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A New Subgenus of the Genus *Andrena* (Hymenoptera, Andrenidae) from Japan and Allied Areas*

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Oreomelissa, a new subgenus of the genus *Andrena* is erected for the *mitakensis* group of the subgenus *Calomelissa* Hirashima et LaBerge, 1963. One of the European species, *Andrena coitana* (Kirby), which is here included in *Oreomelissa*, is recorded from Japan for the first time (subsp. *pilosodorsata* Alfken). Also, *Andrena mitakensis* Hirashima is newly recorded from Korea. A key is presented for the species (3 spp.) of *Oreomelissa*, and a detailed redescription of *Andrena coitana pilosodorsata* is given.

In the systematic study of the family Andrenidae of Japan (Hirashima, 1963 p. 246), Hirashima and LaBerge erected a new subgenus *Calomelissa* for four Asiatic species. It was originally divided into two groups, the *prostomias* group and the *mitakensis* group. Since the *mitakensis* group deviates from the *theprostomias* group in having the propodeal enclosure smaller with the sides not convex outwardly, the tibial scopa composed of more loose hairs, the dorsal face of the propodeum as well as the mesopleuron more densely tessellate or shagreened, the facial foveae much narrower and the first intercubital vein close to the pterostigma, Hirashima and LaBerge hesitantly included the *mitakensis* group in the subgenus *Calomelissa* and suggested that it may represent a separate subgenus (Hirashima, *Zoc. cit.*). Recently, Tadauchi (in press) also found that the two species groups are recognized better to be raised to the subgeneric level from the result of a numerical taxonomic study of the genus *Andrena* of Japan.

Our critical studies on the *mitakensis* group based on materials newly gathered from various sources revealed clearly the interspecific relationship as well as the subgeneric position of the group. This paper reports results of our recent studies on the group containing a proposal of a new subgenus for it.

Misidentifications which were made recently by some European authors in relation to the recognition of the subgeneric status of *Andrena coitana* (Kirby) is here pointed out. When they erected the subgenus *Calomelissa*, Hirashima and LaBerge suggested that *Andrena coitana* may be a member of the *mitakensis* group of *Calomelissa* (Hirashima, *loc. cit.*). In 1968, however, Warncke treated *Andrena coitana* as a member of *Stenomelissa* Hirashima et LaBerge, 1965, not seeing the original descriptions of both *Calomelissa* and *Stenomelissa* but according to a personal

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opinion of Grünwaldt (Warncke, 1968, p. 42). This is a remarkable error. Consequently, LecLercq (1972), for example, erroneously placed *Andrena coitana* to *Stenomelissa* again. So far as we know, *Stenomelissa* is an unique monobasic subgenus of *Andrena* based on the Japanese species *Andrena halictoides* Smith.

Oreomelissa Hirashima et Tadauchi, subg. n.

ὄρος mountain, and μέλισσα bee.

Type-species : *Andrena mitakensis* Hirashima, 1963.

The new subgenus is proposed for the *mitakensis* group of the subgenus *Calomelissa* Hirashima et LaBerge, 1963.

Diagnosis: This new subgenus is readily distinguished from others by the combination of characters such as the first intercubital vein close to the pterostigma, the dorsal face of the propodeum not roughened and the tibial scopa composed of **very loose** hairs. Excepting the unique venation of the new subgenus, it seems that it is related to *Notandrena* and *Calomelissa*. The new subgenus can be, however, distinguished from *Notandrena* in having the poorly developed propodeal corbicula, the triangular process of labrum in the female and the presence of brownish hairs on the head and thorax and from *Calomelissa* in having the more densely tessellate or shagreened mesopleuron, the facial fovea much narrower and the propodeal enclosure smaller with the sides not convex outwardly. The subgenus *Micrandrena* also has the first intercubital vein close to the pterostigma, but it can be separated from the new subgenus by the coarsely sculptured dorsal face of propodeum, the entire process of labrum, and the compact tibial scopa. It is further characterized in having the long maxillary palpi, the relatively short galeae and the normal posterior spur of the hind tibiae.

So far as the present paper is concerned, the new subgenus is represented by three species known from Japan and allied areas. One of them, however, is *Andrena coitana* (Kirby) which widely occurs in the Palaearctic Region from England to Japan (new record) and Kamchatka. So far as our investigation goes, Japanese species of *Oreomelissa* inhabits the mountainous regions of Honshu (central and northern districts) and Hokkaido. Hence the name of the subgenus. They fly in summer and autumn there.

