

## Subgeneric Positions and Redescriptions of Strand's Chinese *Andrena* Preserved in the German Entomological Institute (D.E.I., Eberswalde) (Hymenoptera: Andrenidae)

Xu, Huan-li

Tadauchi, Osamu

<https://doi.org/10.5109/2626>

---

出版情報 : ESAKIA. 38, pp.89-103, 1998-03-31. 九州大学農学部附属彦山生物学実験所  
バージョン :  
権利関係 :



**Subgeneric Positions and Redescriptions of Strand's Chinese  
*Andrena* Preserved in the German Entomological Institute  
(D.E.I., Eberswalde) (Hymenoptera: Andrenidae)<sup>1), 2), 3)</sup>**

**Huan-li Xu and Osamu TADAUCHI**

Entomological Laboratory, Faculty of Agriculture,  
Kyushu University, Fukuoka, 812-8581 Japan

**Abstract.** Eight species of the genus *Andrena* described by E. Strand from China are examined. Six species, *A. hoffmanni*, *luridiloma*, *subshawelli*, *tsingtuica*, *subproximana*, *nasipolitu* are redescribed and firstly given their subgeneric positions except *nasipolitu*, which is undetermined its subgeneric position. Four new synonymies are recognized as follows: *Andrena phytophila* Strand = *A. nawai* Cockerell; *A. stellaria* Hirashima = *A. luridiloma* Strand; *A. taruxaci chikuzenensis* Hirashima = *A. taraxaci orienticola* Strand; *A. (Lepidandrena) stiloclypeata* Wu = *A. nasipolita* Strand. The lectotype and paralectotypes of *Andrena subshawella* Strand are designated.

Key words: Taxonomy, Hymenoptera, Andrenidae, *Andrena*, Asia, types of Strand, synonymies.

### Introduction

Strand described two species of the genus *Andrena* from Pingshiang in 1913, where is known as Pingxiang city, in the vicinity of Viet Nam, Guangxi Zhuang National Autonomous Region, southwest China, and also described six species of the genus from Qingdao, Shandong Province in 1915.

---

<sup>1)</sup> Contribution from the Entomological Laboratory, Faculty of Agriculture, Kyushu University, Fukuoka (Ser. 5, No. 11).

<sup>2)</sup> This work was supported by a Grant-in-Aid for Scientific Research of an International Scientific Research Program from the Ministry of Education, Science, Sports and Culture, Japan (No. 07041144) (Head Investigator: O. Tadauchi).

<sup>3)</sup> Results from the China-Japan Co-operative Study on "Studies on Systematics, Evolution and Biogeography of Asian *Andrena* (Hym., Apoidea, Andrenidae)" No. 7.

Among them, Warncke (1967) treated only one taxon, *Andrena humilis* var. *orienticola* Strand and recognized as a subspecies of *Andrenataraxaci* Giraud. Recently we examined all the types preserved in "Deutsches Entomologisches Institut", Eberswalde, Germany. In this paper, we redescribed six species and firstly gave their subgeneric positions except *Andrenu nasipolita*, which is undetermined its position in this paper. Four new synonymies are recognized and the lectotype and paralectotypes of *Andrena subshawella* Strand are designated.

### 1. *Andrena (Andrena) nawai* Cockerell

(Figs. 1 - 4)

*Andrena nawai* Cockerell, 1913, Ann. Mag. nat. Hist., (8)11: 188 [female, Japan];

Yasumatsu, 1941, Peking nat. Hist. Bull., 15: 279 [in list].

*Anthrena japonica* Alfken, 1900, Ent. Nachr., 26: 178 [female, Japan].

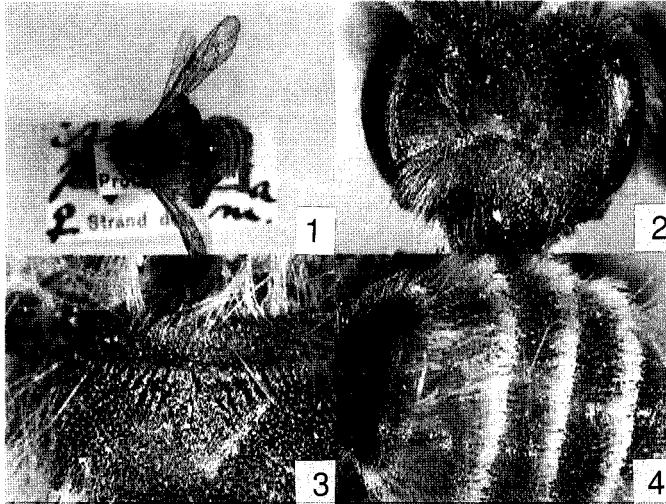
*Andrena simulans* Pérez, 1905, Bull. Mus. d'Hist. Nat. Paris, 11: 34 [male, Japan];

Cockerell, 1913, Ann. Mag. nat. Hist., (8)11: 189.

*Andrenu simulatilis* Viereck, 1918, Proc. biol. Soc. Washington, 31: 59, n. n. *A. simulans* Pérez, 1905.

*Andrenu nipponica* Cockerell, 1922, Proc. U. S. nat. Mus., 60: 11; Yasumatsu, 1941, Peking nat. Hist. Bull., 15: 279.

*Andrena japonica* Alfken, 1924, Konowia, 3: 95 [male, Japan].



**Figs. 1-4.** *Andrenu (Andrenu) nawai* Cockerell (= *Andrena phytophila* Strand, type), 1: dorsal view of the whole body; 2: head in frontal view; 3: propodeum; 4: metasomal terga.

