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The Genus *Andrena* Collected from Nepal (Hymenoptera, Andrenidae) with Redescriptions of Some Types of *Andrena* Described from North India

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Abstract. Ten species of the genus *Andrena* mainly collected by the Hokkaido University Scientific Expedition to Nepal Himalaya 1968, including description of seven new species from Nepal, are reported. Cameron's types of four *Andrena* species, which were described from north India, are redescribed.

Key words: taxonomy, Hymenoptera, Andrenidae, *Andrena*, Nepal, new species, new synonymy, redescription of Cameron's types, north India.

Introduction

One of the authors, Matsumura and his colleagues collected bees mainly from central Nepal in 1968 by the Hokkaido University Scientific Expedition to Nepal Himalaya 1968 and in 1972 by Matsumura's private travel. Tadauchi had an opportunity to examine these specimens of the genus *Andrena*. The fauna of the genus in Indian Subcontinent and the neighbouring area (Himalaya, Kashmir, Pamir, Pakistan) had been mainly studied in the 19th and early 20th centuries by English researchers, Smith (1854, 1878, 1879), Cameron (1897, 1902, 1907, 1908, 1909), and Nurse (1903, 1904) and then sporadically by Cockerell (1910, 1911, 1917, 1920, 1922, 1923). After that a very few reports by Alfken (1931) and LaBerge (1968) had been found from this area. In the study and catalogue of Gusenleitner and Schwarz (2001, 2002) 48 species were recorded as good species from this area, among them 39 types of the species were preserved in the Natural History Museum, London (BMNH). Tadauchi visited the museum in March, 2007 and examined most of the types in BMNH described from Indian Subcontinent and the neighbouring area. In the present study we report the genus *Andrena* from Nepal based on Matsumura's *Andrena* Collection with redescriptions of some Cameron's types described from

north India and preserved in BMNH. The holotypes of new species will be preserved in the Entomological Laboratory, Faculty of Agriculture, Kyushu University, Fukuoka, and some paratypes will be deposited in the Natural History Museum in Kathmandu, Nepal.

I. The genus *Andrena* of Nepal mainly collected by the Hokkaido University Scientific Expedition to Nepal Himalaya 1968

1. *Andrena* (*Zonandrena*) *flavipes* Panzer

Andrena flavipes Panzer, 1799, Faun. Insect. German., 64: 20 [Austria].

Andrena levilabris Cameron, 1908, J. Bombay nat. Hist. Soc., 18: 308 [N. India].

Andrena punjaubensis Cameron, 1909, J. Bombay nat. Hist. Soc., 19: 130 [N. India].

Andrena kengracensis Cockerell, 1930, Ann. Mag. nat. Hist., (10) 5: 113 [Uzbekistan].

Other synonymies: See Gusenleitner & Schwarz (2002).

Specimens examined. [NEPAL] 9 females & 3 males, Syang, 2700m, Palpa, 6. v. 1968 (T. Matsumura); 8 females, Marpha, 2670m, Palpa, 7. v. 1968 (T. Ma-

tsumura); 3 females, Bijuri, 750m, Palpa, 13. x. 1965 (I. Yoneta); 2 females, Balaju, 1400m, Kathmandu, 22. iii. 1968 (T. Matsumura); Lete, 2440m, Palpa, (T. Matsumura): 1 female & 1 male, 5. v. 1968; 1 female & 1 male, 8. v. 1968; 1 male, Larjung, 2550m, Palpa, 7. v. 1968 (T. Kumata); 1 male, Tukucha, 2600m, Palpa, 6. v. 1968 (T. Kumata); 22 males, Barubasi, 1300m, Palpa, 12. x. 1965 (I. Yoneta); 1 male, Gobanphani, 1900m, Palpa, 21. x. 1965 (I. Yoneta); 1 male, Pati, Bhanjyang, 1500m, 19. ii. 1968 (T. Kawamichi); 2 females, Birgangi, 100m, 27. ii. 1968 (T. Kawamichi); 1 female, Kathmandu, 1340m, 27. ii. 1968 (T. Kawamichi); Godavari, 1400m, Nepal valley (T. Matsumura): 3 females, 19. iii. 1968; 15 females, 26. iii. 1968; 1 female, 18. iv. 1968; 4 females, 19. iv. 1968; 7 females, 20. iv. 1968; 3 females, Balaju, 1400m, Kathmandu, 22. iii. 1968 (T. Matsumura).

Remarks. This is a common species widely distrib-

uted from Europe, North Africa to Asia. It has two generations a year.

Distribution. Nepal (new record), Europe, North Africa, European Russia, Asia Minor, Middle and Near East, Kazakhstan, Uzbekistan, India.

Floral association. 1 female was collected on *Brassica* (Nepal).

2. *Andrena (Euandrena) kathmanduensis* n. sp.

(Fig. 1: A-F)

Female: BL 9.2-9.8 mm, WL 8.4-8.6 mm (n=5).

Color: Flagellum reddish brown beneath; mandible with apical third reddened; wing membranes subhyaline, pale brown, veins and pterostigma brownish; tibial spurs ochreous; metasomal terga 1-2 reddened basally; posterior depressions of metasomal terga reddish yel-

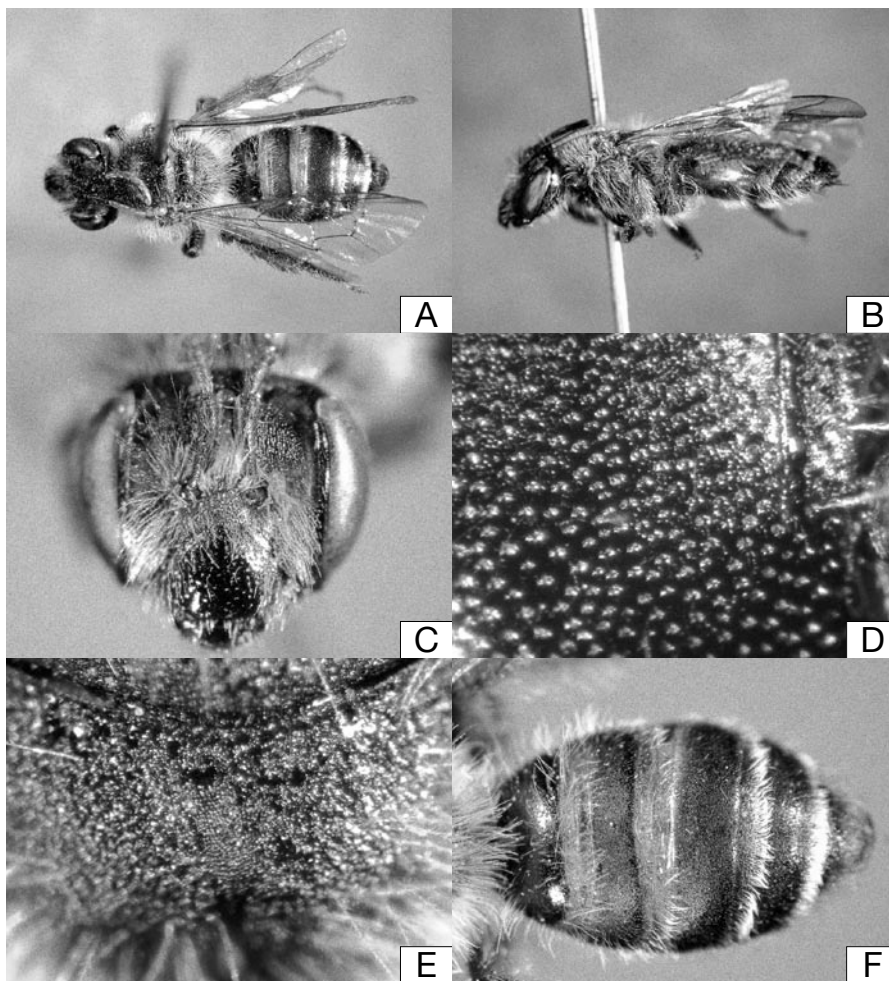


Fig. 1: A-F. *Andrena (Euandrena) kathmanduensis* n. sp., female. A: general habitus in dorsal view; B: the same in lateral view; C: head in frontal view; D: mesoscutum; E: propodeum; F: metasomal terga.

low.

Pubescence: Hairs on head short, sparse, dull whitish, except antennal area and vertex mixed with dense, dark brownish; those on clypeus 300-400 μ m; those on vertex 500-600 μ m; those on genal area 500-600 μ m, dense; facial fovea brown. Hairs on mesoscutum 300-500 μ m long, moderately dense, dull whitish, not intermixed with brownish; those on scutellum 400-600 μ m; those on mesepisternum 500-700 μ m; propodeal corbicular scanty, not well arranged, internal area with simple hairs, without anterior fringes; trochanteral floccus short, scanty, whitish; femoral floccus dense; tibial scopal hairs long, simple, pale brownish, loose. Hairs on metasomal terga 1-2 scanty with long erect white hairs; those on terga 3-4 rather short, dark brown; terga 1-4 with dense, white hair bands, broadly interrupted on tergum 1, completed on terga 3-4; caudal fimbria dark brown to fuscous; sterna 2-5 with long, sparse, dull whitish subapical fimbriae.

Structure: *Head:* HL/HW = 0.89. HW: MsW: MtW = 2.8: 3.0: 3.0. Vertex flat, very narrow, shagreened with obscure PP. OOD: POD: OCD = 0.5: 0.3: 0.15. FL1 > FL2+3, FL2 = FL3 which are broader than long. Eyes with inner margins paralleled. Facial fovea occupying 1/2 space between eye and lateral ocellus, not exceeding below line at lower margins of antennal fossae, FVL = 1.1 mm, FVW = 0.3 mm. Supraclypeal area weakly convex, roughened with roughened small PP. Face above antennal fossae with fine longitudinal rugulae and weak interrugal PP, shagreening surface. Facial quadrangle longer than broad (2.0: 2.1). Clypeus convex, surface smooth and shiny with sparse, large PP ϕ 40 μ m, IS = 1-4, without longitudinal median impunctate space, CPL = 0.9 mm. Process of labrum large, rectangular, emarginate medially. Lower paraocular area smooth and shiny with minute, shallow PP, IS < 0.5. Malar space linear. Genal area broader than eye, GW: EW = 0.8: 0.7, surface smooth and shiny with minute PP near eye. *Mesosoma:* Pronotum without humeral angle, subapical margin of pronotum emarginated in the middle, surface weakly tessellate and shiny with minute PP. Mesoscutum weakly tessellate anteriorly and laterally and smooth and shiny centrally with shallow, small PP ϕ 40 μ m, IS = 1-2. Scutellum smooth and shiny with small PP anteriorly and shagreened posteriorly. Propodeal enclosure small, rugulose at basal 1/3, weakly shagreened apically; dorsal face of propodeum shagreened with roughened PP. Mesepisternum shagreened anteriorly, tessellate posteriorly. Vein 1st *m-cu* meeting second submarginal cell at middle of cell. *Metasoma:* Metasomal terga densely tessellate with indistinct, small PP ϕ 20 μ m, IS = 1-3; pos-

terior depressions of terga well indicated; pygidial plate V-shaped, large, internal area with raised triangular area. Sterna 2-5 weakly tessellate with dense, minute PP.