Description : *Female and male* : Small to medium sized species, integument black. **Head** of moderate size, about as broad as thorax seen from above, more or less rounded in front view ; facial quadrangle longer than broad; malar space almost obsolescent ; eyes with inner margins subparallel ; clypeus more or less well convex; process of labrum nearly triangular ; maxillary palpi longer than galea by last two palpal segments when both are extended; subgenal coronet present; genal area about as broad as eyes seen in profile. **Thorax** with mixed hairs; pronotal ridge weakly present ; mesopleuron densely tessellate ; enclosure of propodeum large, approximately triangular ; dorsal face of propodeum densely tessellate, not roughened. **Wings** with three submarginal cells: 1st intercubital vein close to pterostigma; 1st recurrent vein beyond middle or near end of second submarginal cell. **Legs** with normal posterior spur of hind tibiae. **Metasoma** smooth or weakly tessellate; posterior depressions of metasomal terga more or

less broad.

Female : Facial fovea separated from eye margin by a narrow raised space, with upper end occupying about one-half of distance between orbits and post ocelli; antennae with 3rd segment as long as or longer than next two segments together. Propodeal corbicula not well developed, with dorsal fringe of short, scanty hairs ; interior of corbicula with short, sparse, simple hairs. Trochanteral floccus imperfect or nearly perfect, with scanty hairs; femoral floccus sparse with hairs simple ; tibial scopa composed of loose, simple hairs ; mid basitarsi not expanded medially, narrower than hind basitarsi. First metasomal terga almost bare; posterior margins of 2nd to 4th metasomal terga with appressed hair fringes; sterna with poorly formed subapical fimbriae ; pygidial plate with raised median triangular area; graduli present on 1st and 2nd metasomal sterna.

Male: Clypeus entirely and lower paraocular areas narrowly to more or less broadly ivory white, with or without a pair of black spots on clypeus sublaterally; cheeks well developed, as broad as or broader than large eyes as seen in profile. Second to 5th metasomal sterna with poorly formed subapical fimbriae ; 6th metasomal sternum reflexed apically with a triangular concavity in middle of apical portion; graduli present on 1st to 6th metasomal sterna.

Distribution : Palaearctic Region.

Included species : Three species, *Andrena mitakensis* Hirashima, *Andrenakamikochiana* Hirashima and *Andrena coitana* (Kirby).

Note : Although we examined a pair of European specimens of *Andrena coitana* (Kirby) (det. by Dr. Erlandson of Sweden), we are not very familiar with that species. Therefore, we designated *Andrena mitakensis* Hirashima as the type species of *Oreomelissa* for certainty.

Key to the species of *Oreomelissa* occurring in Japan and allied areas

Female

1. Larger, length about 11 mm ; lower paraocular areas smooth and shiny ; propodeal enclosure more or less well defined ; dorsal face of propodeum and mesopleuron with weak punctures; metasoma smooth and shiny...
..... *mitakensis*
- Smaller, length about or less than 8.5 mm ; lower paraocular areas densely tessellate ; propodeal enclosure ill defined ; dorsal face of propodeum and mesopleuron nearly impunctate ; metasoma very finely tessellate 2
2. Clypeus nearly shagreened all over (Fig. 4) ; process of labrum smaller, triangular, roundly well convex apically (Fig. 4) ; mesoscutum, scutellum and dorsal face of propodeum densely tessellate *kamikochiana*
- Clypeus tessellate basally, nearly smooth apically (Fig. 6) ; process of labrum larger, slightly but broadly convex (Fig. 6) ; mesoscutum, scutellum and dorsal face of propodeum weakly tessellate
..... *coitana pilosodorsata*

Male

1. Larger, length about 10 mm; clypeus well convex medially ; mandibles long, with lower teeth much exceeding inner ones and curved inward ; antennae with 3rd segment more than twice as long as broad, 4th segment slightly longer than broad; dorsal face of propodeum tessellate with an indication of weak punctures: genitalia with parapenial lobe shorter *mitakensis*
- Smaller, length about or slightly over 7 mm: clypeus slightly convex medially ; mandibles shorter, with lower teeth not much exceeding inner ones, not specially curved: antennae with 3rd segment twice as long as broad, 4th segment indistinctly broader than long; dorsal face of propodeum densely tessellate, nearly impunctate ; genitalia with parapenial lobe elongate 2
2. Clypeus (with ivory white marking) prolonged laterally (Fig. 5) ; lower paraocular areas densely tessellate, with larger ivory white maculae (Fig. 5) ; head and mesoscutum with much darker hairs..... *kamikochiana*
- Clypeus (with ivory white marking) nearly semicircular (Fig. 7) ; lower paraocular areas less tessellate, with smaller ivory white maculae (Fig. 7) ; head and mesoscutum with less darker hairs *coitana pilosodorsata*