- Andrena (Melandrena) mikado* Strand et Yasumatsu, 1938, *Mushi*, 11: 68 [male, Japan]; Kim, 1970, *Ill. Encycl. Faun. Fl. Korea*, 11: 660 [Korea].
- Andrenu (Andrena) bombiformis* Yasumatsu et Hirashima, 1962, *J. Fac. Agr., Kyushu Univ.*, 12: 133 [female, Japan]; Hirashima, 1966, *J. Fac. Agr., Kyushu Univ.*, 14: 101.
- Andrenu (Andrena) nuwui*: Hirashima, 1962, *J. Fac. Agr., Kyushu Univ.*, 12: 133 [female & male, Japan]; 1966, *J. Fac. Agr., Kyushu Univ.*, 14: 102, 106; Tadauchi and Hirashima, 1987, *J. Fac. Agr., Kyushu Univ.*, 31: 24-28.
- Andrena phytophilu* Strand, 1915, *Ent. Mitt.*, 4: 73-74 [female, China]; Yasumatsu, 1941, *Peking nat. Hist. Bull.*, 15: 279 [in list]. New **synonymy**

*Type material examined*: Two syntype females of *A. phytophilu*, Tsingtau, Prof. Hoffmann, April.

*Remarks*: The syntype specimens of *Andrenu phytophilu* Strand have the clypeus more or less broadly impunctate in the middle and sparser punctures.

*Distribution*: China (Shandong Prov.); Japan (Hokkaido, Honshu, Shikoku, Kyushu).

*Floral record*: See Tadauchi *et al.* (1987).

*Flight record*: Female: April.

## 2. *Andrena (Euandrena) hoffmanni* Strand

(Figs. 5 - 8)

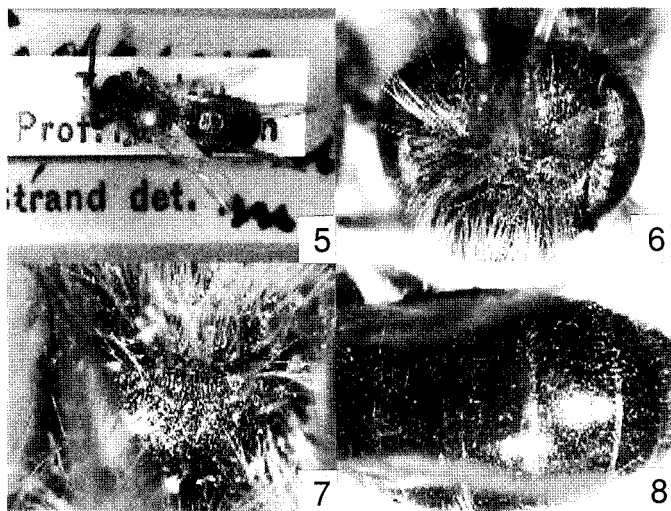
- Andrenu hoffmanni* Strand, 1915, *Ent. Mitt.*, 4: 69-70 [male, China]; Yasumatsu, 1941, *Peking nat. Hist. Bull.* 15: 276 [in list].

Redescription of the type: **Male**, BL 7.0 mm, WL 6.7 mm.

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

*Pubescence*: Hairs on head and thorax long, dense, pale yellow to whitish; those on clypeus moderately long (600-750 $\mu$ ), whitish; those on antennal area and vertex pale yellow; those on dorsum of thorax slightly long (500-750 $\mu$ ), pale yellow; those on mesepisternum yellow; T<sub>1</sub> with short hairs (400 $\mu$ ), yellowish apically; T<sub>2-5</sub> with obscure apical hair fasciae, whitish; S<sub>2-5</sub> with white, suberect subapical fimbriae.

*Structure*: *Head*: HL/HW = 0.9. HW : MsW : MtW = 2.2 : 2.0 : 2.2. Vertex shagreened. OOD : POD : OCD = 0.5 : 0.35 : 0.2. FL<sub>1</sub> > FL<sub>2</sub>, FL<sub>1</sub> = FL<sub>3</sub>, FL<sub>2</sub> as long as broad. Eyes with inner margins converging toward mandibles. Facial quadrangle slightly longer than broad (about 1.7 : 1.6). Clypeus slightly convex, weakly tessellate,



**Figs. 5-8.** *Andrena (Euandrenu) hoffmanni* Strand, 5: dorsal view of the whole body; 6: head in frontal view; 7: propodeum; 8: metasomal terga.

with close  $PP\phi 10-20\mu$ ,  $IS < 1$ ,  $CPL = 0.7$  mm. Process of labrum moderate, slightly emarginate apically. Lower paraocular area as in clypeus. Malar space nearly linear. Genal area broader than eye,  $GW : EW = 0.6 : 0.4$ , surface shagreened posteriorly. *Mesosoma*: Pronotum without humeral angle, finely tessellate. Mesoscutum and scutellum dull, shagreened. Propodeal enclosure narrow, roughened, weakly wrinkled basally; dorsal face roughened. Mesepisternum strongly shagreened. *Metasoma*: Metasomal terga finely tessellate, feebly shiny, with indication of sparse, obscure PP; Posterior depressions of terga not well indicated.  $S_6$  emarginate apically, but not reflected.

*Type material examined*: Holotype male, Tsingtau, Dr. Hoffmann, April.