Type material. Holotype female, Lete, 2400m, Palpa, Nepal, 5. v. 1968 (T. Matsumura). Paratypes: [NEPAL] same locality and collector as the holotype: 7 females, 5. v. 1968; 11 females, 8. v. 1968; 3 females, Godavari, 1400m, Napal valley, 26. iii. 1968 (T. Matsumura); Gorapani, 2750m, No. 4 West: 4 females, 11. v. 1968 (T. Matsumura); 1 female, 2. v. 1968 (T. Kumata); Kathmandu, 1340m: 2 females, 22. iv. 1968 (T. Matsumura); 7 females, 20. ii. 1968 (T. Kawamichi); 1 female, Balaju, 1400m, Kathmandu, 22. iii. 1968 (T. Matsumura); 3 females, Ulleri, 2200m, No. 4 West, 12. v. 1968 (T. Matsumura); 2 females, Pati, Bhanjyang, 1500m, 19. ii. 1968 (T. Kawamichi)

Remarks. This species is somewhat similar to *Andrena almas* Tadauchi et al. from Xinjiang Uygur, China, in having the metasomal terga reddened, but the female can be separated from that of *almas* by the clypeus strongly convex and polished with sparser and larger PP, the facial fovea brownish, the tibial scopa dull whitish, the metasomal terga densely tessellate, and the caudal fimbria dark brown to fuscous.

Distribution. Nepal.

Etymology. The specific name is derived from the type locality and the capital city of Nepal, Kathmandu.

3. *Andrena (Simandrena) gorkhana* n. sp. (Fig. 2: A-F)

Female: BL 7.3-7.9 mm, WL 4.8-6.0 mm (n=5).

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

Pubescence: Hairs on head short, moderately dense, whitish, except antennal area and vertex mixed with brownish; those on clypeus 300 μ m; those on vertex 300-400 μ m; those on genal area 400-500 μ m; facial fovea brown above, whitish below. Hairs on mesoscutum 200-300 μ m, not long, sparse, brown; those on scutellum and metanotum 400-500 μ m, longer and denser, dark fulvous; those on mesepisternum 500-600 μ m long, white; propodeal corbicular completely developed, with long, dense, well arranged hairs, internal area without simple hairs, with anterior fringes; trochanteral floccus long, dense, curled, whitish; femoral floccus dense, whitish; tibial scopal hairs short, simple, whitish in front, pale

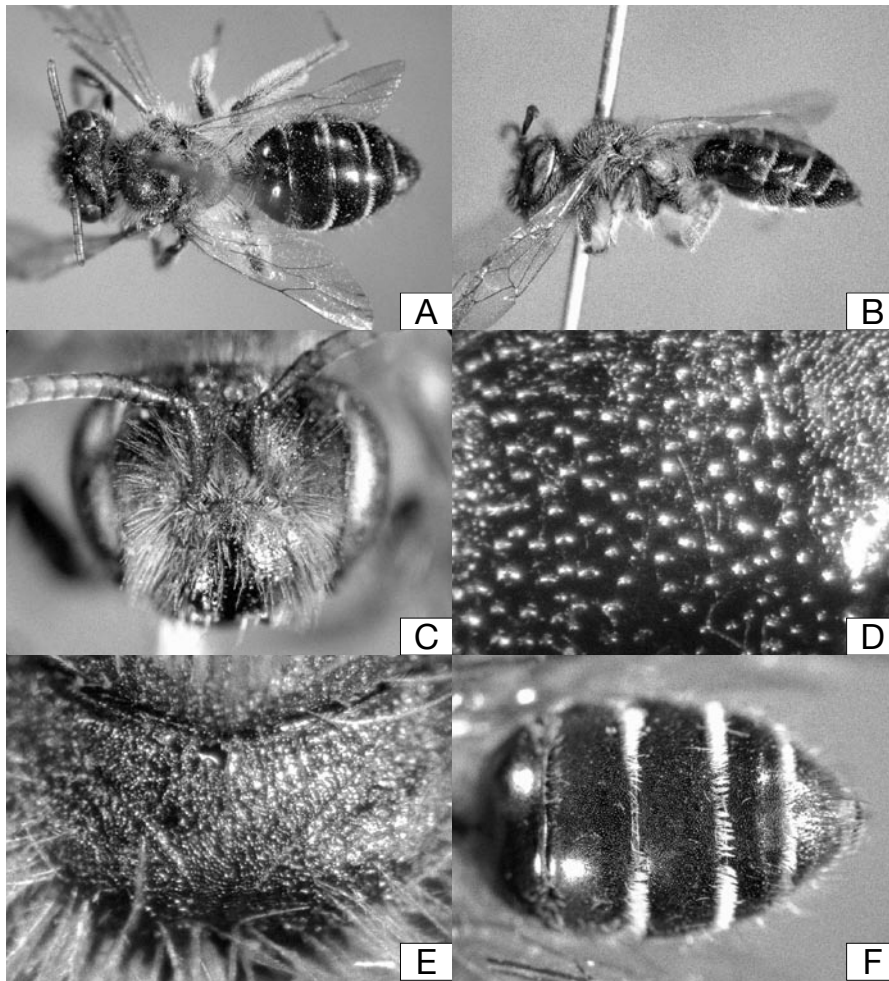


Fig. 2: A-F. *Andrena (Simandrena) gorkhana* n. sp., female. A: general habitus in dorsal view; B: the same in lateral view; C: head in frontal view; D: mesoscutum; E: propodeum; F: metasomal terga.

brownish behind. Hairs on metasomal tergum 1 scanty with long, erect white hairs; those on terga 3-4 rather short, fuscous; terga 1-4 with dense, white hair bands, laterally on tergum 1, interrupted medially on tergum 2, completed on terga 3-4; caudal fimbria fuscous; sterna 2-5 with long, sparse, whitish subapical fimbriae, with short, dense, whitish apical fimbriae.

Structure: *Head:* HL/HW = 0.82. HW: MsW: MtW = 2.3: 2.3: 2.3. Vertex nearly flat in frontal view, shagreened with roughened, obscure PP. OOD: POD: OCD = 0.5: 0.3: 0.2. FL1 < FL2+3, FL2 = FL3 which are broader than long. Eyes with inner margins subparallel. Facial fovea occupying 4/5 space between eye and lateral ocellus, much exceeding below line at lower margins of antennal fossae, FVL = 1.1 mm, FVW = 0.3 mm. Supraclypeal area well convex shagreened with roughened, small PP. Face above antennal fossae

with fine longitudinal rugulae and weak interrugal PP, shagreening surface. Facial quadrangle broader than long (1.8: 1.7). Clypeus convex, surface smooth and shiny with moderately dense, strong PP ϕ 30-40 μ m, IS = 0.5-1, without longitudinal median impunctate space, CPL = 0.7 mm. Process of labrum trapezoidal, emarginate medially. Lower paraocular area smooth and shiny with minute PP, IS < 0.5. Malar space linear. Genal area narrower than eye, GW: EW = 0.3: 0.6, surface narrowly smooth and shiny with minute PP near eye and broadly, weakly tessellate posteriorly. *Mesosoma:* Pronotum without humeral angle, surface weakly tessellate and shiny with minute PP. Mesoscutum weakly tessellate anteriorly and smooth and shiny posteriorly with dense, small PP ϕ 30 μ m, IS = 1-2. Scutellum smooth and shiny with small PP. Propodeal enclosure rugulose at basal 2/3, densely tessellate apically; dorsal face of propo-

deum shagreened with roughened PP. Mesepisternum roughened with roughened PP. Vein 1st *m-cu* meeting second submarginal cell at middle of cell. Legs with hind tibia broadened apically. *Metasoma*: Metasomal terga smooth and shiny with dense, small PP $\phi 20\mu\text{m}$, IS=1; posterior depressions of terga weakly indicated; pygidial plate V-shaped, internal area with raised triangular area. Sterna 2-5 very weakly tessellate and shiny with dense, minute PP.

Type material. Holotype female, Arghat, 300-600m, Nepal, 30. i. 1968 (T. Kawamichi). Paratypes: [NEPAL] 9 females, same data as the holotype; 42 females, Bhanjang, 1200-1500m, 31. i. 1968 (T. Kawamichi); 2 females, Khanchok, 900m, 29. i. 1968 (T. Kawamichi); 2 females, Kathmandu, 1340m, 20. ii. 1968 (T. Kawamichi); 1 female, Birgangi, 100m, 27. ii. 1968 (T. Kawamichi).

Remarks. This species is somewhat similar to *Andrena nippon* Tadauchi et Hirashima from Japan in having fulvous hairs on the scutellum and the metasomal terga with many PP, but the female can be separated from that of *nippon* by the clypeus without longitudinal median impunctate space, and the metasomal terga with much smaller and weaker PP.

Distribution. Nepal.

Etymology. The specific name is derived from the type locality, Gorkha District.

4. *Andrena (Oreomelissa) kumbhuensis* n. sp. (Fig. 3: A-F)

Female: BL 8.6-9.5 mm, WL 8.3-8.7 mm (n=5).

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

Pubescence: Hairs on head moderately long, not dense, brownish; those on clypeus 300-500 μm ; those on vertex 500-600 μm ; those on genal area 400-500 μm ; facial fovea black. Hairs on mesoscutum 200-300 μm , not long, not dense, dull whitish mixed with black; those on scutellum 500-600 μm , longer and denser, dull whitish; those on mesepisternum 500-700 μm long, white; propodeal corbicular not well developed, with sparse, long, not well arranged, internal area with simple hairs, without anterior fringes; trochanteral floccus short, sparse, curled, whitish; femoral floccus dense, whitish; tibial scopal hairs long, simple, loose, whitish. Hairs on metasomal terga scanty; terga 1-4 with white hair bands only laterally; caudal fimbria dark brown; sterna 2-5 with

long, sparse, dull whitish subapical fimbriae.

Structure: *Head*: HL/HW = 0.92. HW: MsW: MtW = 2.5: 2.7: 2.7. Vertex strongly convex in frontal view, tessellate with obscure PP. OOD: POD: OCD = 0.5: 0.3: 0.2. FL1 > FL2+3, FL2 < FL3 which is as broad as long. Eyes with inner margins subparallel. Facial fovea occupying 3/4 space between eye and lateral ocellus, a little exceeding below line at lower margins of antennal fossae, FVL = 1.1 mm, FVW = 0.4 mm. Supraclypeal area convex, tessellate with obscure, small PP. Face above antennal fossae with fine longitudinal rugulae and weak interrugal PP, shagreening surface. Facial quadrangle as broad as long (1.8: 1.8). Clypeus strongly convex, surface smooth and shiny with sparse, small PP $\phi 20$ -40 μm , IS = 1-3, without longitudinal median impunctate space, CPL = 0.9 mm. Process of labrum small, emarginate medially. Lower paraocular area smooth to weakly tessellate with minute PP, IS = 1. Malar space linear. Genal area broader than eye, GW: EW = 0.7: 0.4, surface broadly smooth and shiny with distinct, minute PP. *Mesosoma*: Pronotum without humeral angle, surface weakly tessellate with obscure minute PP. Mesoscutum weakly tessellate anteriorly and smooth and shiny posteriorly with moderately dense, small PP $\phi 40\mu\text{m}$, IS = 1-2. Scutellum smooth and shiny with small PP anteriorly. Propodeal enclosure rugulose at basal 1/2, densely tessellate apically; dorsal face of propodeum densely tessellate with obscure PP. Mesepisternum densely tessellate with obscure PP. Vein 1st *m-cu* meeting second submarginal cell at rear of cell. *Metasoma*: Metasomal terga polished and shiny with small PP $\phi 20\mu\text{m}$, sparser IS=2-4 on tergum 1, denser IS=1-2 on terga 2-4; posterior depressions of terga well indicated; pygidial plate V-shaped, internal area with raised triangular area. Sterna 2-5 weakly tessellate with dense, minute PP.

Type material. Holotype female, Namche Bazar, 3500m, No. 3 East, Nepal, 8. vii. 1968 (T. Matsumura). Paratypes: [NEPAL] same locality and collector as the holotype; 9 females, 2. vii. 1968; 1 female, 6. vii. 1968; 40 females, 8. vii. 1968; 13 females, Punguchaga, 3300-3600m, No. 3 East, 9. vii. 1968 (T. Matsumura).