***Andrena (Oreomelissa) mitakensis* Hirashima**

Andrena (Calomelissa) mitakensis Hirashima, 1963, J. Fac. Agr., Kyushu Univ., **12: 248**, female and male. (Description)

Andrena (Calomelissa) mitakensis: Hirashima, 1966, J. Fac. Agr., Kyushu Univ., 14 : 112 (female), 113 (male). (Key)

The female of this species can be distinguished from that of other species of *Oreomelissa* by the larger size, the elongate, smooth and shiny metasomal terga, the punctate dorsal face of propodeum and the more or less well defined propodeal enclosure. The male is more easily recognizable by the well convex clypeus, the longer and curved mandibles and the shorter parapenial lobe of gonocoxite.

According to the collecting data, this species occurs in northern Japan (Tohoku District and Hokkaido), central Honshu (mountainous regions only) and northern Korea (Mt. Kongo) (new record). One female specimen from the latter locality before us shows the clypeus nearly smooth and the punctures on the body (clypeus, vertex, mesoscutum, scutellum and metasomal terga) stronger and larger in comparison with the specimens from Japan. The population of this species in this part of Korea may represent a separate subspecies, but it is provisionally included in the nominate form in this paper.

The Aying season of this species is relatively later and the habitats are lower in altitude (about or slightly lower than 1,500 m) than in *kamikochiana* in central Honshu. It is interesting, however, that the two species, *mitakensis* and *kamikochiana*, are collected at the same time in the same place such as Ono City, Fukui Pref. and Nikkoh-Yumoto, Tochigi Pref. From the phenological

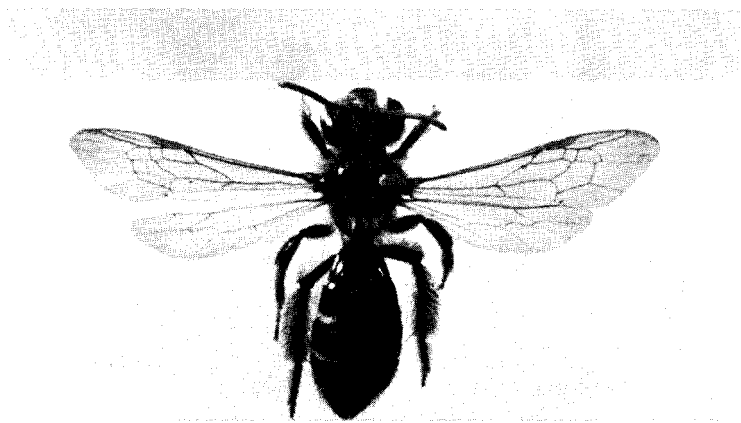


Fig. 1. Female of *Andrena* (*Oreomelissa*) *mitaken sis* Hirashima.

studies of bees at Hakodateyama in Hokkaido, Matsumura and Munakata (1969) reported that this species appears from middle August to early October.

Distribution: Japan (Hokkaido and central and northern Honshu) and Korea (Mt. Kongo). This is the first record of this species from Korea.

Flower records: Females and malts have been collected on *Lactuca denticulata* Maxim., *Picris hieracioides* var. *japonica* Regel, *Cirsium* sp., *Cosmos bipinnatus* Cav., *Salvia nipponica* Miq. and *Aralia cordata* Thunb. According to Matsumura and Munakata (1969), this species is highly eurytrophic, and frequents on Compositae, and next on *Geranium nepalensis* and *Achyranthes japonicus*.

Specimens examined : Japan, Honshu : 4 ♀♀ 2 ♂♂, Yokoyama, Ina, Nagano Pref., 14. ix. 1961 (Y. Maeta); 1 ♀ 2 ♂♂, Yokoyama, Ina, Nagano Pref., 17. ix. 1962 (Y. Maeta); 1 ♂, Ono City, Fukui Pref., 20. viii. 1964 (Y. Haneda); 1 ♀, Ono City, Fukui Pref., 9. ix. 1973 (Y. Haneda); 1 ♀ 1 ♂, Ono City, Fukui Pref., 16. ix. 1973 (Y. Haneda); 1 ♀, Kuriyagawa, Morioka, Iwate Pref., 4. x. 1971 (Y. Maeta). Hokkaido: 1 ♀, Nishiashoro, Tokachi, 6. viii. 1953 (Y. Hirashima); 1 ♀, Aizankai, Mt. Daisetsu, 30. vii-3. viii. 1955 (Y. Hirashima); 2 ♀♀, Nakagawa, Nakagawa Exp. Forests, 6. ix. 1970 (S. F. Sakagami and H. Fukuda). Korea: 1 ♀, Mt. Kongo, Kogondo, 10. ix. 1931 (C. Takeya).

