



Title	Some bees of the genus <i>Nomia</i> Latreille from Formosa (Hymenoptera, Halictidae)
Author(s)	Hirashima, Yoshihiro
Citation	<i>Insecta matsumurana</i> , 20(1-2), 29-33
Issue Date	1956-06
Doc URL	http://hdl.handle.net/2115/9580
Type	bulletin (article)
File Information	20(1-2)_p29-33.pdf



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SOME BEES OF THE GENUS *NOMIA* LATREILLE
FROM FORMOSA

(Hymenoptera, Halictidae)

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As a result of my recent study on the Formosan *Nomia*, one species is proved to be new to science. The description of it is given herein together with the results of some reconsiderations on four known species.

All the specimens reported in this paper are found in the collection of the Entomological Laboratory, Faculty of Agriculture, Kyushu University.

Before going further I wish to express my appreciation to Prof. TEISO ESAKI and to Prof. KEIZO YASUMATSU for their constant kind guidance. Both YASUMATSU and I express our hearty thanks to Prof. S. MIYAMOTO, Mr. K. SATO and Mr. A. UMEMO for the gift of specimens.

Subgenus *Dinomia* nov.

Type: *Nomia* (*Dinomia*) *taiwana* n. sp.

This subgenus is characterized by having two submarginal cells in the fore wings, and is easily distinguished from ten known subgenera in this respect. The subgenus is further distinct by the combination of the linear collar of pronotum, the moderately enlarged tegulae, and the three tegumentary bands of abdomen. Unfortunately *Dinomia* is known only in the female.

Nomia (*Dinomia*) *taiwana* n. sp.

Female: length about 13.5 mm., width of abdomen about 5 mm., fore wings slightly over 11 mm.

Black. Head suboval in front view; inner margins of orbits converging below; mandibles stout, bidentate, reddened subapically; clypeus weakly convex, coarsely punctured with interspaces confluent in more or less longitudinal rows, nearly dull; supra-clypeal area a little more convex, coarsely punctured; frons closely punctured; a shiny impunctate space laterad of post ocelli which are separated from summit of vertex by three-fourths of ocellar width; scape at both ends and flagellum beneath excepting two basal segments reddened.

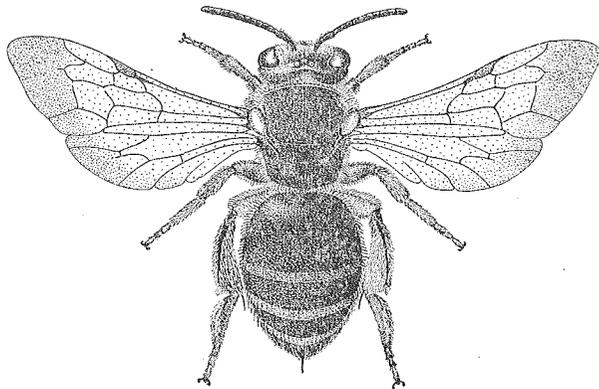
Mesoscutum densely, rather strongly punctured, with punctures becoming larger posteriorly, nearly contiguous to a puncture width apart; scutellum a little convex, coarsely, strongly punctured; basal area of propodeum strongly keeled behind, with a transverse median keel and longitudinal lateral carinae,

shiny; latero-dorsal areas of propodeum with punctures small and contiguous; posterior face of propodeum abrupt, with punctures large and sparse.

Wings deeply tinged with yellow; distal margins darkened (especially so at the apices of fore wings); stigma and veins ferruginous; fore wings with two submarginal cells; basal vein strongly curved.

Legs piceous, tibiae and tarsi of hind pairs ferruginous to dark ferruginous, the same of fore and mid pairs slightly darker; hind basitarsi subparallel-sided, a little broader than hind tibiae, with apical brush rather small, reddened; femoral floccus and tibial scopa compact, golden; basitibial plate elongate, piceous.

Abdomen oval; two basal tergites strongly, densely punctured; apical depressions of tergites 1 to 4 well marked, finely punctured basally, those of tergites 2 and 3 ferruginous hyaline, that of tergite 4 suffused with dark yellow.



Nomia (Dinomia) taiwana n. sp., female.

Hair nearly uniformly ferruginous with following exceptions: mesoscutum, scutellum and tergite 3 intermixed with fuscous hair; tergites 4 and 5 with hair fuscous.

Holotype: ♀, Sōzan-Tikusiko, Formosa, 28. VII. 1940 (S. Miyamoto).

Habitat: Formosa.

I am unaware of the related species bearing two submarginal cells in the fore wings.