Remarks. This species is somewhat similar to *Andrena mitakensis* Hirashima from Japan in having the larger size and the metasomal terga smooth and shiny with small PP, but the female can be separated from that of *mitakensis* by the clypeus smooth and shiny with much sparser PP, the process of labrum emarginated in the middle, the tibial scopa whitish, and the metasomal terga with more distinct PP.

Distribution. Nepal.

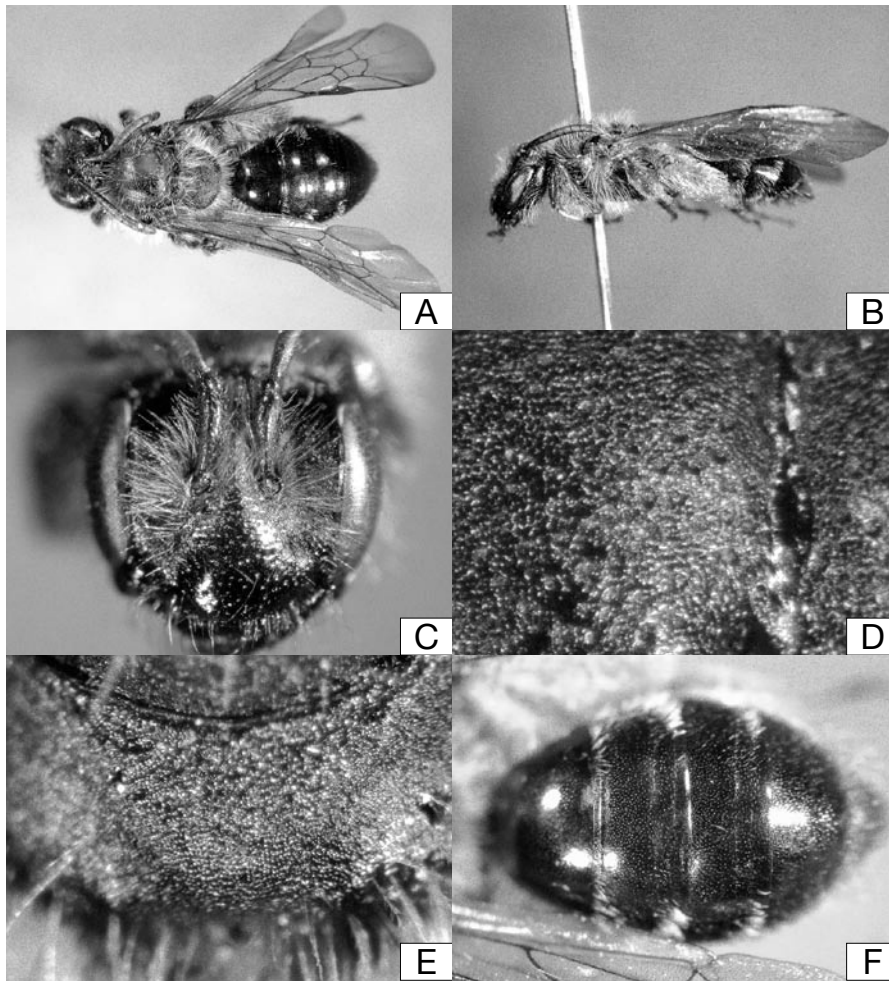


Fig. 3: A-F. *Andrena (Oreomelissa) kumbhuensis* n. sp., female. A: general habitus in dorsal view; B: the same in lateral view; C: head in frontal view; D: mesoscutum; E: propodeum; F: metasomal terga.

Etymology. The specific name is derived from the type locality, Kumbh Valley which rises in Mt. Everest.

5. *Andrena (Oreomelissa) himalayana* n. sp.
(Fig. 4: A-F, Fig. 5: A-F)

Female: BL 8.0-8.3 mm, WL 7.2-7.6 mm (n=5).

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

Pubescence: Hairs on head moderately long, not dense, brownish mixed with dull whitish; those on clypeus 200-300 μ m; those on vertex 300-400 μ m; those on genal area 300-400 μ m; facial fovea black. Hairs on mesoscutum 300-400 μ m, not long, not dense, dull whit-

ish anteriorly, blackish centrally; those on scutellum 400-500 μ m, longer, blackish; those on mesepisternum 400-600 μ m long, brownish above, dull whitish below; propodeal corbicula not well developed, with sparse, short, not well arranged, internal area with simple hairs, without anterior fringes; trochanteral floccus short, sparse, curled, whitish; femoral floccus dense, whitish; tibial scopal hairs long, simple, a little loose, whitish. Hairs on metasomal terga scanty; terga 3-4 with very short, black hairs; terga 2-4 with white hair bands only laterally; caudal fimbria dark brown; sterna 2-5 with long, sparse, dull whitish subapical fimbriae.

Structure: *Head:* HL/HW = 0.90. HW: MsW: MtW = 2.1: 2.2: 2.1. Vertex strongly convex in frontal view, densely tessellate with obscure PP. OOD: POD: OCD = 0.6: 0.3: 0.2. FL1 > FL2+3, FL2 > FL3 which is broader than long. Eyes with inner margins paralleled. Facial

fovea occupying 1/2 space between eye and lateral ocellus, attaining below line at lower margins of antennal fossae, FVL = 0.7 mm, FVW = 0.3 mm. Supraclypeal area convex, tessellate with obscure, small PP. Face above antennal fossae with fine longitudinal rugulae and weak interrugal PP, shagreening surface. Facial quad-angle longer than broad (1.5: 1.6). Clypeus well convex, surface smooth and shiny below and densely tessellate above, with sparse, small PP $30\text{--}40\mu\text{m}$, IS = 1-2, with longitudinal median impunctate space, CPL = 0.7 mm. Process of labrum small, emarginate medially. Lower paraocular area smooth and shiny with minute PP, IS < 1. Malar space linear. Genal area broader than eye, GW: EW = 0.5: 0.4, surface broadly smooth and shiny with distinct, minute PP. *Mesosoma*: Pronotum without humeral angle, surface weakly tessellate with obscure minute PP. Mesoscutum weakly tessellate anteriorly and

smooth and shiny posteriorly with moderately dense, small PP $30\mu\text{m}$, IS = 0.5-2. Scutellum smooth and shiny with distinct, small PP. Propodeal enclosure densely tessellate all over; dorsal face of propodeum densely tessellate with obscure PP. Mesepisternum densely tessellate with obscure PP, a little roughened. Vein 1st *m-cu* meeting second submarginal cell at rear of cell. *Metasoma*: Metasomal terga smooth and shiny with sparse, small PP $20\mu\text{m}$, IS = 2-3; posterior depressions of terga weakly indicated; pygidial plate V-shaped, internal area with raised triangular area. Sterna 2-5 very weakly tessellate with dense, minute PP.

Male: BL 7.0-7.7 mm, WL 6.9-7.1 mm (n=5).

Color: Flagellum brownish beneath; mandible with apical third reddened; clypeus creamy white; wing membranes subhyaline, moderately brown, veins and pterostigma brown; tibial spurs yellow; posterior de-

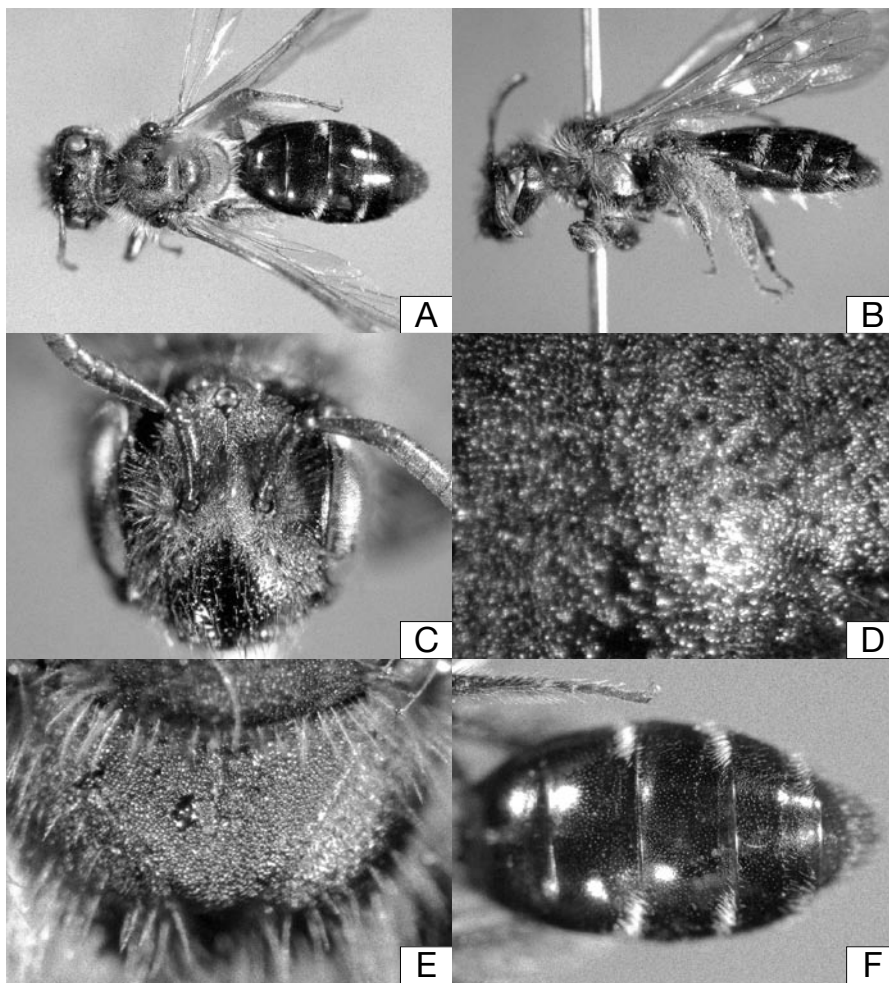


Fig. 4: A-F. *Andrena (Oreomelissa) himalayana* n. sp., female. A: general habitus in dorsal view; B: the same in lateral view; C: head in frontal view; D: mesoscutum; E: propodeum; F: metasomal terga.

pressions of metasomal terga reddish brown.

Pubescence: Hairs on head and thorax blackish, mixed with dull whitish on clypeus, antennal area, genal area and mesoscutum. Hairs on metasomal terga very short and sparse, dark brown; terga 2-5 with obscure white hair bands only laterally; sterna 2-5 with suberect, long, white subapical and apical fimbriae.

Structure: *Head:* HL/HW = 0.86. HW: MsW: MtW = 2.1: 2.0: 2.0. Vertex tessellate with obscure PP. OOD: POD: OCD = 0.5: 0.3: 0.1. FL1 > FL2, FL2 < FL3, which is as broad as long. Eyes with inner margins subparallel. Supraclypeal area tessellate and shiny with obscure PP; face above antennal fossae sculptured as in female. Facial quadrangle as broad as long (about 1.4: 1.4). Clypeus moderately convex, smooth and shiny, surface with sparse, small PP ϕ 30-40 μ , IS = 1-2, with median impunctate space, CPL = 0.6 mm. Process of labrum

small, emarginate medially. Lower paraocular area as in female. Malar space linear. Genal area as broad as eye, GW: EW = 0.5: 0.5, surface broadly smooth and shiny with minute PP. *Mesosoma:* Mesoscutum weakly tessellate anteriorly and laterally, smooth and shiny centrally with weak PP ϕ 20-30 μ , IS = 1-3. Propodeal enclosure a little roughened basal area, tessellate apically. *Metasoma:* Metasomal terga smooth and shiny, minutely punctate on terga 1-5, PP ϕ 20 μ , IS = 1-3; posterior depressions of terga weakly indicated. Sterna 2-5 smooth and shiny, weakly and sparsely punctate as in terga 2-5.