***Andrena* (*Oreomelissa*) *kamikochiana* Hirashima**

Andrena (*Calomelissa*) *kamikochiana* Hirashima. 1963, J. Fac. Agr., Kyushu Univ., 12:251, female and male. (Description)

Andrena (*Calomelissa*) *kamikochiana* : Hirashima, 1966, J. Fac. Agr., Kyushu Univ., 14:112 (female), 113 (male). (Key)

This species is very similar to the following species *Andrena coitana* (Kirby) which is distributed in the Eurasian Continent, although primarily northern. It is separated from *coitana* by the female clypeus being more shagreened and dull,

the mesoscutum as well as scutellum more densely tessellate and the process of labrum smaller with apex well convex roundly. The male of ***kamikochiana*** is separable from that of ***coitana*** in having the clypeus (with ivory white maculae) more prolonged laterally, the lower paraocular areas (with larger ivory white maculae) more densely tessellate and the hairs on the head and mesoscutum much darker.

Although Hirashima (1963) recorded this species from Hokkaido and central Honshu, our recent studies revealed that the population in Hokkaido should be recognized as *Andrena coitana pilosodorsata* Alfken as stated below. Thus, *Andrena kamikochiana* is known only from Honshu at present. In Honshu, the habitats of *kamikochiana* are restricted to more mountainous regions (about or more than 1,500 m).

Distribution : Japan (central and northern Honshu).

Flower record : One female and 8 males were collected on *Solidago virga-aurea* L. on Mt. Yatsugatake, Nagano Pref.

Specimens examined : 1 ♀, Daimonsawa, Mt. Notoridake, Yamanashi Pref., 8. viii. 1972 (O. Tadauchi) ; 1 ♂, Sunaharai, Mt. Hôu, Yamanashi Pref., 8 viii. 1973 (O. Tadauchi) ; 1 ♀ 8 ♂♂, Mt. Yatsugatake, Nagano Pref., 7. viii. 1974 (O. Tadauchi) ; 1 ♂, Kazawa, Gunma Pref., 19. viii. 1973 (O. Tadauchi) ; 2 ♀♀ 2 ♂♂, Mt. Haku, Ishikawa Pref., 23. viii. 1972 (I. Togashi) ; 3 ♂♂, Mt. Haku, Ishikawa Pref., 28. vii. 1972 (I. Togashi) ; 4 ♂♂, Mt. Haku, Ishikawa Pref., vii. 1973 (I. Togashi) ; 1 ♀, Ono City, Fukui Pref., 16. ix. 1973 (Y. Haneda) ; 4 ♀♀ 1 ♂, Mt. Hayachine, Iwate Pref., 29. viii. 1972 (M. Honda).

***Andrena* (*Oreomelissa*) *coitana pilosodorsata* Alfken**

Andrena coitana var. *pilosodorsata* Alfken, 1929, Ark. 2001, 20A, 16 : 6, female and male. (Description)

Andrena coitana pilosodorsata: Yasumatsu, 1941, Peking nat. Hist. Bull., 15 : 275. (List only)