*Remarks*: This species is similar to *Andrena hebes* Perez, but it is easily separated from *hebes* by the malar space not distinctive, the hind tibiae reddish yellow, the clypeus without blackish hairs and the metasomal terga with less obvious apical hair bands.

*Distribution*: China (Shandong Prov.).

*Floral record*: Not available.

*Flight record*: Male: April.

### 3. *Andrena (Euandrena) luridiloma* Strand

(Figs. 9 - 12)

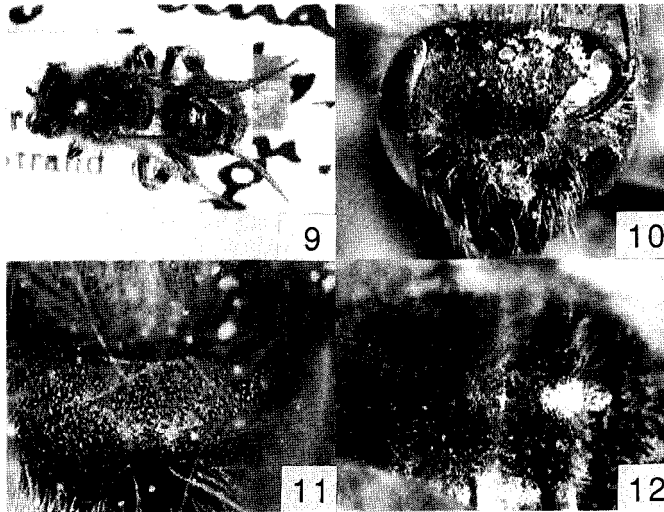
*Andrena luridiloma* Strand, 1915, Ent. Mitt., 4: 72-73 [female, China]; Yasumatsu, 1941, Peking nat. Hist. Bull., 15: 277 [in list].

*Andrena (Euandrena) stellaria* Hirashima, 1964, J. Fac. Agr., Kyushu Univ., 13: 49-51 [female & male, Japan]; Hirashima, 1966, J. Fac. Agr., Kyushu Univ., 14: 110 [female in key]. 119 [male in key]; Tadauchi and Hirashima, 1984, Esakia, (22): 108-109 [female and male in key]; Tadauchi & Lee, 1992, Esakia, (32): 49 [in list, Korea]. New **synonymy**

Redescription of the type: **Female:** BL 9.5 mm, WL 7.1 mm.

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

**Pubescence:** Hairs on head sparse, yellowish mixed with light brown hairs on antennal area and vertex; those on clypeus short ( $300\text{-}450\mu$ ); those on vertex longer ( $500\mu$ ); facial fovea light brown. Hairs on thorax dense, fulvous, paler below; those on mesoscutum shorter ( $400\mu$ ), uniform; those on scutellum and metanotum longer and denser; propodeal corbicula long, not well arranged, with sparse, simple internal hairs; trochanteral floccus imperfect; femoral floccus dense; tibial scopa well developed, with long, simple white hairs. Hairs on metasomal terga more or less dense, suberect,



**Figs. 9-12. *Andrena (Euandrena) luridiloma* Strand, 9: dorsal view of the whole body; 10: head in frontal view; 11: propodeum; 12: metasomal terga.**

yellowish; those on apical area of  $T_{1-2}$  long (400-750 $\mu$ ); those on basal area of  $T_2$ , and those on  $T_{3-4}$  short (200-250 $\mu$ );  $T_{2-4}$  with suberect, not well compact whitish hair bands; caudal fimbria pale brown;  $S_{2-5}$  with complete, long, yellowish, subapical fimbriae.

*Structure: Head:* HL/HW = 0.83. HW : MsW : MtW = 2.9 : 3.0 : 3.2. Vertex densely tessellate to weakly shagreened. OOD : POD : OCD = 0.55 : 0.4 : 0.2. FL<sub>1</sub> = FL<sub>2+3</sub>, FL<sub>2</sub> = FL<sub>3</sub>. Eyes with inner margins subparallelled. Facial fovea narrow, FVL = 1.2 mm, FVW = 0.3 mm. Facial quadrangle longer than broad (about 2.2 : 2.0). Clypeus well convex, weakly tessellate, shiny; surface with broad, median longitudinal impunctate space; surface with larger PP $\phi$ 40-60 $\mu$ , IS < 1 at sides of median space; PP $\phi$ 20 $\mu$ , IS = 1 near extreme angle area, CPL = 1.0 mm. Process of labrum large, transverse and entire. Lower paraocular area densely tessellate with small and coarse PP. Malar space nearly linear. Genal area nearly as broad as eye, GW : EW = 0.66 : 0.64, surface shagreened. *Mesosoma:* Pronotum densely tessellate without humeral angle. Mesoscutum shagreened with minute PP, IS = 1 in the middle. Scutellum finely tessellate with minute and close PP anteriorly, shagreened posteriorly. Propodeal enclosure nearly granulate, weakly roughened basally; dorsal face roughened. Mesepisternum shagreened. *Metasoma:* Metasomal terga finely tessellate, with indication of shallow, obscure PP; posterior depressions of terga weakly indicated; pygidial plate large, U-shaped, with raised triangular area.  $S_2$  and apical areas of  $S_{3-4}$  with close PP.

*Type material examined:* Holotype female, Tsingtau, Prof. Hoffmann, Mai.

*Remarks:* This species is similar to *Andrenahoffmanni* Strand, it is separated from *hoffmanni* by the clypeus smoother and sparser PP, the broader and shorter process of labrum and the erect, less obvious hair bands on  $T_{2-4}$ .