Type material. Holotype female, Namche Bazar, 3300-3650m, No. 3 East, Nepal, 8. vii. 1968 (T. Matsumura). Paratypes: [NEPAL] same locality and collector as the holotype: 4 females & 17 males, 6. vii. 1968; 9 females & 1 male, 8. vii. 1968; 2 females and 4 males

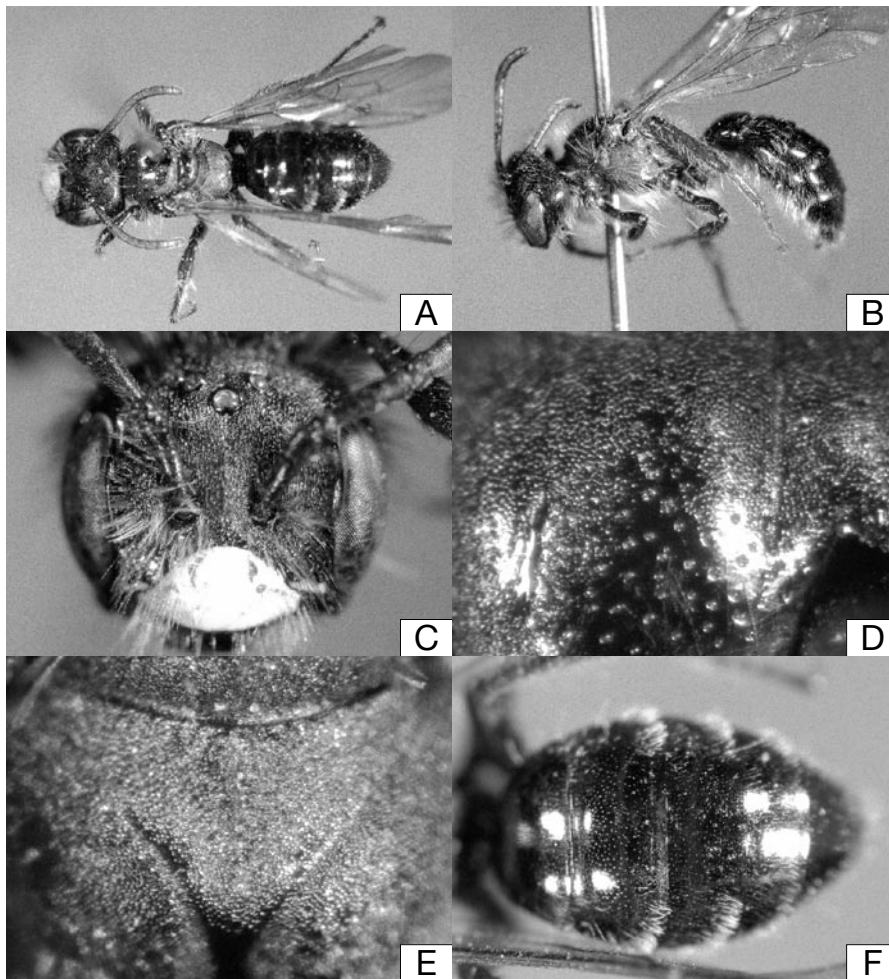


Fig. 5: A-F. *Andrena (Oreomelissa) himalayana* n. sp., male. A: general habitus in dorsal view; B: the same in lateral view; C: head in frontal view; D: mesoscutum; E: propodeum; F: metasomal terga.

9. vii. 1968; 3 males, Punguchaga, 3300-3600m, No. 3 East, 9. vii. 1968 (T. Matsumura).

Remarks. This species is very similar to *Andrena coitana pilosodorsata* Alfken from eastern Asia, but the female can be separated from that of *coitana pilosodorsata* by the clypeus smooth and shiny, the facial fovea black, the propodeal enclosure tessellate all over, the metasomal terga with more distinct PP, and the caudal fimbria black. The male can be separated from that of *coitana pilosodorsata* by the cream yellow clypeus less convex and larger and more rounded, the metasomal terga with stronger PP.

Distribution. Nepal.

Etymology. The specific name is derived from the type locality, Himalayas.

6. *Andrena (Melandrena) cineraria* (Linnaeus, 1758)

Apis cineraria Linnaeus, 1758, Syst. nat. (Ed. 10) 1: 575. [Europe].

Apis atra Scopoli, 1763 (nec *Apis atra* Müller, 1776; nec *Andrena atra* Smith, 1847; nec *Andrena atra* Popov, 1940), Entom. Carn.: 299 [SE Austria].

Lamprocolletes peregrinus Smith, 1878, Sci. Res. 2. Yarkand Miss. Hym. Calkutta: 2 [E. Turkestan].

Andrena cineraria: Morawitz, 1880, Biol. Bull. Acad. Sci., St. Petersburg, 10 (3-4): 483 [in list, Mongolia], Alfken, 1936, Ark. Zool., 27A (37): 3; Yasumatsu, 1941, Peking nat. Hist. Bull., 15: 274; Yasumatsu, 1946, Mushi, 17: 20 [in list, China].

Andrena (Gymnandrena) cineraria: Hirashima, 1957, Mushi, 30: 62; Wu, 1982, Insects Xizang, Vol. 2, Apoidea, 384.

Andrena (Melandrena) cineraria: Warncke, 1968, Mem. Est. Mus. Zool. Univ. Coimbra, (307): 78; Gusenleitner & Schwarz, 2002, Entomofauna, Suppl., 12: 178.

Andrena cineraria var. *nigrifacies* Alfken, 1913, Abh. naturw. Ver. Bremen, 22: 84 [NW Germany].

Andrena danuvia E. Stoeckert, 1950, in Pittioni & Stoeckert, Annln naturh. Mus. Wien, 57: 287 [E. Austria].

Andrena marmora Nurse, 1904, J. Bombay nat. Hist. Soc, 15: 562 [Pakistan]. **n. syn.**

Andrena (Melandrena) marmora: Gusenleitner & Schwarz, 2001, Entomofauna, 22: 305; Gusenleitner & Schwarz, 2002, Entomofauna, Suppl., 12: 461.

Andrena transcaspica Radoszkowski, 1893 (nec *A. transcaspica* Radoszkowski, 1886), Hor Soc. Ent. Ross., 27: 56 [Turkmenistan].

Andrena radoszkowski Dalla Torre, 1896 (nec *A. rado-*

szkowski Schmiedeknecht, 1883), Cat. Hym. 10: 149 [new name for *A. transcaspica* Radoszkowski].

Andrena ducis Cockerell 1907, Entomologist, 40: 50 [new name for *A. transcaspica* Radoszkowski].

Specimens examined. [NEPAL] 26 females, Marpha, 2650m, Palpa, 7. v. 1968 (T. Matsumura); 4 females, Tukucha, 2600m, Palpa, 7. v. 1968 (T. Matsumura); 2 females, Syang, 2700m, Palpa, 6. v. 1968 (T. Matsumura).

Remarks. We examined the syntype of *Andrena marumora* Nurse from Pakistan. It is newly recognized as a synonymy of *Andrena cineraria* (Linnaeus) both by having the pronotum with subapical margin emarginated in the middle and only difference in hair coloration on the head, amount of white hairs.

Distribution. Nepal (new record), Europe, European Russia, Asia Minor, Iran, Turkmenistan, Pakistan, China, Mongolia.

7. *Andrena (Micrandrena) semirugosa* Cockerell

Andrena semirugosa Cockerell, 1924 Ann. Mag. nat. Hist., (9) 14: 180 [Middle Siberia].

Andrena (Micrandrena) semirugosa: Gusenleitner & Schwarz, 2001, Entomofauna, 22: 348; : Gusenleitner & Schwarz, 2002, Entomofauna, Suppl., 12: 686.

Specimens examined. [NEPAL] 1 female and 6 males, Kathmandu, 1340m, 20. ii. 1968 (T. Kawamichi); 1 female, Balaju, 1400m, Kathmandu, 22. iii. 1968 (T. Matsumura).

Remarks. It may distribute widely in central to eastern Asia extending to Russian Far East and Japan at species level. The ssp. *brassicae* Hirashima is found in Japan and Russian Far East.

Distribution. Nepal (new record), Siberia.

8. *Andrena (Andrena) sagarmathana* n. sp. (Fig. 6: A-F)

Female: BL 12.0 mm, WL 10.3 mm (n=1).

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

Pubescence: Hairs on head long, moderately dense, dull yellowish on clypeus and lower antennal area, dark brownish on upper antennal area and vertex; those on clypeus 400-600µm; those on vertex 700-900µm; those

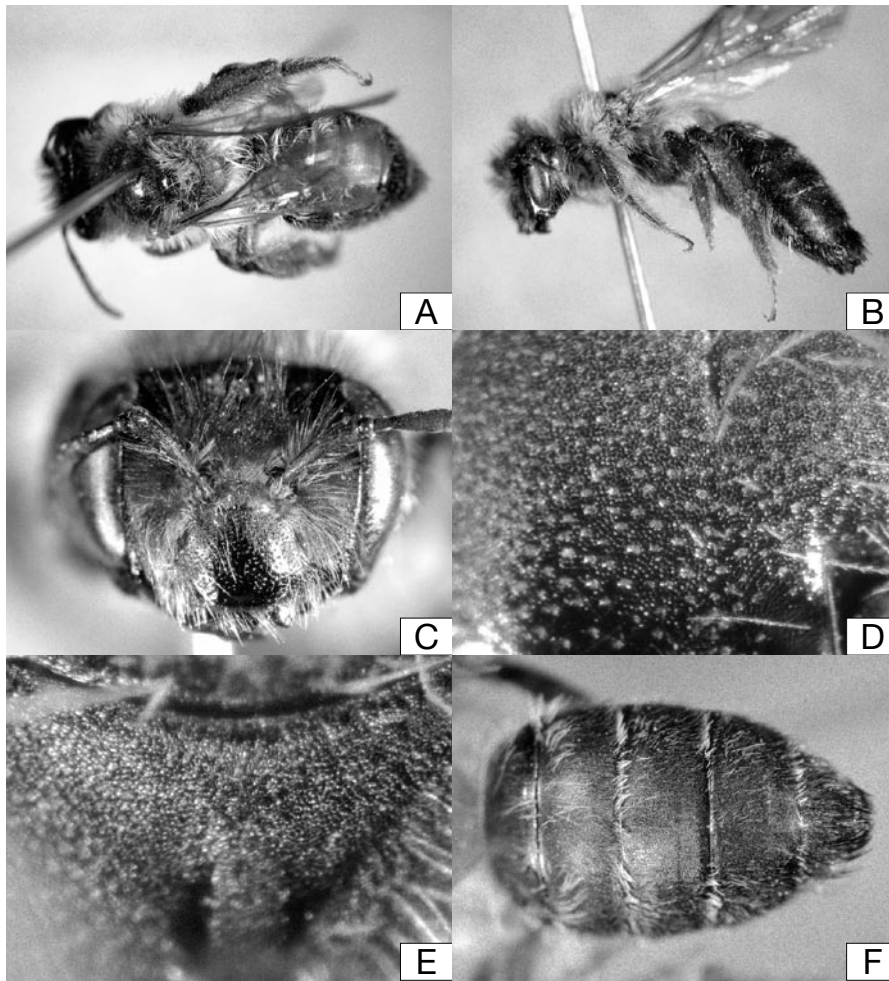


Fig. 6: A-F. *Andrena (Andrena) sagarmathana* n. sp., female. A: general habitus in dorsal view; B: the same in lateral view; C: head in frontal view; D: mesoscutum; E: propodeum; F: metasomal terga.

on genal area 700-900 μ m dull whitish; facial fovea dark brown. Hairs on mesoscutum 600-800 μ m, not long, moderately dense, dull yellowish; those on scutellum and metanotum 700-1000 μ m dull white; those on mesepisternum 800-1100 μ m long, dull white; propodeal corbicula completely developed, with long dense, well arranged hairs, internal area without simple hairs, with anterior fringes; trochanteral floccus long, dense, curled, whitish; femoral floccus dense, whitish; tibial scopal hairs simple, dark brownish, compact. Hairs on metasomal terga 1-2 scanty with long, erect white hairs; those on terga 2-4 short, moderately dense, dark brown; terga 1-4 with obscure, white hair bands, laterally on tergum 1, interrupted medially on tergum 2, completed on terga 3-4; caudal fimbria fuscous; sterna 2-5 with long, sparse, dull whitish subapical fimbriae.

