. 6-10. *Andrena* (*Tarsandrena*) *truncatella* n. sp., male. 6: dorsal view of the whole body; 7: head in frontal view; 8: mesoscutum; 9: propodeum; 10: metasomal terga.

Structure: Head: HL/HW = 0.74. HW:MsW:MtW = 3.1 : 2.5 : 2.5. Vertex, face above antennal fossae and clypeus sculptured as in female except clypeus shiny with PP, $\Omega < 0.5$. OOD:POD:OCD = 0.7 : 0.4 : 0.4. FL1 > FL2+3, FL2 subequal to FL3 which is broader than long. Eyes with inner margins converging toward mandibles. Facial quadrangle broader than long (about 1.7 : 1.5). Clypeus smooth and shiny with shallow, obscure PP, CPL = 0.8 mm. Process of labrum convex apically, truncate. Mandible bidentate, long and decussate. Lower paraocular area feebly shiny with crowded PP, $\Omega < 0.1$. Malar space linear. Genal area slightly broader than eye, GW:EW = 0.9 : 0.8, surface sculptured as in female. Mesosoma: Pronotum with distinct humeral angle and ridge, which crossed by deeply depressed sutures, surface weakly tessellate, shiny with close PP. Mesoscutum weakly tessellate, shiny with crowded PP, $\Omega < 0.5$. Scutellum sculptured as in mesoscutum. Propodeum roughened as in
female. Mesepisternum densely tessellate with obscure PP. Wing venation as in female. 

**Metasoma:** Metasomal terga rather weakly tessellate, shiny; tergum 1 with PP, \( \Theta 10\text{-}20\mu \), IS < 1; terga 2-4 with PP, \( \Theta 10\mu \), IS = 1-2 at basal areas, sparser apically; posterior depressions of terga broad, not well indicated. Sterna 2-5 weakly tessellate, shiny with close PP.


**Remarks:** This species is similar to *Andrena bonivuri* Oystshnjuk in having the facial fovea narrowing below in female. The female can be separated from that of *bonivuri* by the clypeus closely punctate and the metasomal terga with close PP. The male can be separated from that of *bonivuri* by the genital capsule with gonostylyus narrow.

**Distribution:** China (Beijing, Hebei, Jilin, Heilongjiang Provs.).

**Floral associations:** *Potentilla* spp.

### 3. *Andrena (Tarsandrena) shawanensis* new species

(Fig. 11-20)

**Female:** BL 10.5 mm, WL 8.7 mm (n= 1).

**Color:** Flagellum reddish brown beneath; mandible with apical half reddened; wing membranes subhyaline, weakly brown, veins and pterostigma reddish yellow; tibial spurs yellow; posterior depressions of metasomal terga dark brown.

**Pubescence:** Hairs on head and thorax dense, white to black; those on clypeus 600\(\mu\), whitish; those on antennal area whitish; those on vertex 400-750\(\mu\), dull white mixed with black; those on genal area 500\(\mu\), whitish; facial fovea dark brown. Hairs on mesoscutum 300-500\(\mu\), dull white anteriorly, black medially and posteriorly; those on scutellum black mixed with dull white; propodeal corbicula white with a little brown, with simple internal hairs; trochanteral floculus perfect, white; femoral floculus dense; tibial scopal hairs extremely short, whitish yellow. Hairs on metasomal terga scanty; tergum 1 with long white hairs laterally; terga 2-4 with complete white hair bands; caudal fimbria brown medially, whitish laterally; sterna 2-5 with white subapical fimbriae.

**Structure: Head:** HL/HW = 0.76. HW:MsW:MtW = 3.4 : 3.0 : 3.4. Vertex weakly shagreening with crowded PP. OOD:POD:OCD = 0.6 : 0.5 : 0.25. FL1 > FL2 +3, FL2 = FL3 which are broader than long. Eyes with inner margins paralleled. Facial fovea extending below a line at lower margins of antennal fossae, FVL = 1.2 mm, FVW = 0.4 mm. Face above antennal fossae with longitudinal rugulae, interrugular space with coarse PP, dull shagreening. Facial quadrangle quadrature (about 2.4 : 2.4). Clypeus slightly convex, surface weakly tessellate, shiny with crowded PP, \( \Theta 20\text{-}40\mu \), IS < 0.1. CPL = 1.1 mm. Process of labrum large with truncated area shiny. Mandible tridentate.
Lower paraocular area weakly tessellate with crowded minute PP. Malar space linear. Genal area slightly broader than eye, GW:EW = 0.9 : 0.8, surface finely tessellate posteriorly, weakly tessellate with crowded PP near eye. Mesosoma: Pronotum with humeral angle and ridge, surface densely tessellate. Mesoscutum weakly tessellate, surface shiny with crowded PP, Ø 10-20μ, IS < 0.5. Scutellum with PP, Ø 10μ, IS < 0.1. Propodeal enclosure well defined, finely rugulose laterally, roughened; dorsal face outlined by deep sutures, dull shagreening. Mesepisternum finely tessellate with obscure PP. Vein 1st m-cu meeting second submarginal cell at middle of cell. Metasoma: Metasomal terga weakly tessellate, feebly shiny with close PP, Ø 10μ, IS < 1; posterior depressions of terga broad, well indicated; pygidial plate V-shaped with raised triangular area. Sterna 2-5 finely tessellate, impunctate basally.