*Distribution:* China (Shandong Prov.); Japan (Hokkaido, Honshu, Shikoku, Kyushu, Tsushima); Korea.

*Floral record:* See Tadauchi and Hirashima (1984).

*Flight record:* Female: May.

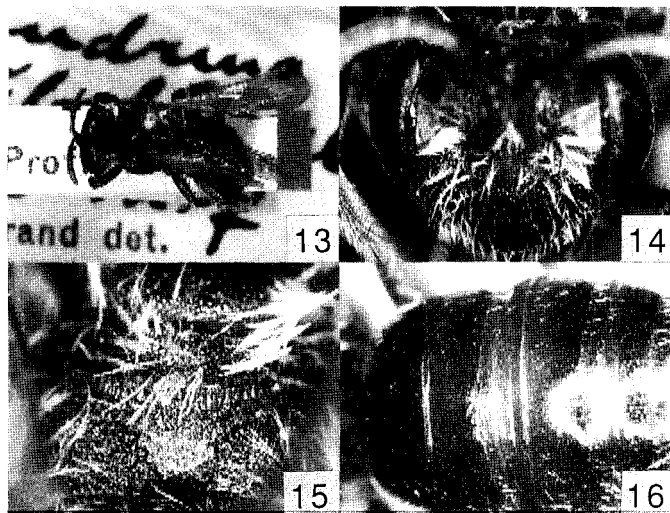
#### 4. *Andrena (Euandrena) subshawella* Strand

(Figs.13 - 16)

*Andrena subshawella* Strand, 1915, Ent. Mitt., 4: 74-75 [female & male, China]; Yasumatsu, 1941, Peking nat. Hist. Bull., 15: 281 [in list].

Redescriptions of the syntypes: **Female:** BL 8.7-9.3 mm, WL 7.0-7.2 mm ( $n = 3$ ).

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



**Figs. 13-16.** *Andrena (Euandrena) subshawella* Strand, 13: dorsal view of the whole body; 14: head in frontal view; 15: propodeum; 16: metasomal terga.

*Pubescence:* Hairs on head sparse, whitish; those on clypeus short ( $160\text{-}300\mu$ ), scanty; those on vertex short ( $300\mu$ ); facial fovea brown above, whitish below. Hairs on thorax sparse, whitish; those on mesoscutum and scutellum long posteriorly; propodeal corbicula long, with simple internal hairs; trochanteral floccus imperfect, white; femoral floccus dense; tibial scopa more or less loose, with simple, long white hairs. Hairs on metasomal terga scanty;  $T_{2-4}$  with very sparse, suberect white hair fringes; caudal fimbriae brown;  $S_{2-5}$  with complete short subapical fimbriae.

*Structure: Head:*  $HL/HW = 0.80$ .  $HW : MsW : MtW = 2.7 : 2.7 : 2.8$ . Vertex densely tessellate.  $OOD : POD : OCD = 0.5 : 0.4 : 0.2$ .  $FL_1 = FL_{2+3}$ ,  $FL_2 = FL_3$ ,  $FL_2$  longer than broad. Eyes with inner margins subparallel. Facial fovea short, not exceeding a line at lower level of antennal fossae, separated from inner margins of eyes by smooth space;  $FVL = 0.9$  mm,  $FVW = 0.24$  mm. Facial quadrangle as long as broad (about  $2.0 : 2.0$ ). Clypeus well convex, finely tessellate with close  $PP\phi 20\text{-}30\mu$ ,  $IS < 1$  or  $= 1$  basally and laterally, weakly tessellate and shiny with larger  $PP\phi 40\text{-}60\mu$  medially;  $CPL = 0.8$  mm. Process of labrum moderate, entire at apex. Lower paraocular area densely tessellate with small crowded  $PP$ . Malar space linear. Genal area as broad as eye,  $GW : EW = 0.7 : 0.7$ , surface weakly shagreened posteriorly, smooth and shiny with close  $PP$  near eye. *Mesosoma:* Pronotum tessellate to shagreened without humeral angle. Mesoscutum shagreened anteriorly and peripherally, smooth and shiny posteromedially, with  $PP\phi 10\mu$ ,  $IS = 1$ . Scutellum as in mesoscutum. Propodeal enclosure shagreened posteriorly, rugulose basally; dorsal face roughened. Mesepisternum densely shagreened. *Metasoma:*



T<sub>1</sub> smooth and shiny with microscopic PP, irregular in distribution; T<sub>2-4</sub> weakly tessellate, shiny with PP  $\phi$  10 $\mu$ , IS = 1-2 or more at basal 2/3; posterior depressions of terga not well indicated with obscure PP; pygidial plate large, V-shaped, with incomplete triangular area. S<sub>2-5</sub> smooth and shiny anteriorly, weakly tessellate with closed PP posteromedially.

Redescription of the syntype: **Male:** BL 8.2 mm, WL 7.3 mm ( $n = 1$ ).

*Color:* Flagellum pale brown beneath except FL<sub>1</sub> dark brown; mandible with apical third reddened; wing membranes subhyaline, moderately brown, veins and pterostigma brown; tibial spurs ochraceous; posterior depressions of metasomal terga yellowish brown transparent.