Structure: *Head*: HL/HW = 0.81. HW: MsW: MtW

= 3.7: 3.8: 3.8. Vertex convex in frontal view, roughened with roughened, obscure PP. OOD: POD: OCD = 0.7: 0.4: 0.2. FL1 < FL2+3, FL2 < FL3 which is longer than broad. Eyes with inner margins subparallel. Facial fovea broad, occupying nearly full space between eye and lateral ocellus, a little exceeding below line at lower margins of antennal fossae, FVL = 1.6 mm, FVW = 0.6 mm. Supraclypeal area well convex densely tessellate with obscure, small PP. Face above antennal fossae with fine longitudinal rugulae and weak interrugal PP, shagreening surface. Facial quadrangle broader than long (2.7: 2.4). Clypeus strongly convex, surface smooth and shiny apically with impunctate space at apical area, with moderately dense, small PP 30-40 μ m, IS = 0.5-2, densely tessellate basally, without longitudinal median impunctate space, CPL = 1.2 mm. Process of labrum trapezoidal, emarginate medially. Lower paraocular

area smooth and shiny with minute PP, IS = 0.5-1. Malar space about 1/3 of basal width of mandible. Genal area broader than eye, GW: EW = 1.0: 0.6, surface broadly smooth and shiny with small PP near eye and weakly tessellate posteriorly. *Mesosoma*: Pronotum with humeral angle, surface weakly tessellate with minute PP. Mesoscutum densely tessellate anteriorly and smooth and shiny centrally with moderately dense, small PP $\phi 40\mu\text{m}$, IS = 1-3. Scutellum smooth and shiny with small sparse PP. Propodeal enclosure tessellate nearly full space; dorsal face of propodeum shagreened with a little roughened PP. Mesepisternum shagreened with obscure PP. Vein 1st *m-cu* meeting second submarginal cell at beyond of cell. *Metasoma*: Metasomal terga densely tessellate with indistinct, very small PP $\phi 20\mu\text{m}$, IS = 1-3; posterior depressions of terga weakly indicated; pygidial plate V-shaped, internal area with raised trian-

gular area. Sterna 2-5 very weakly tessellate and shiny with dense, minute PP.

Type material. Holotype female, Namche Bazar, 3500m, No. 3 East, Nepal, 8 vii. 1968 (T. Matsumura).

Remarks. This species is somewhat similar to *Andrena lapponica shirozui* Hirashima from Japan, in having the metasomal terga hairy, but the female can be separated from that of *lapponica shirozui* by the larger size, the scutellum smooth and shiny, the propodeal enclosure nearly full space, and the metasomal terga densely tessellate.

Distribution. Nepal.

Etymology. The specific name is derived from a Nepalese name of Mt. Everest, Sagarmatha.

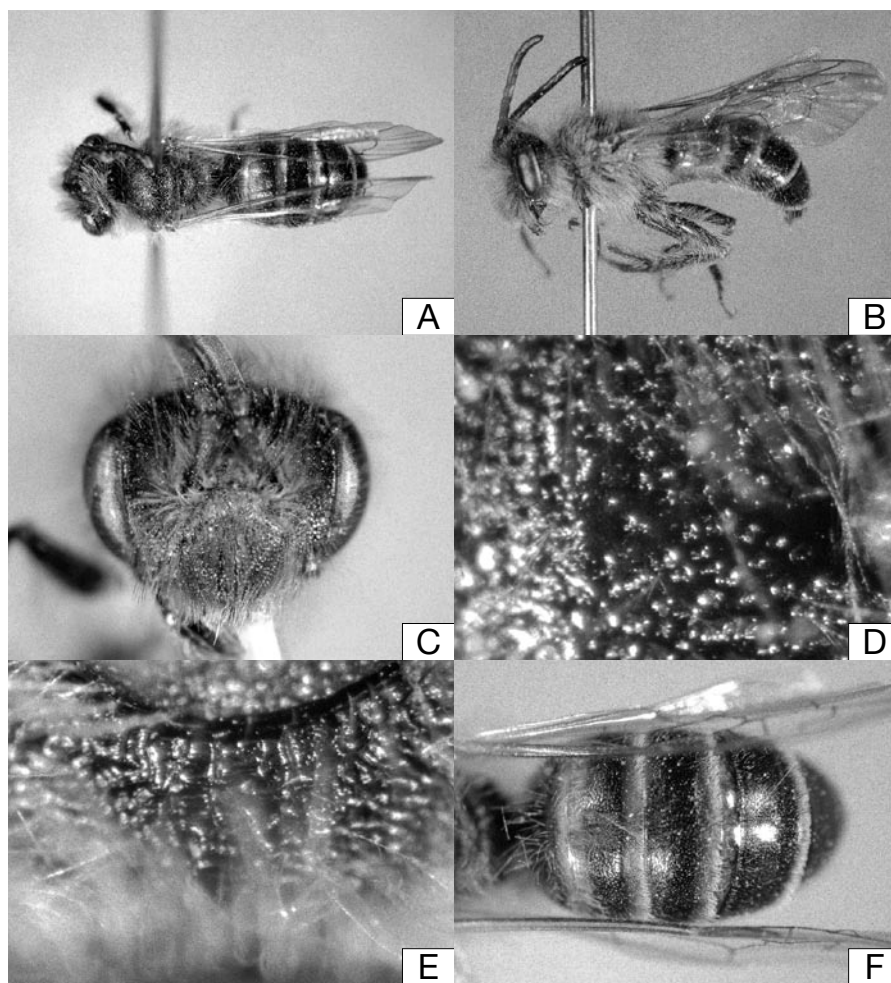


Fig. 7: A-F. *Andrena (Plastandrena) ramayana* n. sp., male. A: general habitus in dorsal view; B: the same in lateral view; C: head in frontal view; D: mesoscutum; E: propodeum; F: metasomal terga.

9. *Andrena (Plastandrena) ramayana* n. sp.
(Fig. 7: A-F)

Male: BL 8.3 mm, WL 8.1 mm (n=1).

Color: Flagellum dark brown beneath; mandible with apical third reddened; wing membranes subhyaline, moderately brown, veins and pterostigma brown; tibial spurs ochreous; metasomal terga 2-4 reddish yellow anteriorly; posterior depressions of metasomal terga reddish yellow.

Pubescence: Hairs on head long, dense, dull yellowish mixed with dark brownish on clypeus, antennal area and vertex; those on clypeus 400-600 μ m; those on vertex 800-1000 μ m; those on genal area 700-800 μ m dull yellowish. Hairs on mesoscutum 800-1000 μ m, long, dense, dull yellowish; those on scutellum and metanotum 1000-1200 μ m; those on mesepisternum and corbicula area 900-1100 μ m long, dull white. Hairs on metasomal terga 1-2 scanty with long, erect dull white hairs; those on terga 3-5 short, moderately dense, black; terga 2-5 with white short hair bands, interrupted medially on tergum 2, completed on terga 3-5; sterna 2-5 with long, sparse, dull whitish apical fimbriae.

Structure: Head: HL/HW = 0.76. HW: MsW: MtW = 2.9: 2.5: 2.5. Vertex convex in frontal view, roughened with roughened, obscure PP. OOD: POD: OCD = 0.6: 0.4: 0.2. FL1 < FL2+3, FL2 < FL3 which is longer than broad. Eyes with inner margins subparallel. Supraclypeal area nearly flat, rugose with roughened PP. Face above antennal fossae with strong longitudinal rugulae and weak interrugal PP, strongly roughened surface. Facial quadrangle as long as broad (2.0: 2.0). Clypeus strongly convex, surface smooth and shiny with very dense, strong PP 40 μ m, IS = 0.2, with longitudinal median impunctate line, CPL = 0.9 mm. Process of labrum trapezoidal, deeply emarginate medially. Lower paraocular area smooth and shiny with strong PP, IS < 0.3. Malar space linear. Genal area as broad as eye, GW: EW = 0.6: 0.6, surface narrowly smooth and shiny with small PP near eye and broadly very weakly tessellate posteriorly. **Mesosoma:** Pronotum smooth and shiny with sparse, shallow PP. Mesoscutum smooth and shiny with moderately dense, distinct PP 40 μ m, IS = 0.4-1. Scutellum smooth and shiny with distinct PP. Propodeal enclosure strongly rugose all over with a carina apically; dorsal face of propodeum and propodeal area strongly rugose. Mesepisternum strongly shagreened with roughened PP. Vein 1st *m-cu* meeting second submarginal cell at middle of cell. **Metasoma:** Metasomal terga weakly tessellate anteriorly, smooth and shiny posteriorly with distinct, small PP 30 μ m, IS=1; posterior depressions of

terga strongly indicated. Sterna 2-5 very weakly tessellate and shiny with dense, minute PP.

Type material. Holotype male, Kathmandu, 1340m, 20. ii. 1968 (T. Kawamichi).

Remarks. Species of *Plastandrena* collected from Indian Subcontinent are *Andrena balucha* Nurse and *Andrena hera* Nurse both from Pakistan and having reddened metasomal terga. Although both species were described based on females, the male of this new species is characteristic in having the head with dense brown hairs, the clypeus moderately convex with convex longitudinal median line, the mesoscutum smooth and shiny posteromedially and the metasomal terga 1-4 partly reddened and smooth and shiny with distinct large PP.

Distribution. Nepal.

Etymology. The specific name is derived from a Hindu epic.

10. *Andrena (Margandrena) annapurna* n. sp.
(Fig. 8: A-F)

Female: BL 8.9-9.1mm, WL 8.8-8.9 mm (n=2).

Color: Flagellum brownish beneath; mandible with apical half reddened; wing membranes subhyaline, pale brownish, veins and pterostigma pale brown; tibial spurs ochreous; hind tibia and tarsi ferruginous; posterior depressions of metasomal terga reddish brown.

Pubescence: Hairs on head long, moderately dense, dull whitish mixed with brownish on lower paraocular area, antennal area and vertex; those on clypeus 400-600 μ m; those on vertex 400-600 μ m; those on genal area 600-700 μ m dull whitish; facial fovea dark brown above, paler below. Hairs on mesoscutum 500-700 μ m, long, dense, dull whitish; those on scutellum and metanotum 900-1100 μ m dull yellowish, dense; those on mesepisternum 1000-1200 μ m long, dull whitish; propodeal corbicula not well developed, internal area with simple hairs, without anterior fringes; trochanteral flocus long, dense, curled, pale yellowish; femoral flocus dense, pale yellowish; tibial scopal hairs simple, yellowish, compact. Hairs on metasomal terga 1-2 scanty with long, erect white hairs; those on terga 3-4 very short, sparse, dark brown; terga 1-4 with white hair bands, laterally on tergum 1, interrupted medially on tergum 2, completed on terga 3-4; caudal fimbria dark brown; sterna 2-4 with long, sparse, subapical fimbriae, dull whitish on terga 2-3, brownish on tergum 4.

Structure: Head: HL/HW = 1.0. HW: MsW: MtW = 2.3: 2.5: 2.7. Vertex round in frontal view, densely tessellate with obscure PP. OOD: POD: OCD = 0.4: 0.4: 0.2. FL1 > FL2+3, FL2 = FL3 which are as broad as long.

