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NEW *ONTHOPHAGUS*-SPECIES IN JAPAN WITH A TABULAR KEY

By

Shonen Matsumura

Numerous Onthophagid-species were collected during the past three years by Messrs. S. Hirayama, S. Kanda, M. Kujime, M. Matsuoka, S. Nomura, S. Oishi, A. Umeno, K. Yamauchi, C. Yohena, etc. The author has utilized also in this thesis all the specimens which are preserved in the Entomological Museum of the Hokkaido Imperial University at Sapporo, being mostly collected by E. Gallois, S. Issiki, H. Kôno, K. Nakamura, H. Takabayashi and the author. The author has also a large number of specimens received from Formosa and Korea, but they will be treated later.

Up to date only 10 species of *Onthophagus* have been known in Japan (Hokkaido, Honshu, Shikoku, Kiushu). On this occasion 30 new and one unrecorded species will be added to the fauna of Japan. Furthermore, *O. shinanensis* Mats. f. *brevicornus* Yohena may be apparently a distinct species.

The type specimens described here will be deposited in the near future in the Entomological Museum of the Hokkaido Imperial University at Sapporo.

Tabular key to the *Onthophagus*-species of Japan

1. Head with 3 horns ... 2
– Head with 2 horns ... 6
– Head with 1 horn ... 8
2. Horns perpendicular to axis of head, somewhat curving forwardly ... *tricornis* Wied.
– Horns backwardly oblique to axis of head ... 3
3. Horns diverging each other and then converging towards apices ... *shinanensis* Mats.
– Horns parallel each other ... 4
4. Horns short; prothorax at anterior margin with no excavation ... *kozunonis* Mats.
– Horns long; prothorax at anterior margin with one or two excavations ... 5
5. Horns much sloping backwardly; prothorax with a quadrate excavation at anterior slope ... *oniellus* Mats.
– Horns nearly erect; prothorax with 2 oblong excavations at anterior slope ... *yohenai* Mats.
6. Horn at apex with no tooth ... *ocellato-punctatus* Waterh.
– Horn at apex with teeth ... 7
7. Horn linear, at apex with 2 long teeth ... *uedanus* Mats.
– Horn quadrate, at apex with 3 short teeth ... *kandai* Mats.

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8. Head with 3 transverse carinae 9
– Head with 2 transverse carinae 16
– Head with 1 transverse carina 39
9. Three carinae of head equidistant each other 10
– Three carinae of head not equidistant each other 13
10. Posterior carina low or obsolete 11
– Posterior carina very high ... ... *shigeoi* MATS.
11. Prothorax at anterior margin with no impression 12
– Prothorax at anterior margin with 2 oblique impressions ... ... *spurius* MATS.
12. Anterior carina of head obsolete ... ... *miyazakianus* MATS.
– Anterior carina of head distinct ... ... *aequiperus* MATS. et YOHENA
13. Anterior 2 carinae nearer to each other than to posterior one 14
– Posterior 2 carinae nearer to each other than to anterior one ... *jedensis* MATS. et YOHENA
14. Anterior carina obsolete 15
– Anterior carina distinct 16
15. Prothorax at anterior part with a roundish impression, its lateral sides with each a low boss-like elevation ... ... *okushirianus* MATS. et YOHENA
– Prothorax at anterior part with a longitudinal impression ... *shurianus* MATS. et YOHENA
– Prothorax at anterior part with no impression ... ... *takabayashii* MATS.
16. Clypeus transversely confluently punctured; posterior carina of head somewhat apart from hind margin ... ... *chibanus* MATS. et YOHENA
– Clypeus transversely rugosely wrinkled; posterior carina of head just near hind margin ... ... *misujianus* MATS.
17. Prothorax near anterior border excavated 18
– Prothorax near anterior border not excavated 23
18. Posterior carina higher than anterior one 19
– Posterior carina not higher than anterior one 21
19. Posterior carina high and in middle semicircularly excavated ... ... *atripennis* WATERH.
– Posterior carina not high and in middle scarcely excavated 20
20. Prothorax near anterior border with 2 boss-like elevations ... ... *ibonus* MATS.
– Prothorax near anterior border with 2 longitudinal keel-like elevations ... *kogatanus* MATS.
21. Anterior carina of head bow-like curved, so that posterior carina enclosing a semicircular space ... ... *yumigatanus* MATS.
– Anterior carina of head slight, so that posterior carina enclosing a rectangular space ... 22
22. Anterior excavation of prothorax extending beyond middle ... ... *viduus* HAR.
– Anterior excavation of prothorax not extending to middle ... ... *oishii* MATS.
23. Antennal club fuscous ... ... *lutosopictus* FAIRM.
– Antennal club yellow to ferruginous 24
24. Anterior carina of head nearer to anterior margin than to posterior carina 25
– Anterior carina of head not nearer to anterior margin than to posterior carina 26
25. Interspace between 2 carinae confluently punctured ... ... *ater* WATERH. (♀)
– Interspace between 2 carinae separatedly punctured ... ... *kawarinus* MATS.
26. Anterior carina situated nearer to posterior carina than to anterior margin 27
– Anterior carina situated in middle between anterior margin and posterior carina or between eyes 28
27. Two carinae of head parallel; prothorax at lateral sides deeply excavated ... *lenzii* HAR.
– Two carinae of head not parallel; prothorax at lateral sides not excavated ... ... *komabellus* MATS.

28. Anterior carina situated between eyes, and posterior carina just near posterior margin ... 29
– Anterior carina situated in middle between anterior margin and posterior carina 31
29. Posterior carina obsolete; anterior border of prothorax longitudinally grooved ... ...

flattened, with neither short central keel nor marginal ridge at the posterior margin. The interstices of the elytra nearly flat, the granulose punctures being finer. The tibial teeth shorter and blunt at the apices; the apical spine shorter, not curved and blunt at the apex.