*Pubescence:* Hairs on head scanty; those on antennal area and genal area brown; those on vertex (500-600 $\mu$ ), yellowish, those on mesoscutum, scutellum, metanotum and propodeum yellowish; those on legs yellowish. Hairs on metasomal terga short (100-200 $\mu$ ), sparse; T<sub>1</sub> with a little longer white hairs; T<sub>2-5</sub> with brown ones; T<sub>4</sub> with sparse, complete white hair band; S<sub>2-5</sub> with incomplete, short subapical fimbriae.

*Structure: Head:* HL/HW = 0.8. HW : MsW : MtW = 2.7 : 2.5 : 2.9. Vertex densely tessellate. OOD : POD : OCD = 0.5 : 0.4 : 0.2. FL<sub>1</sub> < FL<sub>2+3</sub>, FL<sub>1</sub> > FL<sub>2</sub>, FL<sub>2</sub> shorter than broad. Eyes with inner margins subparallel. Small vestige of facial fovea near top of eye. Facial quadrangle as long as broad (about 2.0 : 2.0). Clypeus well convex, weakly tessellate, shiny with close PP  $\phi$  20 $\mu$ , IS < 1 in the middle, densely tessellate basally, CPL = 0.8 mm. Process of labrum similar to that of female, but smaller. Lower paraocular area as in clypeus. Malar space nearly linear. Genal area as broad as eye, GW : EW = 0.7 : 0.7, surface shagreened posteriorly, smooth and shiny with minute PP near eye. Mesosoma: Sculpture on thorax similar to that in female, but PP on scutellum denser. *Metasoma:* metasomal terga smooth and shiny, T<sub>1</sub> with small PP, stronger than in female; T<sub>2-4</sub> with PP  $\phi$  10 $\mu$ , IS = 1-2 basally; posterior depressions of terga well indicated, with sparse PP. S<sub>6</sub> emarginate apically, but not reflected.

*Type material examined:* The syntypes include three females and one male, Tsingtau, Prof. Hoffmann, Juli.

*Remarks:* The lectotype and paralectotypes are designated by the present paper as follows: Lectotype female: labels from the top to the bottom: (1) Tsingtau, Prof. Hoffmann; (2) Juli [upside]; (3) syntypus [red label]; (4) *Andrena subshawella* M. Strand det. female [handwriting]; (5) Eberswalde coll., DEI. The paralectotypes: 2 female and 1 male with same labels as the lectotype except (3) Juli [underside]. This species is somewhat similar to *Andrena takachioi* Hirashima, but is differentiated from *takachioi* by the clypeus without a median impunctate space, the propodeal enclosure rugose basally, the metasomal terga more shiny with denser and stronger punctures and the vertex without brown hairs.

*Distribution:* China (Shandong Prov.).

*Floral record:* Not available.

Flight record: Female and male: July.

**5. *Andrena (Chlorandrena) taraxaci orienticola* Strand**

*Andrena humilis* var. *orienticola* Strand, 1915, Ent. Mitt., 4: 72 [female, China]; Yasumatsu, 1941, Peking nat. Hist. Bull., 15: 276 [in list].

*Andrena taraxaci orienticola*: Warncke, 1967, Eos, 43: 204, 295 [note, in list].

*Andrena (Chlorandrena) taraxaci chikuzenensis* Hirashima, 1957. *Mushi*, 30: 52 [female and male, Japan]: Hirashima, 1963. J. Fac. Agr., Kyushu Univ., 12: 255-258; Hirashima, 1966, J. Fac. Agr., Kyushu Univ., 14: 97 [female in key], 118 [male in key]; Tadauchi *et al.*, 1997, *Esakia*, (37): 198 [Korea]. New **synonymy**

*Type material examined*: Two syntype females of *Andrena humilis* var. *orienticola*, Tsingtau, Prof. Hoffmann, Mai.

*Remarks*: This subspecies is separated from the nominate subspecies by the sculpture on clypeus, mesoscutum and metasomal terga less coarse.

*Distribution*: China (Shandong Prov.); Japan (Honshu, Kyushu, Tsushima); Korea (Seishin).

*Floral records*: *Taraxacum platycarpum*, *Sonchus oleraceus*.

*Flight record*: Female: May.

**6. *Andrena (Chlorandrena) tsingtauca* Strand**

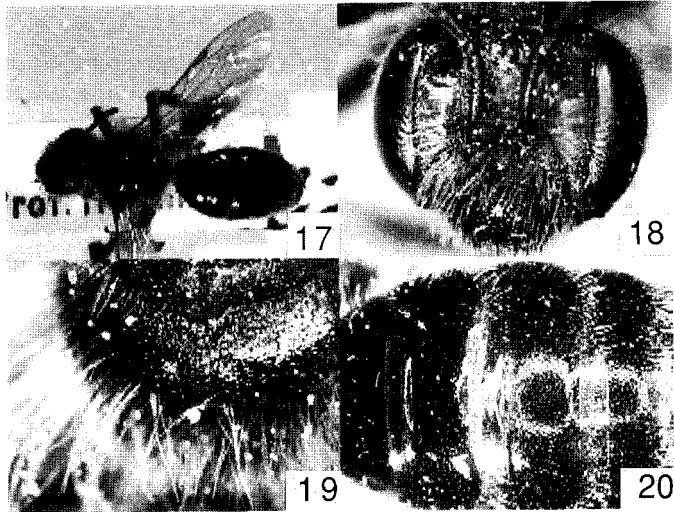
(Figs. 17 - 20)

*Andrena tsingtauca* Strand, 1915, Ent. Mitt., 4: 70-72 [female, China]; Yasumatsu, 1941, Peking nat. Hist. Bull., 15: 281 [in list].