Subgenus *Paranomina* MICHENER

Paranomina FRIESE (not CONRAD, 1860), 1897, Festschr. Fünfzig. Be-stehene Ver. Schles. Insektenk. p. 48; COCKERELL, 1912, Entomologist, vol. 45, p. 11; MEADO-WALDO, 1916, Ann. Mag. nat. Hist., ser. 8, vol. 17, p. 454.

Paranomina MICHENER, 1944, Bull. Amer. Mus. nat. Hist., vol. 82, p. 251.

This is a subgenus of large, robust species.

Mandibles of female stout, bidentate, of male short, simple; maxillary palpi longer than labial palpi, segment 1 shortest; labial palpi with segment 1 elongate; clypeus and supra-clypeal area usually with a longitudinal median carina; antennae of male elongate, segment 3 distinctly shorter than segment 4; vertex only slightly convex, scarcely arched; collar of pronotum slightly thickened laterally; tegulae moderately enlarged; basal area of propodeum carinate behind; fore wings with three submarginal cells; basal vein moderately to rather strongly curved; hind legs of male modified; apical basitarsal brush of female narrow; tergites 2 to 4 of female and tergites 2 to 5 of male with green or orange bands.

The species of this subgenus may easily be separated from those of *Nomia* s. str. by the enlarged tegulae, and by the absence of tegumentary band on the 1st abdominal tergite.

Nomia (Paranomia) pavonura COCKERELL

Nomia pavonura COCKERELL, 1912, Entomologist, vol. 45, p. 11; STRAND, 1913, Suppl. Ent., 2, p. 31.

Specimens examined: 1 ♀, Kontei, Formosa, 12. X. 1931 (A. UMENO); 1 ♀, Taihoku, Formosa, 11. V. 1929 (K. SATO).

Nomia (Paranomia) planiventris FRIESE

Nomia planiventris FRIESE, 1911, Verh. zool.-bot. Ges. Wien, vol. 61, p. 124.

Specimen examined: 1 ♂, Musha-Tattaka, 16. VIII. 1921 (T. ESAKI).

The subspecies, *Nomia planiventris atrohirta* FRIESE, was known from Selangor.

Nomia (Paranomia) megasoma COCKERELL

Nomia megasoma COCKERELL, 1912, Entomologist, vol. 45, p. 11; STRAND, 1913, Suppl. Ent., 2, p. 31, ♀ (in part); Yano, 1932, Icon. Ins. Jap., p. 271.

This is a large, robust species. Clypeus rather strongly convex, with a longitudinal carina, which is weak in the female, rather strong in the male. Collar of pronotum with an indistinct, narrow, pale fascia. Wings deeply tinged with yellow, with a large fuscous patch at the apices; stigma and veins pale ferruginous; basal vein gently curved. Tegulae large, ferruginous, hyaline. Thorax with hair ferruginous or likely so, not mixed with black. Abdominal bands orange. Hind basitarsi of female slightly tapering toward apex, with apical brush small, golden.

Male: length about 14 mm., fore wings about 12 mm.

Inner margins of orbits convergent below; clypeus convex, rather sparsely and coarsely punctured, with a median keel; mandibles short, with acute, simple apices which are broadly reddened; antennae with segment 3 broader than long, segment 4 a little longer than wide, following segments distinctly elongate; flagellum beneath weakly reddened; post ocelli separated from the summit of vertex by an ocellar width; a shiny impunctate space in front of mid-ocellus and laterad of post ocelli; vertex a little convex, coarsely punctured.

Mesoscutum and scutellum densely punctured, with enamel-like lustre; scutellum with a pair of large conical elevations; basal area of propodeum strongly keeled behind, with sparse, longitudinal carinae, shiny; posterior face of propodeum sparsely punctured with strong enamel-like lustre; lateral face and laterodorsal areas of propodeum with dense fulvous hair.

Legs piceous, distitarsi pale ferruginous; hind femora slender, rather strongly curved, lower face smooth; hind tibiae slender, gently curved, with narrow, acute, apical projections, from which a pair of spurs occur; hind basitarsi elongate, slightly bent upwards, nearly parallel-sided.

Abdomen shiny, strongly punctured; tergite 1 with a posterior depression well marked, dark ferruginous; tergites 2 to 5 with orange tegumentary bands covering about one half or a little more of tergal depressions; sternites 2 and 3 very shiny; sternite 4 broad, densely punctured, pubescent, dull.

Head and thorax with hair pale ferruginous; clypeus with hair sparse; mesoscutum not hidden by hair; two basal tergites with hair ferruginous, the rest of tergites with hair black.