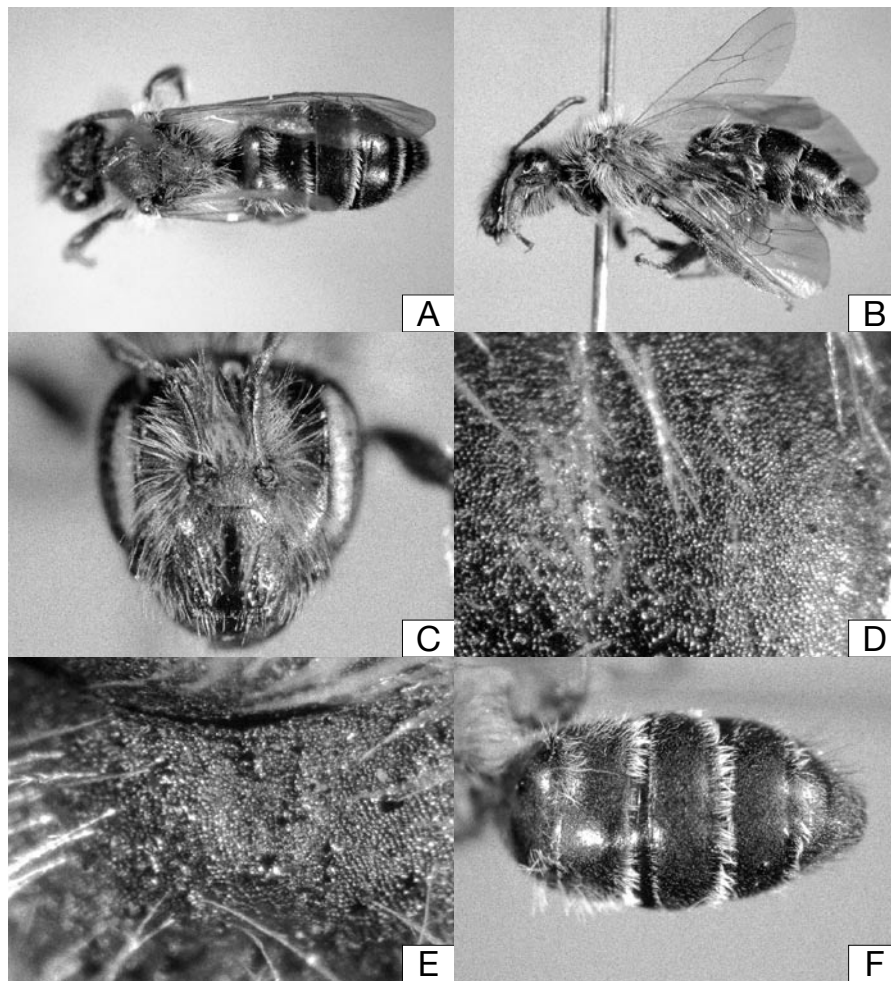


Fig. 8: A-F. *Andrena (Margandrena) annapurna* n. sp., female. A: general habitus in dorsal view; B: the same in lateral view; C: head in frontal view; D: mesoscutum; E: propodeum; F: metasomal terga.

Eyes with inner margins subparallel. Facial fovea narrow, occupying 1/2 space between eye and lateral ocellus, a little exceeding below line at lower margins of antennal fossae, FVL = 1.0 mm, FVW = 0.3 mm. Supraclypeal area convex, shagreened with roughened PP. Face above antennal fossae with fine longitudinal rugulae and weak interrugal PP, shagreening surface. Facial quadrangle longer than broad (1.6: 2.0). Clypeus strongly convex and protuberant, surface smooth and shiny with broad impunctate space at apical area, with irregular PP in distribution and size, PP ϕ 30-50 μ m, IS = 0.2-3, with longitudinal median impunctate space, CPL = 0.9 mm. Process of labrum large, semicircular. Lower paraocular area weakly tessellate and shiny with minute PP, IS > 0.5. Malar space linear. Genal area slightly broader than eye, GW: EW = 0.6: 0.5, surface narrowly smooth and shiny with minute PP near eye and broadly,

densely tessellate posteriorly. *Mesosoma*: Pronotum with humeral angle, surface tessellate with minute PP. Mesoscutum densely tessellate anteriorly and weakly tessellate and shiny centrally with small PP ϕ 20 μ m, IS = 1-3. Scutellum tessellate with small shallow PP. Propodeal enclosure tessellate full space; dorsal face of propodeum tessellate with shallow PP. Mesepisternum shagreened with obscure PP. Vein 1st *m-cu* meeting second submarginal cell at beyond of cell. *Metasoma*: Metasomal terga densely tessellate with indistinct, very small PP ϕ 20 μ m, IS = 1-2; posterior depressions of terga weakly indicated; pygidial plate U-shaped, internal area with raised triangular area. Sterna 2-5 very weakly tessellate and shiny with dense, minute PP.

Type material. Holotype female, Trubukin, 3000-4000m, Kharka, No 3 West, Nepal, 1 iv. 1972 (T. Matsumura). Paratype: [NEPAL] 1 female, Gorapari,

2700m, No. 4 West, 11. v. 1968 (T. Matsumura).

Remarks. This species is similar to *Andrena hyacinthina* Mavromoustakus from Cyprus, but the female can be separated from that of *hyacinthina* by the clypeus with broad shiny impunctate space apically, the process of labrum large and semicircular, the hind tibia and tarsi ferruginous and the tibial scopa yellowish and more compact.

Distribution. Nepal.

Etymology. The specific name is derived from the type locality, Mt. Annapurna, which means fruitful in Nepalese.

II. Redescriptions of the Cameron's types of *Andrena* described from north India

1. *Andrena (Andrena) morosa* Cameron, 1897 (Fig. 9: A-F)

Andrena morosa Cameron, 1897, Mem. Proc. Manch. lit. phil. Soc., 41: 119 [N. India]; Bingham, 1897, Fauna Br. India, 1: 441; Cockerell, 1923, Ann. Mag. Nat. Hist., (9) 11: 265.

Andrena (?) morosa: Gusenleitner & Schwarz, 2001, Entomofauna, 22: 308; Gusenleitner & Schwarz, 2002, Entomofauna, Suppl. 12: 498.

Redescription of the syntype

Female: BL 11.3mm, WL 8.8 mm (n=1).

Color: Flagellum brownish beneath; mandible with

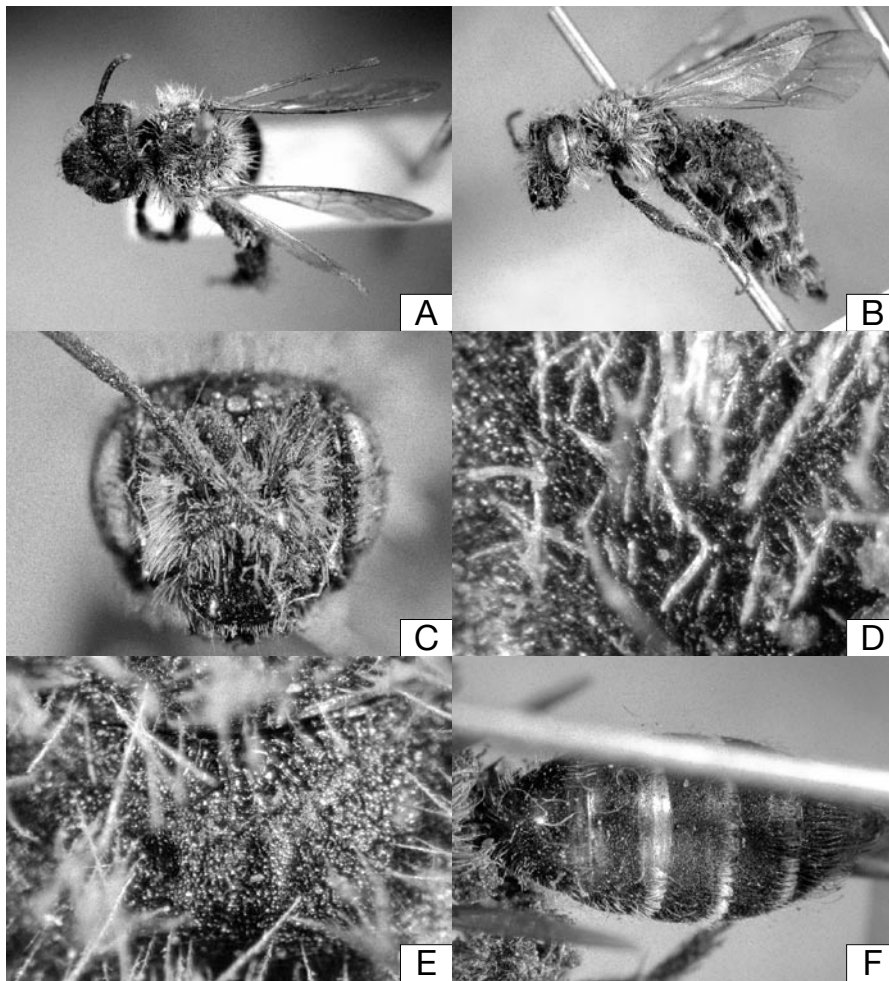


Fig. 9: A-F. *Andrena (Andrena) morosa* Cameron, 1897, female. A: general habitus in dorsal view; B: the same in lateral view; C: head in frontal view; D: mesoscutum; E: propodeum; F: metasomal terga.

apical third reddened; wing membranes subhyaline, pale brownish, veins and pterostigma brown; tibial spurs ochreous; anterior portions of metasomal terga 2-4 reddish yellow; posterior depressions of metasomal terga reddish yellow.

Pubescence: Hairs on head moderately long, moderately dense, dull whitish mixed with brownish on antennal area and vertex; those on clypeus 400-600 μ m; those on vertex 500-600 μ m; those on genal area 400-600 μ m; facial fovea brown above, yellowish below. Hairs on mesoscutum 400-500 μ m, not long, not dense, dull whitish; those on scutellum and metanotum 500-600 μ m, dull whitish, longer and denser; those on mesepisternum 500-700 μ m long, dull whitish; propodeal corbicular well developed, internal area without simple hairs, with anterior fringes; trochanteral floccus long, dense, curled, whitish; femoral floccus dense, whitish; tibial scopal hairs simple, brownish, compact. Hairs on metasomal tergum 1 scanty with long, erect white hairs; those on terga 2-4 very short, dense, brown; terga 2-4 with white hair bands, interrupted medially on tergum 2, completed on terga 3-4; caudal fimbria brown; sterna 2-4 with long, sparse, pale brownish subapical fimbriae.

Structure: *Head:* HL/HW = 0.91. HW: MsW: MtW = 3.2: 3.1: 3.2. Vertex round in frontal view, shagreened with roughened PP. OOD: POD: OCD = 0.6: 0.4: 0.2. FL1 < FL2+3, FL2 = FL3 which are as broad as long. Eyes with inner margins subparallel. Facial fovea occupying 2/3 space between eye and lateral ocellus, a little exceeding below line at lower margins of antennal fossae, FVL = 1.5 mm, FVW = 0.4 mm. Supraclypeal area convex, tessellate with obscure PP. Face above antennal fossae with fine longitudinal rugulae and weak interrugal PP, shagreening surface. Facial quadrangle as long as broad (2.2: 2.2). Clypeus strongly convex, surface smooth and shiny with broad impunctate space at apical area, with sparse PP, PP ϕ 30-40 μ m, IS = 0.5-2, with longitudinal median impunctate space, CPL = 1.1 mm. Process of labrum large, deeply emarginated medially. Lower paraocular area smooth and shiny with small PP, IS < 0.5. Malar space 1/5 of basal width of mandible. Genal area broader than eye, GW: EW = 0.8: 0.7, surface narrowly weakly tessellate and shiny with minute PP near eye and broadly, densely tessellate posteriorly. *Mesosoma:* Pronotum with humeral angle, surface tessellate with minute PP. Mesoscutum weakly tessellate and shiny centrally with small PP ϕ 30 μ m, IS = 1-2. Scutellum very weakly tessellate with small PP. Propodeal enclosure rugose 1/2 basally, tessellate apically, with longitudinal rugulae medially; dorsal face of propodeum shagreened with roughened PP. Mesepi-

sternum roughened with roughened PP. Vein 1st *m-cu* meeting second submarginal cell at middle of cell. *Metasoma:* Metasomal tergum 1 smooth and shiny, tergum 2 weakly tessellate, terga 3-4 densely tessellate, with very small PP ϕ 20 μ m, IS=1-2; posterior depressions of terga well indicated; pygidial plate V-shaped, internal area with raised triangular area. Sterna 2-5 very weakly tessellate and shiny with minute PP.