Male: BL 6.5 mm, WL 5.5 mm (n= 1).
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Figs. 16-20. Andrena (Tarsandrena) shawanensis n. sp., male. 16: dorsal view of the whole body; 17: head in frontal view; 18: mesoscutum; 19: propodeum; 20: metasomal terga.

**Color:** Flagellum reddish brown beneath; mandible with apical half reddened; clypeus yellowish white except two brown spots laterally; wing membranes infumate, veins and pterostigma reddish yellow; tibial spurs ochraceous; posterior depressions of metasomal terga yellowish brown.

**Pubescence:** Hairs on head and thorax dense, white without black except mesoscutum scanty; terga 2-4 with short, bright brown; apical area with interrupted white hair bands; sternae 2-5 with whitish subapical fimbriae.

**Structure: Head:** HL/HW = 0.74. HW:MsW:MtW = 2.3:1.9:2.0. Vertex weakly tessellate with close PP. OOD:POD:OCD = 0.5:0.3:0.15. FL1 > FL2+3, FL2 < FL3 broader than long. Eyes with inner margins slightly converging toward mandibles. Face above antennal fossae with distinct longitudinal rugulae, interrugal PP small, obscure. Facial quadrangle about quadrate (about 1.5:1.5). Clypeus weakly convex, surface smooth and shiny with shallow PP, Ø 10μ, IS < 1, CPL = 0.7 mm. Process of labrum
as in female, but smaller. Mandible bidentate, long and decussate. Lower paraocular area weakly tessellate and shiny with crowded PP, Ø 10μ, IS < 0.5. Malar space linear. Genal area as broad as eye, GW:EW = 0.7 : 0.7, surface finely tessellate posteriorly, weakly tessellate, shiny with close PP near eye. Mesosoma: Pronotum with humeral angle and weak ridge, which crossed by slightly depressed sutures, surface densely tessellate. Mesoscutum weakly tessellate, shiny with crowded PP, Ø 10-20μ, IS < 0.5. Scutellum sculptured as in mesoscutum. Propodeal enclosure well defined, sculptured by longitudinal rugulae; dorsal face of propodeum dull shagreening. Mesepisternum finely tessellate with obscure PP. Vein 1st m-cu meeting second submarginal cell before middle of cell. Metasoma: Metasomal terga weakly tessellate, shiny with close microscopic PP, IS < 1; posterior depressions of terga not well indicated. Sterna 2-5 finely tessellate with microscopic PP basally.


Remarks: This species is similar to Andrena angarensis Cockerell. The female is easily separated from that of angarensis by the clypeus crowdedly punctate and the propodeal enclosure weakly shagreening, not granulate.

Distribution: China (Xinjiang Auton. Region).

Floral association: Not available.

4. Andrena (Tarsandrena) tarsata baicalensis Cockerell


Remarks: This species is similar to Andrena shawanensis n. sp. in female by having the tridentate mandible and the normal facial fovea. The female can be recognized by the clypeus more shagreening, the metasomal terga with weak and sparser PP. The male can be separated from that of shawanensis by the metasomal terga sparsely punctate.

Distribution: China (new record: Xizang Auton. Region, Sichuan Prov.); Mongolia: Russia (Siberia, Far East area).

Floral association: Not available.

5. Andrena (Tarsandrena) niveimonticola new species (Fig. 21-30)

Female: BL 7.0-8.2 mm, WL 5.7-6.7 mm (n= 20).
Color: Flagellum reddish brown beneath; mandible with apical third or less reddened; wing membranes subhyaline, weakly brown, veins and pterostigma reddish brown; tibial spurs reddish yellow; posterior depressions of metasomal terga dark reddish brown.