Redescription of the type: **Female**: BL 9.5 mm, WL 7.5 mm.

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

*Pubescence*: Hairs on body uniformly whitish yellow: those on clypeus short (300-500 $\mu$ ), more or less dense; those on vertex short (300-400 $\mu$ ), sparse; facial fovea yellowish. Hairs on dorsum of thorax scanty; propodeal corbicula not well arranged, with sparse, simple internal hairs; mesepisternum with long and dense hairs, paler; trochanteral floccus sparse, curling; femoral floccus dense; tibial scopa well developed, with long and branched hairs throughout. Hairs on metasomal terga sparse; T<sub>1</sub> with short (100-300 $\mu$ ) lateral hairs: T<sub>2-4</sub> without obvious hair fasciae; caudal fimbria golden; S<sub>2-5</sub> with complete, yellowish, suberect, subapical fimbriae.



Figs. 17-20. *Andrena (Chlorundrena) tsingtauca* Strand, 17: dorsal view of the whole body; 18: head in frontal view; 19: propodeum; 20: metasomal terga.

*Structure: Head:* HL/HW = 0.82. HW : MsW : MtW = 2.8 : 3.0 : 3.0. Vertex finely tessellate, feebly shiny. OOD : POD : OCD = 0.5 : 0.35 : 0.2. FL<sub>1</sub> about equal to FL<sub>2+3</sub>, FL<sub>2</sub> = FL<sub>3</sub>, FL<sub>2</sub> broader than long. Eyes with inner margins subparallel. Facial fovea long, deep, FVL = 1.25 mm, FVW = 0.3 mm. Facial quadrangle longer than broad (about 2.0 : 1.8). Clypeus well convex, finely tessellate basally and laterally, smooth and shiny medioapically; lateral surface with close PP  $\phi$  20 $\mu$ , IS < 1; sparser and larger PP in the middle, irregular in distribution; clypeus with median impunctate line not obvious, CPL = 0.9 mm. Process of labrum moderate, short with slightly emarginate apically. Lower paraocular area smooth and shiny with PP  $\phi$  20 $\mu$ , IS < 1. Malar space nearly linear. Genal area broader than eye, GW : EW = 0.9 : 0.7, surface weakly tessellate, shiny with minute close PP near eye. *Mesosoma:* Pronotum finely tessellate without humeral angle. Mesoscutum densely tessellate anteriorly and peripherally with distinct crowded PP  $\phi$  20 $\mu$ , IS < 0.5, smooth and shiny with sparser PP in the middle. Scutellum as in mesoscutum, but PP sparser. Propodeal enclosure ill defined, strongly wrinkled at basal half, finely tessellate posteriorly; dorsal face smooth and shiny, with close PP, not shagreened. Mesepisternum weakly tessellate anteriorly with close PP, smooth and shiny posteriorly with sparse PP. Inner margins of hind femora with line of distinct spines. Posterior spurs of hind tibiae slightly broadened and curved near base. *Metasoma:* Metasomal terga smooth and shiny; T<sub>1</sub> with microscopic PP, irregular in distribution; T<sub>2-4</sub> with close PP  $\phi$  10-20 $\mu$ , IS < 1; Posterior depressions of terga well indicated with

sparse, weak PP; pygidial plate V-shaped, without raised triangular area.  $S_{2-5}$  weakly tessellate, impunctate anteriorly, with close PP at apical  $2/3$ .

*Type material examined:* Holotype female, Tsingtau, Prof. Hoffmann, Juni.

*Remarks:* This species is similar to *Andrena okinuwunu* Matsumura et Uchida, but is separated from *okinuwunu* by the clypeus smoother and shinier, the flagellum reddish yellow and the metasomal terga with close, distinct punctures.

*Distribution:* China (Shandong Prov.).

*Floral record:* Not available.

*Flight record:* Female: June.

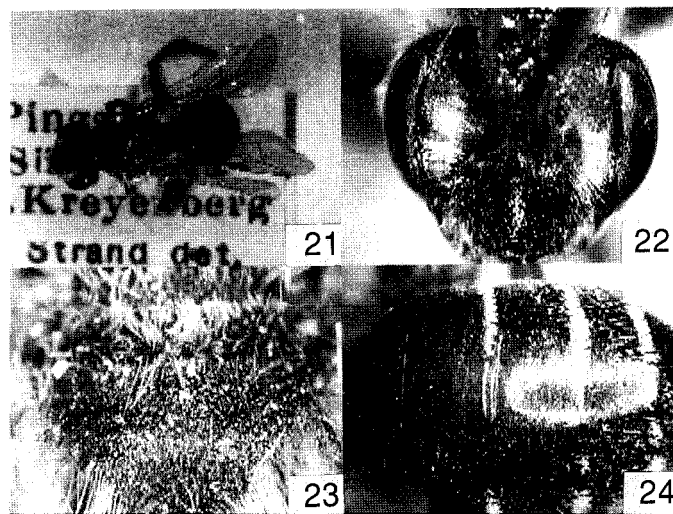
### 7. *Andrena (Simandrena) subproximana* Strand

(Figs. 21 - 24)

*Andrena subproximunu* Strand, 1913, Arch. Naturg., 79A, 3: 104-105 [female, China]; Yasumatsu, 1941, Peking nat. Hist. Bull., 15: 280 [in list].

Redescription of the type: **Female:** BL 9.0 mm, WL 6.7 mm.