Type material examined. Female, [Syntype], [B.M. TYPE HYM. 14a 1359], [*Andrena morosa*, Cam. Type, Mosuri], [P. Cameron Coll. 1914-110].

Remarks. This species is somewhat similar to *Andrena longitibialis* Hirashima from Japan, but the female can be separated from that of *longitibialis* by the process of labrum strongly emarginated in the middle, the clypeus with broad smooth and shiny space apically, and the metasomal terga with yellowish hair bands.

Distribution. India (North: Mussooree, Uttarakhand State).

2. *Andrena (Oreomelissa) rothneyi* Cameron, 1897 (Fig. 10: A-F)

Andrena Rothneyi Cameron, 1897, Mem. Proc. Manchr lit. phil. Soc., 41: 112 [N. India]; Bingham, 1897, Fauna Br. India, 1: 443.

Andrena (Oreomelissa) rothneyi: Gusenleitner & Schwarz, 2001, Entomofauna, 22: 320; Gusenleitner & Schwarz, 2002, Entomofauna, Suppl., 12: 641.

Andrena simlaensis Cameron, 1902, J. Bombay nat. Hist. Soc., 14: 422 [N. India].

Redescription of the syntype.

Female: BL 9.9 mm, WL 8.8 mm (n=1).

Color: Flagellum brownish beneath; mandible with apical third reddened; wing membranes smoky, moderately brownish, veins and pterostigma brown; tibial spurs reddish brown; metasomal terga 1-2 ferruginous; posterior depressions of metasomal terga yellowish brown.

Pubescence: Hairs on head sparse except for antennal area and vertex, dull whitish without brownish on vertex; those on clypeus 200-400 μ m; those on vertex 300-500 μ m; those on genal area 300-500 μ m; facial fovea pale brown. Hairs on mesoscutum 300-400 μ m, not long, sparse, dull whitish; those on scutellum and metanotum 200-300 μ m dull whitish, sparse; those on mesepisternum 400-500 μ m long, sparse, dull whitish; propodeal corbicular not well developed, internal area with simple hairs, without anterior fringes; trochanteral

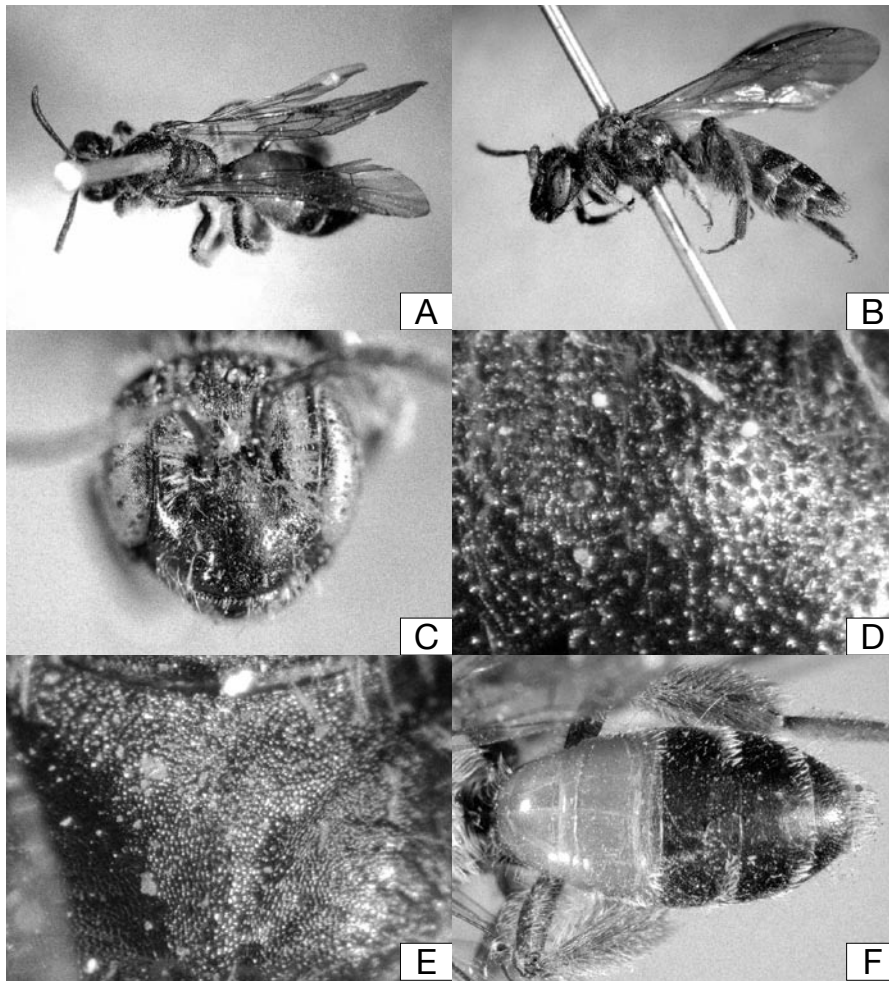


Fig. 10: A-F. *Andrena (Oreomelissa) rothneyi* Cameron, 1897, female. A: general habitus in dorsal view; B: the same in lateral view; C: head in frontal view; D: mesoscutum; E: propodeum; F: metasomal terga.

floccus long, dense, curled, whitish; femoral floccus dense, whitish; tibial scopal hairs simple, brownish anteriorly, paler posteriorly, a little loose. Hairs on metasomal terga scanty; terga 2-4 with white hair bands, interrupted medially; caudal fimbria pale brown; sterna 2-4 with long, sparse, whitish subapical fimbriae.

Structure: *Head:* HL/HW = 0.96. HW: MsW: MtW = 2.2: 2.5: 2.5. Vertex round in frontal view, broad, surface very weakly tessellate and shiny with distinct PP. OOD: POD: OCD = 0.4: 0.2: 0.2. FL1 > FL2+3, FL2 = FL3 which are broader than long. Eyes with inner margins subparallel. Facial fovea occupying 2/3 space between eye and lateral ocellus, attaining below line at lower margins of antennal fossae, FVL = 1.1 mm, FVW = 0.3 mm, separated from eye margin by relatively broad space, surface smooth and shiny. Supraclypeal area convex, tessellate with small PP. Face above an-

tennal fossae with fine longitudinal rugulae and weak interrugal PP, shagreening surface. Facial quadrangle longer than broad (1.5: 1.9). Clypeus strongly convex, surface smooth and shiny with sparse PP irregular in size and distribution, PPØ20-30µm, IS = 1-3, with longitudinal median impunctate space, CPL = 0.8 mm. Process of labrum large, semicircular, not emarginated medially. Lower paraocular area smooth and shiny with small PP, IS < 0.5. Malar space linear. Genal area narrower than eye, GW: EW = 0.5: 0.6, surface broadly smooth and shiny with small PP near eye. *Mesosoma:* Pronotum without humeral angle, surface weakly tessellate and shiny with minute PP. Mesoscutum smooth and shiny centrally with moderately dense, small PPØ30µm, IS = 0.5. Scutellum smooth and shiny with small, distinct PP. Propodeal enclosure densely tessellate nearly all over; dorsal face of propodeum weakly tessellate and

shiny without PP. Mesepisternum weakly tessellate and shiny with obscure PP. Vein 1st *m-cu* meeting second submarginal cell at middle of cell. *Metasoma*: Metasomal terga smooth and polished, with small, dense PP $\approx 20\mu\text{m}$, IS=1-2; posterior depressions of terga weakly indicated; pygidial plate U-shaped, internal area without raised triangular area. Sterna 2-5 weakly tessellate and shiny with minute PP.

Type material examined. female, [Syntype], [B.M. TYPE HYM. 14a 1311], [*Andrena rothneyi*, Cam. Type, Mosuri], [P. Cameron Coll. 1914-110]

Remarks. This is a unique species in the subgenus *Oreomelissa* and is separated from the congeners by the metasomal terga 1-2 ferruginous.

Distribution. India (North: Mussooree, Uttarakhand State).

**3. *Andrena (Poecilandrena) leaena*
Cameron, 1907**
(Fig. 11: A-F)

Andrena leaena Cameron, 1907, J. Bombay nat. Hist. Soc., 17: 1002 [N. India].

Andrena (?) leaena: Gusenleitner & Schwarz, 2001, Entomofauna; 22: 303; Gusenleitner & Schwarz, 2002, Entomofauna, Suppl., 12: 422.

Redescription of the types.

Female: BL 7.5-8.3 mm, WL 6.1-6.2 mm (n=2).

Color: Flagellum ferruginous; mandible with apical 2/3 reddened; wing membranes subhyaline, pale brownish, veins and pterostigma pale brown; tibial spurs pale yellow; posterior depressions of metasomal terga yellowish brown.

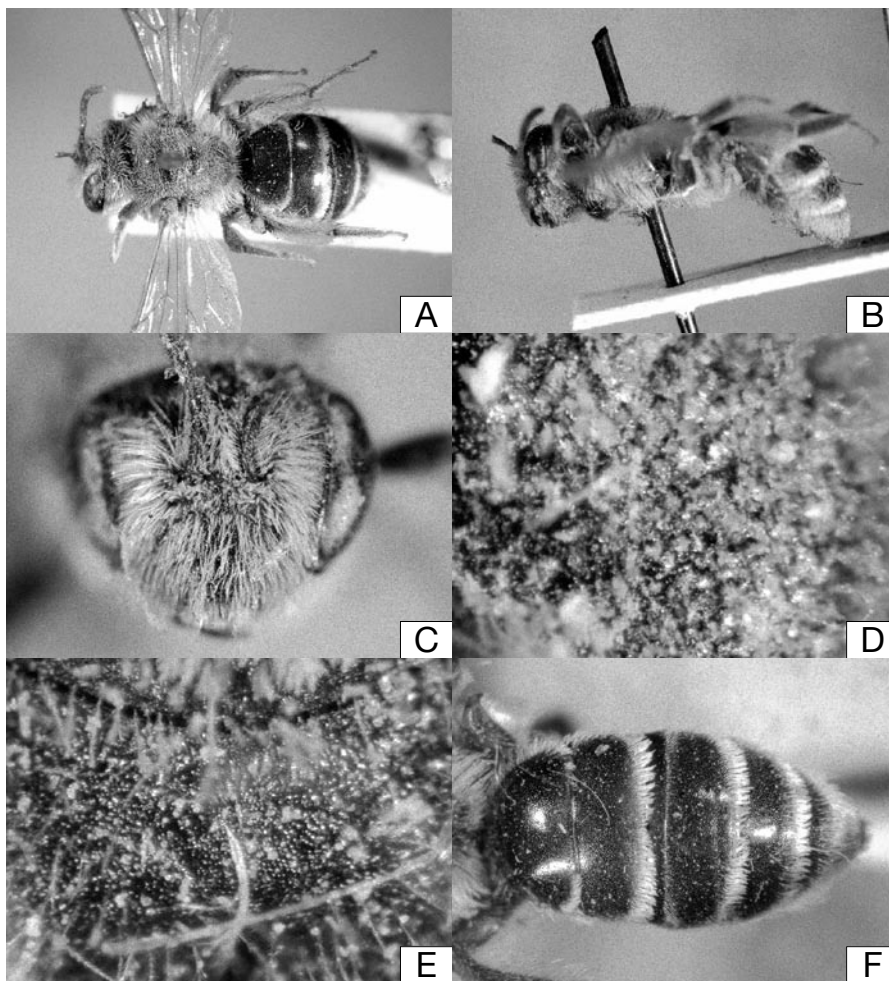


Fig. 11: A-F. *Andrena (Poecilandrena) leaena* Cameron, 1907, female. A: general habitus in dorsal view; B: the same in lateral view; C: head in frontal view; D: mesoscutum; E: propodeum; F: metasomal terga.