Pubescence: Hairs on head and thorax sparse, whitish to black; those on clypeus 300μ, whitish; those on antennal area dense, black; those on vertex 200-400μ, whitish mixed with brown; those on genal area whitish mixed with black; facial fovea brown. Hairs on mesoscutum rather sparse, 300μ, black; those on scutellum scanty; those on mesepisternum 600μ; whitish below, whitish mixed with brown above; propodeal corbicula dull white with simple internal hairs; trochanteral flocus nearly perfect, white; femoral flocus dense; tibial scopal hairs extremely short, bright brown. Hairs on metasomal terga scanty; terga 2-4 with sparse apical hair bands laterally, white; caudal

fimbria brown; sterna 2-4 with white subapical fimbriae; sternum 5 with bright brown hairs.

Structure: Head: HLIHW = 0.86. HW:MsW:MtW = 2.2:2.2:2.2. Vertex densely tessellate with obscure PP. OOD:POD:OCD = 0.4:0.3:0.2. Fl.1 > Fl.2 +3, Fl.2 = Fl.3 with broader than long. Eyes with inner margins subparallel. Facial fovea narrow, extending below a line at lower margins of antennal fossae, FVL = 0.8 mm, FVW = 0.2 mm. Face above antenial fossae with fine longitudinal rugulae, interrugulae PP obscure, dull shagreening. Facial quadrangle quadrate (about 1.6:1.6). Clypeus slightly convex, weakly tessellate medially, shiny with broad median impunctate space, densely tessellate laterally with PP, Ø 20μ, IS < 1, CPL = 0.8 mm. Process of labrum quadrate, weakly truncate. Mandible bidentate. Lower paraocular area densely tessellate with obscure PP. Malar space linear. Genal area slightly broader than eye, GW: EW = 0.6:0.5, surface

densely tessellate. *Mesosoma: Pronotum without humeral angle and ridge, surface finely
tessellate, feebly shiny. Mesoscutum densely tessellate anteriorly and posteriorly, weakly
tessellate with microscopic PP, IS < 1 or obscure. Scutellum sculptured as in
mesoscutum. Propodeum flat, propodeal enclosure not well defined, dull shagreening
with longitudinal rugulae basally; dorsal face of propodeum densely tessellate with
obscure PP. Mesepisternum densely tessellate. Vein 1st m-cu meeting second
submarginal cell near end of cell. *Metasoma: Metasomal terga finely tessellate, feebly
shiny; terga 1-4 with microscopic PP, irregular in distribution; posterior depressions of
terga weak, not well indicated; pygidial plate V-shaped with round apex and raised
triangular area. Sternum 2 finely tessellate with close minute PP apically; sterna 3-5
smooth and shiny basally without PP, finely tessellate with close PP apically.

**Male**: BL 6.5-7.0 mm, WL 6.0-6.6 mm (n= 2).

*Color*: Flagellum reddish brown beneath; mandible reddened apically; clypeus
yellowish white except two brown spots laterally; wing membranes infumate, paler
at apex, veins and pterostigma reddish brown; tibial spurs yellow; posterior depressions
of metasomal terga yellowish brown.

*Pubescence*: Hairs on head and thorax sparse, white to black; those on clypeus 600μ,
white; those on antennal area black; those on vertex 300-750μ, white mixed with brown;
those on genal area white mixed with black; those on mesoscutum 700μ, white; those on
scutellum 400-600μ; those on mesepisternum 700μ, white; those on metasomal terga
scanty; terga 2-4 with weak apical fringes laterally; sterna 2-5 with weak whitish
subapical fimbriae.

*Structure: Head*: HL/HW = 0.78. HW:MsW:MtW = 2.2 : 2.0 : 2.0. Vertex densely
tessellate. OOD:POD:OCD = 0.5 : 0.3 : 0.2. FL1 = FL2+3, FL2 = FL3 broader than
long. Eyes with inner margins slightly converging toward mandibles. Face above
antennal fossae with longitudinal rugulae, interrugula PP coarse, dull roughened. Facial
quadrangle about quadrate (about 1.5 : 1.5). Clypeus slightly convex, surface smooth
and shiny with shallow PP, Ø 10μ, IS < 0.5 laterally, sparser medially, CPL = 0.5 mm.
Process of labrum truncate with apex emarginate. Mandible bidentate, slightly decussate.
Lower paraocular area dull shagreening with coarse PP. Malar space linear. Genal area as
broad as eye, GW:EW = 0.6 : 0.6, surface weakly rugulose. *Mesosoma: Pronotum
without humeral angle and ridge, surface sculptured as in female. Mesoscutum weakly
tessellate, shiny with crowded PP, Ø 10-20μ, IS < 0.5. Scutellum densely tessellate
anterioiy, weakly tessellate with PP, Ø 10μ, IS = 1 medially and posteriorly.
Mesepisternum densely tessellate with irregular PP. Propodeal enclosure well defined by
lateral sutures, sculptured by longitudinal rugulae all over; dorsal face of propodeum
densely tessellate as in the members of Oreomeleissa. Mesepisternum strongly tessellate
with obscure PP. Vein 1st m-cu meeting second submarginal cell near end of cell.
*Metasoma*: Metasomal terga smooth to weakly tessellate, shiny; terga 1-4 with weak,
sparse microscopic PP, IS = 1-3; posterior depressions of terga not well indicated. Sterna
2-5 weakly tessellate, shiny with microscopic PP, IS = 1-2 apically.