*Color:* Flagellum reddish brown beneath; wing membranes subhyaline, veins and pterostigma reddish brown; tibial spurs yellowish; posterior margins of metasomal terga reddish yellow subhyaline.



**Figs. 21-24.** *Andrena (Simundrena) subproximunu* Strand, 21: dorsal view of the whole body; 22: head in frontal view; 23: propodeum; 24: metasomal terga.

*Pubescence:* Hairs on head sparse except antennal area and posterior of genal area with long white hairs: those on the sides of clypeus short ( $100-300\mu$ ), whitish; those on vertex short ( $250\mu$ ), pale yellow; facial fovea yellowish above, whitish below. Hairs on thorax more or less dense, yellowish; those on mesoscutum short ( $180-400\mu$ ), fulvous; those on scutellum and metanotum long; those on mesepisternum long, white; propodeal corbicula completely developed with anterior fringes, without internal hairs; trochanteral floccus perfect, whitish; femoral floccus dense; tibial scopa with short, simple, white hairs; inner surface of basitarsi with dense, short yellow hairs. Hairs on metasomal terga scanty, T<sub>2-4</sub> with narrow white hair bands with interrupted on T<sub>2-3</sub>; caudal fimbria brown: S<sub>2-5</sub> with long, white, suberect subapical fimbriae.

*Structure: Head:* HL/HW = 0.79. HW : MsW : MtW = 2.7 : 2.8 : 3.0. Vertex densely tessellate to shagreened. FL<sub>1</sub> < FL<sub>2+3</sub>, FL<sub>2</sub> nearly equal to FL<sub>3</sub>. OOD : POD : OCD = 0.6 : 0.4 : 0.2. Eyes with inner margins subparallel. Facial fovea broad above, narrowing to below, FVL = 1.25 mm, FVW = 0.5 mm. Facial quadrangle broader than long (about 2.0 : 1.8). Clypeus well convex, finely tessellate, feebly shiny, surface with close PP  $\phi$   $20\mu$ , IS < 1, sparser and larger in the middle: clypeus without longitudinal impunctate space; CPL = 0.9 mm. Process of labrum moderate, 3 times as broad as long, entire at apex, feebly shiny. Lower paraocular area finely tessellate with crowded PP  $20\mu$ , IS < 0.5. Malar space linear. Genal area broader than eye, GW : EW = 0.6 : 0.4, surface densely tessellate posteriorly, weakly tessellate with close PP near eye. *Mesosoma:* Pronotum without humeral angle, finely tessellate with sparse PP. Mesoscutum densely tessellate with distinct, crowded PP  $\phi$   $20\mu$ , IS < 0.5 laterally, sparser PP  $\phi$   $20\mu$ , IS = I in the middle. Scutellum shagreened posteriorly, feebly shiny with sparse PP anteriorly. Propodeum slightly flat; propodeal enclosure large, weakly rugulose all over, dorsal face roughened. Mesepisternum shagreened. Posterior spurs of hind tibiae normal. *Metasoma:* Metasomal terga finely tessellate, feebly shiny; T<sub>1-3</sub> with minute PP, IS = 1-1.5; T<sub>4-5</sub> with obscure PP; posterior depressions of terga not well indicated, smooth and shiny, nearly impunctate; pygidial plate U-shaped with distinct raised triangular area. S<sub>2-5</sub> weakly tessellate, with shallow, dense PP.

*Type material examined:* Holotype female, Pingshiang, Siid-China, Dr. Kreyenberg.

*Remarks:* This species is similar to *Andrena opacifovea* Hirashima, but can be separated from the latter by the pronotum without a median longitudinal line (distinct on *opacifovea*).

*Distribution:* China (Guangxi).

*Floral record:* Not available.

*Flight record:* Not available.

**8. *Andrena nasipolita* Strand**

(Figs. 25 - 28)

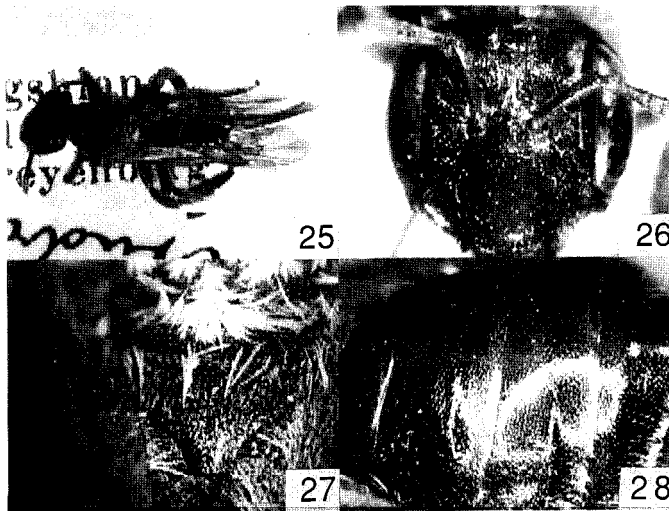
*Andrena nasipolita* Strand, 1913, Arch. Naturg., 79A, 3: 103-104 [female, China]; Yasumatsu, 1941, Peking nat. Hist. Bull., 15: 278 [in list].

*Andrenu (Lepidandrena) stiloclypeata* Wu, 1987, Wuyi Sci. J., 7: 107-108 [female, China]; Wu, 1992, Insects of the Hengduan Mt. Region, vol. 2, Apoidea, 1381 [in list]. New **synonymy**

Redescription of the type: **Female:** BL 8.5 mm, WL 8.0 mm.