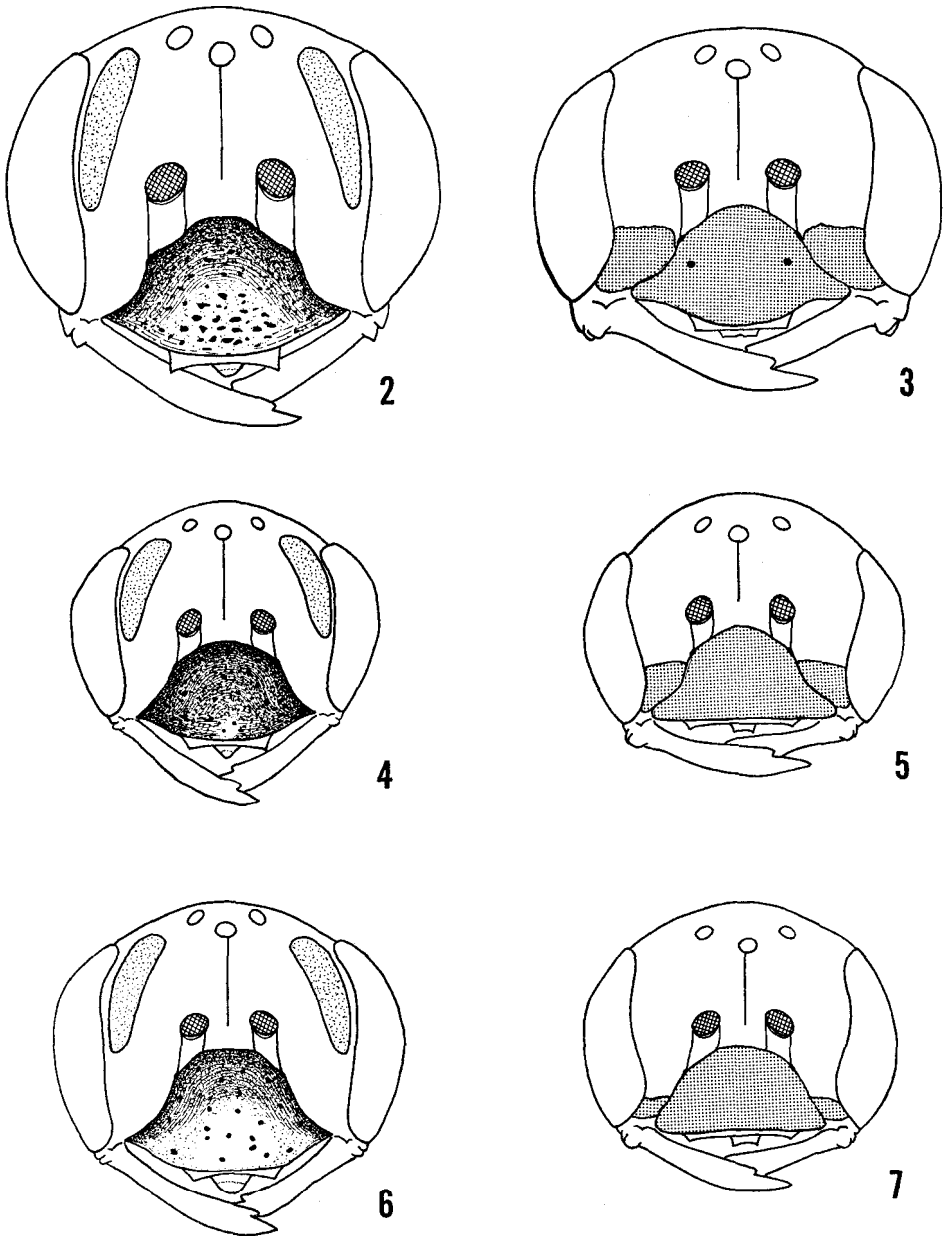
Andrena (*Calomelissa*) *kamikochiana* Hirashima, 1963, J. Fac. Agr., Kyushu Univ., 12 : 253, female and male, in part. (Description)

This was recorded from Kamchatka as a variety of *Andrena coitana* (Kirby) of Europe but we recognize this as a subspecies. It is distinguished from the nominate subspecies by the clypeus, mesoscutum and metasomal terga with punctures weaker and sparser, the mesoscutum and scutellum with hairs longer and denser, the posterior depression of the 2nd metasomal terga more or less weaker and metasomal terga less shiny. This subspecies is very similar to ***kamikochiana*** of Honshu (central and northern), Japan, but can be separable from the latter by the characters given in the key.

According to the collecting data, this subspecies appears in late July, followed by a gradual increase in August. In Hokkaido, this species flies earlier and inhabits higher mountainous regions than *Andrena mitakensis* does.

Female: Length about or less than 8.0 mm.