*Type material*: Holotype female, Zhongdian, 3,250 m, Yunnan Province, China. 3.
viii. 1981 (X.-z. Zhang); Paratypes: **China**: Yunnan Province: 2 females, same locality,
date and collector as the holotype; 1 female, Mt. Baimang Snow, Deqing County. 3,700
m, 25. viii. 1981 (S.-y. Wang); 1 female, Ludian, Lijiang, 2,800 m, 11. viii. 1984 (J.-g.

Remarks: This species differs from the other members of Tarsandrena by the pronotum without humeral angle and ridge, the dorsal propodeal face densely tessellate, not roughened as the members of Oreomelissa, the metasomal terga with scattered microscopic PP.

Variety: Specimens collected in Zhongdian, Yunnan Province, have the more shagreening clypeus laterally, and the more distinct PP on the mesoscutum.

Distribution: China (Xizang Auton. Region, Yunnan Prov.).

Floral association: Potentilla sp.

6. Andrena (Tarsandrena) angarensis Cockerell


Male (redescription): BL 7.5 mm, WL 5.5 mm (n= 4).

Color: Flagellum reddish brown beneath; mandible with apical third reddened; clypeus yellowish white except two brown spots laterally; lower paraocular area yellowish white all over; wing membranes infumate, veins and pterostigma reddish brown; tibial spurs yellow; posterior depressions of metasomal terga yellowish brown.

Pubescence: Hairs on head as in female, white; mesoscutum and scutellum with relatively dense hairs, dull white; terga 2-4 with broadly interrupted white hair bands; sterna 2-5 with weak dense whitish hairs, subapical fimbriae not obvious.

Structure: Head: HL/HW = 0.72. HW:MsW:MtW = 2.5 : 2.3 : 2.3. Vertex densely tessellate. OOD:POD:OCD = 0.5 : 0.4 : 0.2. FL1 = FL2+3, FL2 < FL3 broader than long. Eyes with inner margins slightly converging toward mandibles. Face above antennal fossae with longitudinal rugulae, interrugal PP coarse, dull shagreening. Facial quadrangle quadrate (about 1.5 : 1.5). Clypeus slightly convex, surface smooth and shiny with shallow PP, Ø 20μ, IS < 0.5, CPL = 0.8 mm. Process of labrum truncate with apex deeply emarginate. Mandible bidentate and decussate. Lower paraocular area as in clypeus. Malar space linear. Genal area as broad as eye, GW:EW = 0.75 : 0.75, surface densely tessellate with close PP. Mesosoma: Pronotum sculptured as in female. Mesoscutum densely tessellate anteriorly, weakly tessellate posteromedially, feebly shiny with crowded PP, Ø 20μ, IS < 0.5. Scutellum weakly shagreening with coarse PP. Propodeal enclosure rugulose; dorsal face densely tessellate, shagreening. Mespisternum as in female, but PP coarser. Vein 1st m-cu meeting second submarginal
cell at middle of cell. *Metasoma:* Metasomal terga sculptured as in female: terga 1-4 with tight PP; posterior depressions of terga 3-5, narrow on tergum 2, well indicated. Sterna 2-5 weakly tessellate, impunctate apically.

*Specimens examined:* **China:** Heilongjiang Province: 1 female, Harbin, 15. viii. 1954. **Mongolia:** 1 female and 1 male, Chentej aimak, 1,400 m, 27-28. vii. 1965 (Z. Kaszab); 1 male, Chentej aimak, 1,000 m, 30. vii. 1966 (Z. Kaszab); 3 females and 1 male, Archangaj aimak, 1,500 m, 21-22. vii. 1966 (Z. Kaszab); 1 male, Suchebaator aimak, 950 m, 9. viii. 1965 (Z. Kaszab).

*Remarks:* This species is similar to *Andrena tarsata baicalensis* Cockerell. The female can be separated from that of *tarsata baicalensis* by the mandible bidentate and the clypeus without median impunctate line. The male can be separated from that of *tarsata baicalensis* by the lower paraocular area with larger maculae and the metasomal terga with close punctures.

*Distribution:* China (new record: Heilongjiang Prov.); Mongolia (Archangaj, Chentej, Suchebaator); Russia (mid Siberia and Far East area).

*Floral association:* Not available.

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**References**