*Color:* Flagellum reddish brown beneath; wing membranes infumate, veins and pterostigma reddish brown. Mandibles, clypeus, genal area, legs, and basal parts of metasomal terga reddish brown (thought to be changed due to long time preservation).

*Pubescence:* Hairs on head short (200-300 $\mu$ ), sparse; those on clypeus and vertex brown; those on genal area slightly denser, yellowish brown; facial fovea yellowish. Hairs on mesoscutum and scutellum extremely short, fulvous, forming velvety; those on posterior margin of scutellum and metanotum longer; those on mesepisternum slightly long, yellowish; propodeal corbicula developed with sparse, simple internal hairs, without anterior fringes; trochanteral floccus perfect, white; femoral floccus dense; tibial scopal hairs rather short, simple brown. Hairs on metasomal terga short (100-400 $\mu$ ), rather sparse, whitish at lateral margins; T<sub>2-4</sub> with short, lateral white hair fasciae; caudal fimbria brown; S<sub>2-4</sub> with long, suberect, white subapical fimbriae, S<sub>5</sub> with brown hairs.



**Figs. 25-28.** *Andrenu nusipolitu* Strand, 25: dorsal view of the whole body; 26: head in frontal view; 27: propodeum; 28: metasomal terga.

*Structure: Head:* HL/HW = 0.9. HW : MsW : MtW = 2.6 : 2.7 : 2.9. Vertex finely tessellate with shallow PP. OOD : POD : OCD = 0.5 : 0.3 : 0.2. FL<sub>1</sub> = FL<sub>2+3</sub>, FL<sub>2</sub> = FL<sub>3</sub>, FL<sub>1</sub> as long as broad. Eyes with inner margins paralleled. Facial fovea long, extending beyond a line at lower level of antennal fossae, extremely narrow and deep and separated from eye margin by broad smooth space below, broader and shallower above; FVL = 1.1 mm. Facial quadrangle longer than broad (about 2.0 : 1.8). Clypeus slightly convex, smooth and shiny, surface with sparse, shallow PP, irregular in distribution. Supraclypeal area as in clypeus, CPL = 1.0 mm. Process of labrum large, shiny, emarginate apically. Lower paraocular area smooth and shiny with PP  $\phi$  20-60 $\mu$ , IS < 1. Malar space linear. Genal area slightly broader than eye, GW : EW = 0.7 : 0.6, surface smooth and shiny with close PP. *Mesosoma:* Pronotum with distinct humeral angle and weak dorsoventral ridge, finely tessellate. Mesoscutum and Scutellum roughened. Propodeal enclosure large, moderately wrinkled at basal half, densely tessellate apically; dorsal face of propodeum roughened. Mesepisternum finely tessellate with obscure PP. Hind tibiae short and broadened apically, cuneate; posterior spurs normal. *Metasoma:* Metasomal terga smooth and shiny; T<sub>1</sub> with sparse, minute PP, IS = 1-3, denser at apical margin; T<sub>2-4</sub> with close, minute PP, IS < 1; posterior depressions of terga broad, not well indicated; pygidial plate large, U-shaped, with distinct raised triangular area. S<sub>2-5</sub> weakly tessellate, with shallow, dense PP.

*Type material examined:* Holotype female, Pingshiang, Süd-China, Dr. Kreyenberg.

*Remarks:* This species is similar to *Andrena (Notandrena) amamiensis* Hirashima, but it can be separated from *amamiensis* by the velvety-hairs on mesoscutum and scutellum, the less convex clypeus and metasomal terga shinier with denser minute PP. Although Hirashima placed *amaiensis* in the subgenus *Notandrena*, the male of *amamiensis* has head with angulated genal area, not carinated as in that of the *Notandrena*. We think they maybe representative of a new subgenus. Color of our fresh specimens is black in mandibles, clypeus, genal area, legs and metasomal terga.

*Distribution:* China (Guangxi, Sichuan, Yunnan, Zhejiang, Fujian Provs.).

*Floral record:* *Rubus hirsutus*.

*Flight record* Female: mid May.

### Acknowledgments

We are grateful to Prof. H. Dathe and Dr. A. Taeger of the German Entomological Institute (DEI, Eberswalde), Germany for sending the useful material of this study on loan and also to Prof. Emeritus Y. Hirashima of Kyushu University for his help of this study.

## References

- Strand, E., 1913. Apidae aus Pingshiang (Süd-China) gesammelt von Herrn Dr. Kreyenberg. *Arch. Naturg.*, 79: Abt. A, 103-108.
- Strand, E., 1915. Apidae von Tsingtau. *Ent. Mitt.*, 4: 69-75.
- Tadauchi, O. & Y. Hirashima, 1983. New or little known bees of Japan (Hymenoptera, Apoidea) IV. Supplements to *Andrena*(*Simandrena*). *Esakia*, (20): 81-92.
- Tadauchi, O. & Y. Hirashima, 1984. Synopsis of *Andrenu* (*Euundrenu*) of Japan (Hymenoptera, Andrenidae). *Esakia*, (22): 107-113.
- Tadauchi, O., Y. Hirashima & T. Matsumura, 1987. Synopsis of *Andrenu* (*Andrew*) of Japan (Hymenoptera, Andrenidae). Part I. *J. Fac. Agr., Kyushu Univ.*, 31: 1-35.
- Warncke, K., 1967. Beitrag zur klärung palaarktischer *Andrena*-Arten (Hymenoptera, Apidae). *Eos*, 43: 171-381.