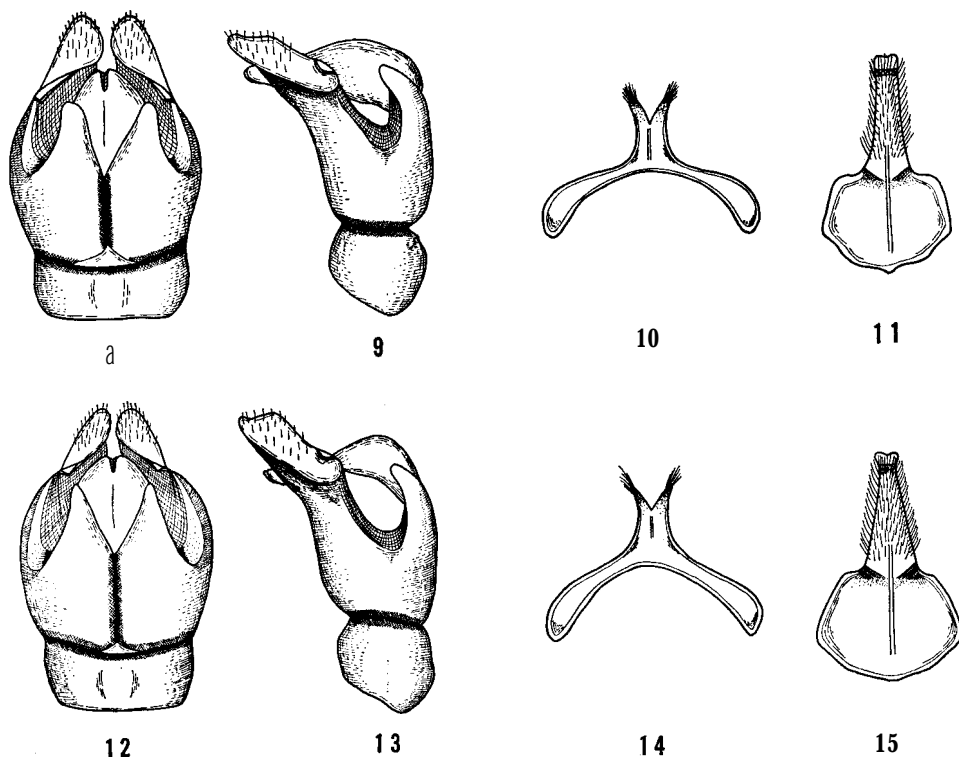
Colour : Black ; mandibles reddened apically ; flagellum brownish beneath ; wings more or less distinctly brownish subhyaline ; veins and stigma yellowish brown ; tegulae narrowly brownish subhyaline posteriorly, the rest of it black-



Pips. 2-7. Front views of heads of *Andrena* (*Oreomelissa*), females (left) and males (right). 2, 3: *mitakensis* Hirashima. 4, 5: *kamikochiana* Hirashima. 6, 7: *coitana pilosodorsata* Alfken. (Drawn to the same scale).

ened; legs piceous, tarsi brownish; tibial spurs yellowish brown; metasoma piceous basally with posterior margins of terga yellowish brown subhyaline.

Pubescence: Hairs on head and thorax short to more or less long, sparse,



Figs. 8-15. Genitalia and associated structures of *Andrena (Oreomelissa)*. **8-11** : *kamikochiana* Hirashima, 8-9, genitalia, 10, 7th sternum, 11, 8th sternum. **12-15** : *coitana pilosodorsata* Alfken, 12-13, genitalia, 14, 7th sternum, 15, 8th sternum.

those on metasoma short, scanty (shorter and sparser in *coitana coitana*) ; hairs on head brownish except for whitish hairs on occiput and cheeks below ; facial fovea blackish, bright in some light ; hairs on mesoscutum brown medially, paler or whitish on periphery, not conspicuous ; hairs on scutellum brown anteriorly, long and paler laterally ; dorsal fringe of propodeal corbicula scanty, not well arranged ; interior of corbicula with short, fine hairs ; trochanteral floccus nearly perfect, not dense, white ; femoral floccus scanty, silver white ; tibial scopa large, composed of long, dense, simple, brown hairs ; cilia on metasomal terga brownish ; caudal fimbria brown ; posterior margin of 2nd tergum with lateral, that of 3rd with more broad, that of 4th with more broad fringes of short, appressed, white hairs ; hairs on metasomal sterna brownish medially, paler or whitish laterally (brownish in *kamikochiana*).

Structure: Head of moderate size, as broad as thorax seen from above ; mandibles moderately long, robust ; malar space very narrow anteriorly, widened posteriorly ; process of labrum more or less larger than in *kamikochiana*, triangular, slightly but broadly convex ; clypeus well convex, tessellate basally, nearly smooth and shiny apically, sparsely and irregularly punctate with punctures

becoming slightly stronger and coarser toward apex of clypeus (densely and strongly punctate in *coitana coitana*) ; lower paraocular areas weakly tessellate with an indication of weak punctures; facial fovea deep, separated from eye margin by a more or less narrow, punctate, shiny, raised space, with upper end occupying more than one-half of distance between orbit and post ocellus (facial fovea deeper and raised space narrower in *kamikochiana*) ; antennae with 3rd seg-