Pubescence: Hairs on head dense, not long, dull whitish, without brownish on vertex; those on clypeus 300-400 μ m; those on vertex 300-400 μ m; those on genal area 400-500 μ m; facial fovea white. Hairs on mesoscutum 200-300 μ m, short, dense, dull whitish; those on scutellum and metanotum 400-500 μ m dull whitish, sparse; those on mesepisternum 500-600 μ m long, dense, dull whitish; propodeal corbicular moderately developed with curled, compact hairs, internal area with simple hairs, without anterior fringes; trochanteral floccus very long, dense, curled, whitish; femoral floccus dense, whitish; tibial scopal hairs simple, white, compact. Hairs on metasomal terga scanty, terga 3-4 with very short pale brownish hairs; terga 1-4 with white dense, hair bands, tergum 1 broadly interrupted medially, tergum 2 narrowly interrupted medially, terga 3-4 complete; caudal fimbria pale yellow; sterna 2-4 with long, moderately dense, whitish subapical fimbriae.

Structure: *Head*: HL/HW = 0.70. HW: MsW: MtW = 2.3: 2.5: 2.3. Vertex round in frontal view, surface shagreened with roughened PP. OOD: POD: OCD = 0.4: 0.3: 0.2. FL1 < FL2+3, FL2 < FL3 which are broader than long. Eyes with inner margins subparallel. Facial fovea occupying 1/2 space between eye and lateral ocellus, exceeding below line at lower margins of antennal fossae, FVL = 1.1 mm, FVW = 0.3 mm. Supraclypeal area convex, tessellate with small PP. Face above antennal fossae with fine longitudinal rugulae and weak interrugal PP, shagreening surface. Facial quadrangle broader than long (1.7: 1.6). Clypeus well convex, surface weakly tessellate and feebly shiny with small, shallow PP 40 μ m, IS < 0.5, without longitudinal median impunctate space, CPL = 0.8 mm. Process of labrum semicircular, not emarginated medially, surface weakly tessellate. Lower paraocular area smooth and shiny with small, shallow PP, IS < 0.5. Malar space linear. Genal area as broad as eye, GW: EW = 0.5: 0.5, surface broadly smooth and shiny with small PP near eye. *Mesosoma*: Pronotum without humeral angle, surface tessellate with minute PP, subapical margin of pronotum emarginated in the middle. Mesoscutum smooth and shiny centrally with dense, small, distinct PP 30 μ m, IS = 0.5-1. Scutellum smooth and shiny with larger, distinct PP. Propodeal enclosure rugose 1/2 basally, tessellate apically; dorsal face of propodeum roughened with obscure, roughened PP. Mesepisternum shagreened with a little roughened PP. Vein 1st *m-cu* meeting second submarginal cell at beyond of cell. *Metasoma*: Metasomal terga smooth and polished, with small, very dense, distinct PP 20 μ m, IS = 0.5; posterior depressions of terga weakly indicated; pygidial plate V-shaped, internal area without

raised triangular area. Sterna 2-5 weakly tessellate and shiny with minute PP.

Type material examined. Female, [Type in red], [B.M. TYPE HYM. 17a 1354a], [Andrena leaena, Cam. Type, Ferozepore], [Ferozepore 3. 98], [Col. C. G. Nurse Collection. 1920-72]; female, [Type in red], [B.M. TYPE HYM. 14a 1354b], [Andrena leaena, Cam. Type, Ferozepore], [Ferozepore 3. 98], [P. Cameron Coll. 1914-110]. A note is attached as follows: [2 specimens Labelled Type by Cameron].

Remarks. This species is somewhat similar to *Andrena viciae* Tadauchi et Xu from China, but the female can be separated from that of *viciae* by the smaller size, the facial quadrangle broader than long, the genal area as broad as eye, and the propodeal enclosure more rugosed.

Distribution. India (North: Ferozepore (present name is Firozpur), Punjab State).

4. *Andrena (Ptilandrena) arima* Cameron, 1909 (Fig. 12: A-F)

Andrena arima Cameron, 1909, J. Bombay nat. Hist. Soc., 19: 129 [N. India].

Andrena (?) arima: Gusenleitner & Schwarz, 2001, Entomofauna, 22: 278; Gusenleitner & Schwarz, 2002, Entomofauna, Suppl., 12: 95.

Redescription of the types

Female: BL 8.5-8.7 mm, WL 7.1 mm (n=2).

Color: Flagellum brownish beneath; mandible with apical 1/3 reddened; wing membranes subhyaline, pale brownish, veins and pterostigma pale brown; tibial spurs pale yellow; posterior depressions of metasomal terga yellowish brown.

Pubescence: Hairs on head moderately dense, long, pale yellowish, without brownish on vertex; those on clypeus 400-500 μ m; those on vertex 400-500 μ m; those on genal area 400-600 μ m; facial fovea brown above, paler below. Hairs on mesoscutum 300-500 μ m, not long, moderately dense, pale yellowish; those on scutellum and metanotum 400-600 μ m pale yellowish, longer; those on mesepisternum 500-600 μ m long, dense, dull whitish; propodeal corbicular poorly developed, internal area with simple hairs, without anterior fringes; trochanteral floccus long, dense, curled, whitish; femoral floccus dense, whitish; tibial scopal hairs simple, white, a little loose. Hairs on metasomal terga 1-2 scanty with long, erect white hairs; those on terga 2-4 short, dense, pale brown; terga 2-4 with white hair bands, nearly completed; caudal fimbria pale brown; sterna 2-4 with

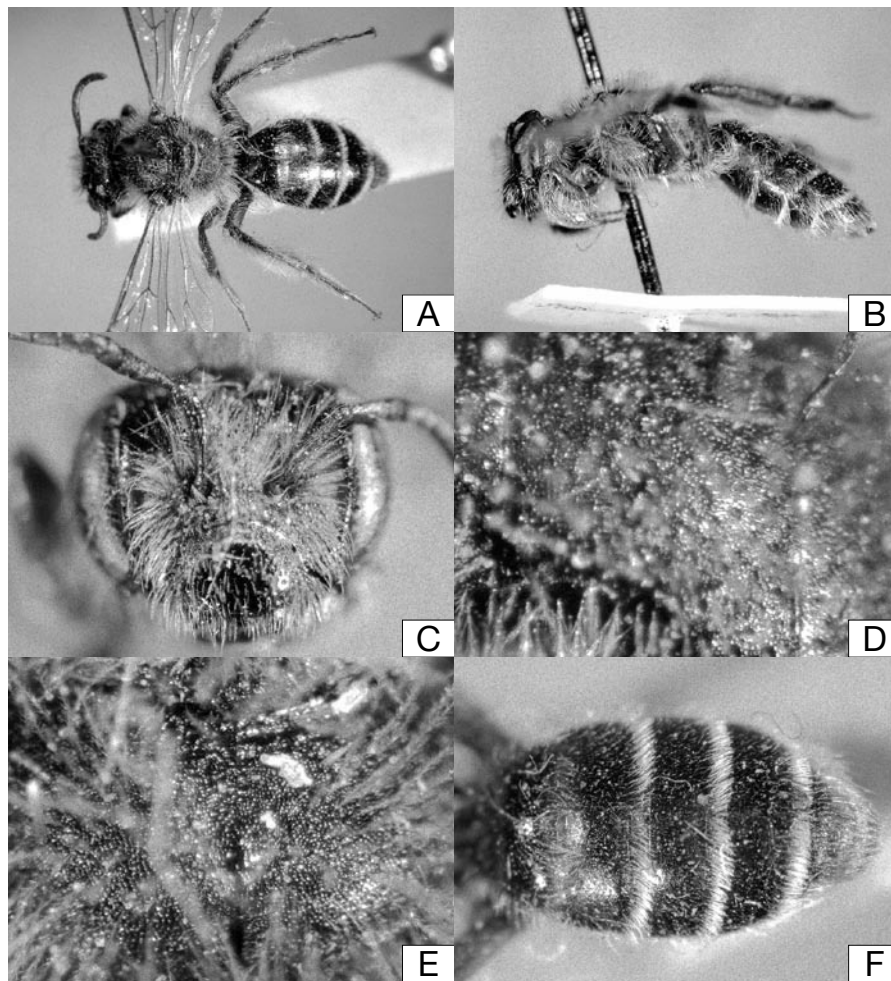


Fig. 12: A-F. *Andrena (Ptilandrena) arima* Cameron, 1909, female. A: general habitus in dorsal view; B: the same in lateral view; C: head in frontal view; D: mesoscutum; E: propodeum; F: metasomal terga.

long, sparse, white subapical fimbriae.

Structure: *Head*: HL/HW = 0.80. HW: MsW: MtW = 2.5: 2.6: 2.3. Vertex round in frontal view, surface shagreened with rugulae and roughened PP. OOD: POD: OCD = 0.5: 0.3: 0.2. FL1 = FL2+3, FL2 < FL3 which are broader than long. Eyes with inner margins subparallel. Facial fovea occupying 1/2 space between eye and lateral ocellus, exceeding below line at lower margins of antennal fossae, FVL = 1.2 mm, FVW = 0.3 mm. Supraclypeal area strongly convex, weakly tessellate and shiny with small PP. Face above antennal fossae with fine longitudinal rugulae and weak interrugal PP, shagreening surface. Facial quadrangle broader than long (1.8: 1.7). Clypeus well convex, surface smooth and shiny with small PP irregular in size and distribution, PP ϕ 30-40 μ m, IS = 1-2, without longitudinal median impunctate space, CPL = 0.8 mm. Process of

labrum rectangular, widely emarginated medially, surface smooth and shiny. Lower paraocular area smooth and shiny with small, shallow PP, IS = 0.5. Malar space linear. Genal area narrower than eye, GW: EW = 0.5: 0.6, surface smooth and shiny with small PP near eye, broadly, weakly tessellate posteriorly. *Mesosoma*: Pronotum without humeral angle, surface tessellate with minute PP, apical margin emarginated in the middle. Mesoscutum weakly tessellate centrally with small PP ϕ 30-40 μ m, IS = 0.5-1. Scutellum smooth and polished with small PP. Propodeal enclosure rugose 1/3 basally, densely tessellate apically; dorsal face of propodeum shagreened with obscure, roughened PP. Mesepisternum shagreened with a little roughened PP. Vein 1st *m-cu* meeting second submarginal cell at middle of cell. *Metasoma*: Metasomal terga weakly tessellate and shiny with small PP ϕ 20-30 μ m, IS=1-3; posterior depressions

of terga weakly indicated; pygidial plate not examined. Sterna 2-5 weakly tessellate and shiny with minute PP.

Type material examined. female, [Type in red], [B.M. TYPE HYM. 17a 1331a], [Andrena arima, Cam. Type, Simla], [Simla 8. 98], [P. Cameron Coll. 1914-110]; female, [Type in red], [B.M. TYPE HYM. 17a 1331b], [Andrena arima, Cam. Type, Simla], [Simla 8. 98], [Col. C. G. Nurse Collection. 1920-72].

Remarks. This species is somewhat similar to *Andrena takachihoi* Hirashima from Japan, but the female can be separated from that of *takachihoi* by the smaller size, the process of labrum strongly emarginated in the middle, the facial fovea brownish, and the metasomal terga weakly tessellate with indistinct minute PP.

Distribution. India (North: Shimla, Himachal Pradesh State).

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