Specimens examined: 1 ♀, Shikikun-Togano, 21. VII. 1932 (T. ESAKI), 1 ♂, Naihonrokugoe, 19. VIII. 1932 (T. ESAKI).

STRAND, in 1918, recorded the male and female under the name *megasoma* COCKERELL from Anping, Formosa. So far as my investigation goes, the male of his species seems to be misidentified, owing to the following reason as shown under *Nomia megasomoides*.

Although the characters of the male of *megasoma* COCKERELL fairly well accord with the short description of *proxima* FRIESE, 1911, from Canton, China, it is uncertain whether these species are identical or not.

The subspecies, *Nomia megasoma nitidata* STRAND, was described from China.

Nomia (Nomia) megasomoides STRAND

Nomia megasoma STRAND, 1913, Suppl. Ent., 2, p. 31, ♂ (in part).

STRAND writes:

"Von Anping Juli liegen 2 ♂♂ vor, die ich zu dieser bisher nur im weiblichen Geschlecht bekannten Art stellen möchte. Sie weichen von dem ♀ ab durch das Vorhandensein von fünf erheblich breiteren, scharf markierten Abdominalrückenbinden (also auch das erste Segment mit solcher Binde), der Thoraxrücken ist dichter mit braungelber Behaarung bewachsen, das ganze Gesicht dicht mit goldgelb schimmernder Behaarung, die drei Basalglieder der Beine schwarz, die Spitze der Femoren und die folgenden Glieder hellgelb. Das Basalglied der Antennen unten hellgelb, die Geißel bräunlichgelb. Die Femoren III sind mitten stark verdickt bzw. oben fast halbkugelig gewölbt. unten aber abgeflacht und am Ende unten aussen mit zwei kleinen Zähnen versehen. Tibia III ist am Ende unten in einen senkrechten, scharf dreieckig zugespitzten Fortsatz ausgezogen, sieht daher im Profil dreieckig aus (allerdings ist die untere Seite schwach S-förmig gebogen), mit der distalen oberen Ecke etwa rechtwinklig und etwa

senkrechter Endfläche. Metatarsus III ist dünn, parallelseitig und nur wenig kürzer als Tibia. Körperlänge (bei etwas gekrümmtem Abdomen) ca. 12 mm, Flügellänge ca. 9 mm.

"Sollte dies ♂ nicht zu *megasoma* gehören, so möge die Art den Namen *megasomoides* m. bekommen."

It is easily recognizable from the above description that STRAND's "male of *megasoma* COCKERELL" should be regarded as belonging to a distinct species and be called *megasomoides* STRAND, as he proposes,* because the characters of it are not at all related to those in male of *megasoma* COCKERELL.

This species, *megasomoides*, is a typical representative of the subgenus *Nomia*. The further characters of importance are as follows:

Male. Head nearly circular in front view; ocelloccipital distance about equal to post ocellar distance; collar of pronotum thick, densely rugoso-punctate; tegulae small, ferruginous hyaline; submarginal cell 2 wider than one-half of submarginal cell 1 along vein M, narrowing strongly upwards; stigma small; tergites 1 to 5 with orange tegumentary bands; sternite 4 with posterior margin broadly and deeply emarginate triangularly.

Face converging below, densely covered with golden hair; mandibles yellow, with apices simple, red; antennae short, scape broadly yellow, pedicell and flagellum beneath broadly ferruginous; flagellar segment 1 elongate, nearly as long as next segment; vertex closely rugoso-punctate, dull; pronotum covered with moss-like pale hair laterally; mesoscutum and scutellum covered with pale fulvous hair, extremely densely rugoso-punctate; metanotum and propodeum rather coarsely sculptured with quite close punctures; basal area of propodeum narrow, poorly defined, with weak, longitudinal carinae; abdomen subparallel-sided; two basal tergites closely rugoso-punctate; posterior depressions of tergites 1 to 5 well marked; wings tinged with yellow, apical margins broadly darkened; veins and stigma pale ferruginous.

Specimen examined: 1 ♂, Kuraru, Formosa, 3. IX. 1921 (T. ESAKI)

It may be assumed from the literature that *megasomoides* STRAND is identical with, or undoubtedly very close to *curvipes* (FABRICIUS), which occurs from India as far north as Tchenkiang, China.

In the course of my study on the Subfamily Nomiinae, I came across a case of generic homonymy, and I, therefore, propose a new name as follows:

Genus *Alfkenomia* nom. nov.

The new name, *Alfkenomia*, is proposed for *Epinomia* ALFKEN, 1939 (not ASHMEAD, 1899), Miss. biol. Paese Borana, 3: 113. The type is *Nomia andrenoides* VACHAL, 1903. The genus is known from Africa.