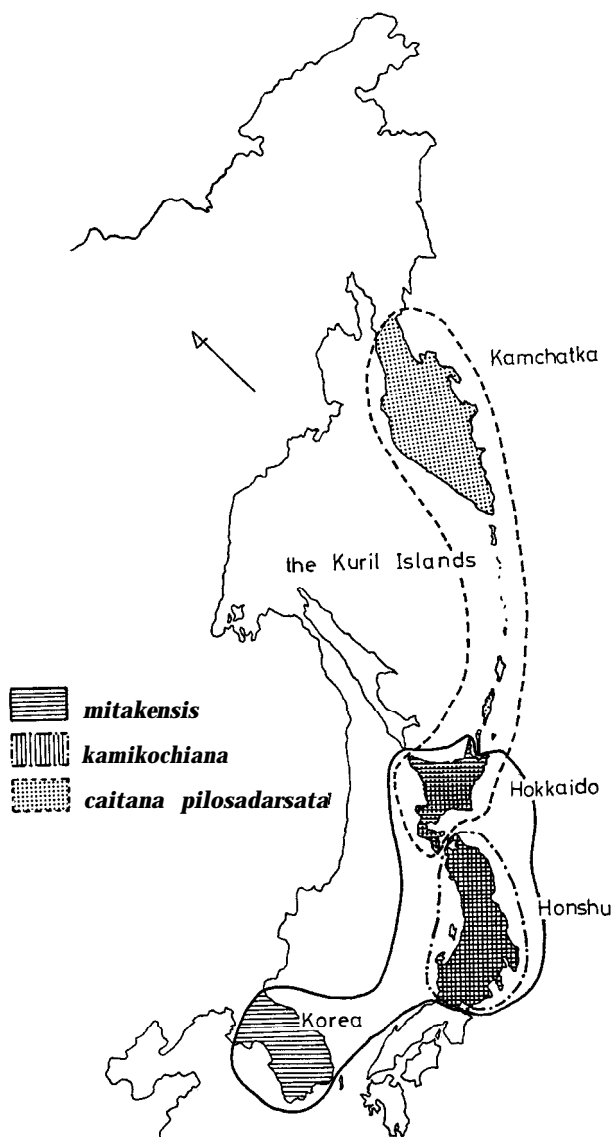


Fig. 16. Map showing the distribution of the three Asian species of *Andrena* (*Oreomelissa*).

ment approximately as long as 4th plus 5th which are broader than long respectively ; frons densely longitudinally striate (coarsely sculptured in *kamikochiana*) ; vertex well developed, arched in front view, tessellate or nearly shagreened with very weak punctures (more or less densely tessellate in *kamikochiana*) ; ratio of postocellar width to ocelloccipital distance to postocellar distance to ocellocular distance about 0.5: 1.0: 1.2: 1.9; cheeks about as broad as eyes seen in profile, rather convex, broadly tessellate posteriorly, narrowly smooth and weakly punctate near eyes (more or less densely tessellate in *kamikochiana*) ; subgenal coronet well developed; maxillary palpi longer than galea by last two palpal segments when both are extended. Pronotum tessellate with weak punctures ; mesoscutum tessellate, more densely so anteriorly, very weakly and sparsely punctate, feebly shiny (more densely tessellate in *kamikochiana*, more densely and strongly punctate in *coitana coitana*); scutellum well convex, nearly smooth or weakly tessellate-punctate ; dorsal face of propodeum tessellate and slightly punctate (densely tessellate and impunctate in *kamikochiana*) ; enclosure large, nearly triangular, ill defined, weakly wrinkled basally, nearly shagreened apically ; mesopleuron nearly shagreened anteriorly, posterior portion of mesopleuron as well as lateral face of propodeum densely and finely tessellate. Wings with 2nd submarginal cell nearly parallel-sided, receiving 1st recurrent vein beyond middle or near end of cell; 1st intercubital vein close to pterostigma. Legs with mid basitarsi scarcely expanded medially, narrower than hind basitarsi ; hind basitarsi slender. Metasomal terga shiny; 1st to 4th metasomal terga microscopically tessellate with sparse and microscopical fine punctures (densely and more or less strongly punctate in *coitana coitana*) ; posterior depressions of metasomal terga broad, more or less well indicated (poorly indicated in *kamikochiana*) ; pygidial plate v-shaped ; metasomal sterna weakly tessellate.

Male: Length about 7.0 mm or occasionally smaller.

Colour : Black ; clypeus entirely and lower paraocular areas narrowly ivory white (broadly so in *kamikochiana*) ; clypeus occasionally with a pair of black spots sublaterally ; mandibles reddened apically ; flagellum blackish brown beneath ; wings slightly brownish, distal margins a little more darkened ; veins and stigma brownish ; tegulae shiny brown ; legs piceous with tarsi brown ; metasoma nearly piceous, with posterior margins of terga pale brownish subhyaline.

Pubescence: Hairs on head and thorax short to more or less long, not dense (shorter and sparser in *coitana coitana* and *kamikochiana*) ; hairs on clypeus sparse, suberect, white; hairs on the rest of head slightly denser, white or whitish on lower paraocular areas and cheeks below, brownish to brown on face, frons, vertex and cheeks above; hairs on mesoscutum and mesoscutellum more or less long, brownish and whitish on mesoscutum anteriorly and on scutellum posteriorly ; hairs on propodeum and mesopleuron white ; 1st tergum hairy only laterally ; cilia on 2nd and following terga brownish ; hairs on 5th and 6th terga brownish ; 2nd and 3rd terga with lateral fringes of somewhat sparse, suberect, white hairs posteriorly; similar and less evident hairs present on posterior margin of 4th tergum laterally; metasomal sterna with whitish hairs.

Structure: Head more or less large, slightly broader than thorax seen from above ; mandibles moderately long, rather robust, with lower teeth not much ex-

ceeding upper ones, not specially curved; malar space very narrow anteriorly, widened posteriorly; process of labrum protuberant; clypeus slightly convex, nearly semicircular, nearly smooth, shiny, sparsely and weakly punctate (prolonged laterally in *kamikochc'ana*); lower paraocular areas weakly tessellate, rather densely punctate with punctures about as strong as or slightly stronger than those on clypeus (more or less densely tessellate in *kamikochiana*); frons coarsely sculptured; antennae with 3rd segment about twice as long as broad, more or less shorter than 4th plus 5th; vertex well developed, arched in front view, densely tessellate or nearly shagreened with punctures; ratio of postocellar width to ocelloccipital distance to postocellar distance to ocellocular distance about **0.5 : 0.9 : 0.9 : 1.8**; cheeks broader than eyes seen in profile, well convex above, very slightly receding below, tessellate posteriorly, smooth and weakly punctate near eyes. Mesoscutum tessellate, densely so anteriorly and weakly so or narrowly nearly smooth medially, sparsely and weakly punctate with punctures hardly stronger than those on clypeus (more densely and strongly punctate in *coitana coitana*); scutellum strongly convex, tessellate with weak punctures (nearly smooth and shiny in *coitana coitana*); dorsal face of propodeum densely tessellate or nearly shagreened, dull; enclosure large, nearly triangular, poorly defined, weakly wrinkled basally, shagreened elsewhere; mesopleuron densely tessellate or nearly shagreened anteriorly. Wings nearly as in female. Legs slender, as usual. Mctasoma shiny: 1st tergum smooth, scattered with microscopical fine punctures; 2nd and following terga tessellate basally, smooth apically, with punctures; posterior depressions of 4th terga weakly indicated; 6th sternum reflexed apically; 7th sternum deeply emarginate apically, apical lobes distinctly pointed with more or less long hairs; 8th sternum tapered with abundant hairs; genital capsule with parapenial lobes slender: penis valves broadened basally.

Distribution : Japan (Hokkaido), the Kuril Islands (Kunashiri Is., Shikotan Is. and Etorofu Is.) and Kamchatka. This is the first record of this species from Hokkaido and the Kuril Islands.

Flower record : Not available.

Specimens examined: **Hokkaido:** 3 ♂♂, Sôunkei Spa, Mt. Daisetsu, 27. vii. 1974 (H. Fukuda); 1 ♂, Kurodake, Mt. Daisetsu, 22. vii. 1961 (M. Munakata); 1 ♂, Ôbako, Mt. Daisetsu, 20. vii. 1974 (H. Fukuda); 3 ♂♂, Ryokuunbashi, Mt. Daisetsu, 20. vii. 1974 (H. Fukuda); 2 ♂♂, Nishiashoro, Tokachi, 6. viii. 1953 (Y. Hirashima); 1 ♂, Ikomanbetsu, Mt. Daisetsu, 23-25. vii. 1955 (Y. Hirashima); 7 ♀♀, Kitamoshiri, Hokkaido Uryû Exp. Forests, 9-14. ix. 1969 (S. F. Sakagami and H. Fukuda); 1 ♂, Usubetsu, Sapporo, 27. vii. 1973 (H. Fukuda); 1 ♂, Usubetsu, Sapporo, 23. viii. 1973 (H. Fukuda); 2 ♂♂, Otarunai near Jôzankei, Sapporo, 25. vii. 1973 (H. Fukuda); 1 ♀, Otarunai near Jôzankei, Sapporo, 24. viii. 1973 (H. Fukuda). **The Kuril Islands:** 5 ♀♀ 9 ♂♂, Kunashiri Is. (S. Kuwayama and Y. Sugihara); 1 ♂, Shikotan Is. (S. Kuwayama and Y. Sugihara); 1 ♀, Etorofu Is. (S. Kuwayama and Y. Sugihara).

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