Hab.—Okinawa. Two female specimens were collected by C. YOHENA at Gima, Kitabaru (28. VIII, 1935).

2. ***Onthophagus akirai*** n. sp.

♂. Dark brown, head and thorax shiny, with pale fulvous pubescence. Head closely punctured, so long as broad, at the anterior margin moderately reflexed, somewhat truncated, with 2 transverse carinae, the anterior carina short, nearly in the middle between the anterior margin and the hind one, the hind carina being situated between the eyes, somewhat arched, at its hind slope towards the hind margin not distinctly punctured except at both ends; the punctures in the anterior clypeal region transversely confluent, while those in the interspace between both the carinae scarcely confluent. Antennae and palpi ferruginous. Prothorax ocellatedly punctured, not very closely, the punctures on the disk being not smaller; on the disk with 3 oblong impressions, that of the middle being narrower; at the hind margin with a middle groove; the anterior angle acute. Elytra crenulate-striated, the 1st interstice impunctured, the other interstices finely granulosely punctured, the punctures not becoming larger towards the lateral margins. Pygidium finely punctured, the punctures being somewhat confluent, at the base with a short obsolete longitudinal keel. Legs pale brown, the apical spur of the anterior tibia long, slender and pointed.

♀. Differs from the male in having somewhat a smaller body, the anterior carina of the frons being shorter.

Length—5.5–6 mm. (♀ ♂)

Hab.—Honshu and Kiushu. One male specimen was collected at Osaka by K. MINO (19. VIII, 1935), another male at Tokyo by C. YOHENA, and one female at Kurume by A. UMENO (30. VIII, 1933).

This resembles somewhat *O. fodiens* WATERH., but much smaller.

3. ***Onthophagus chibanus*** MATS. et YOHENA (n. sp.)

Closely allied to *O. misujianus* MATS., but differs from it as follows:

♀. Body ferruginous brown, head being somewhat darker. Frons at the anterior clypeal region with finer, transversely confluent punctures, at the anterior margin more strongly reflexed, the 3rd carina higher, being in the middle somewhat sinuated, and more widely separated from the hind margin. Antennae and palpi yellowish brown. Prothorax at the posterior region with the punc-

tures much smaller and not ocellated. Elytra with much finer, granulose punctures, the interstices distinctly not elevated, the 1st interstice being broader than the following. Pygidium with some punctures transversely confluent. The apical spur of the anterior tibia long, curved, and sharply pointed at the apex.

Length—7 mm.

Hab.—Honshu. One female specimen was collected by C. YOHENA at Narashino in the prov. Chiba (20. X, 1934).

4. ***Onthophagus chuzenjianus*** n. sp.

Near *O. ater* WATERH., but much smaller and it is distinguished from the latter in the following details:

♂. Head at the anterior margin much less reflexed; behind the eyes on each side with an arched short carina which does not touch another, and before the hind margin with a short transverse carina-like elevation, the hind region being shiny and less punctured. Prothorax lowly vaulted, with neither declivities nor gibbosities; in the middle with an obsolete longitudinal keel which does not extend to the hind margin. Elytra with the interstices more finely rugosely punctured, the longitudinal impressions narrower, remotely and finely punctured. Pygidium more largely punctured. The apical two teeth of the anterior tibia subequal in length and somewhat pointed at the apices, the apical spur of anterior tibia sharply pointed at the apex.

♀. More allied to *O. ater* WATERH., but differs from it in having the shorter anterior carina being nearly straight, the punctures in the interspace between the carinae smaller and more transversely wrinkled.

Length—7 mm. (♀ ♂)

Hab.—Hokkaido, Honshu, Shikoku and Kiushu.

Numerous specimens were collected by E. GALLOIS, S. HIRAYAMA, H. KÔNO, K. YAMAUCHI and the author. The female seems to be rare, for the author possesses only 2 specimens.

5. ***Onthophagus hikosanus*** n. sp.

Near to *O. ushiodai* MATS., but it is distinguished from the latter as follows:

♀. Head with the carinae stronger, at the anterior clypeal region more roughly transversely wrinkled, in the interspace between the carinae more roughly punctured, the punctures being scarcely confluent; the hind carina in the middle distinctly emarginated; the interspace between this and the hind margin with no transverse shiny part, in the middle with a low impunctured longitudinal elevation. Antennae pale ferruginous. Prothorax in profil distinctly higher,

with somewhat larger punctures, in the middle at the posterior half with an obsolete longitudinal, shallow, impunctate groove, the anterior angle being somewhat more obtuse. Elytra with the longitudinal impressions not shiny, the granulose punctures being somewhat larger. Underside and legs pitchy black, only the tibiae and tarsi somewhat brownish; the apical spur of the anterior tibia longer than the 1st lateral tooth, sharply pointed at the apex.

Length—9 5 mm.

Hab.—Kiushu. One female specimen was collected at Mt. Hiko in the prov. Hyuga by K. YAMAUCHI (2. VI, 1935).

6. ***Onthophagus hyuganus*** n. sp.

♀. Brown to black, somewhat shiny, with short fulvous pubescence. Head oval, darker in colour, closely punctured, at the anterior margin moderately reflexed, with 2 transverse carinae, one of which is situated before the eyes, straight, at the hind slope sparsely and finely punctured; another carina behind the eyes somewhat arched, at its hind slope distinctly finely punctured; the interspace between the carinae sparsely punctured. Antennae and palpi ferruginous. Prothorax ocellatedly and closely punctured, on the disk the punctures smaller; near the middle at the anterior margin with a circular, flat region, at the anterior margin with an obsolete trace of a short longitudinal keel; the anterior angle acute; towards the hind margin in the middle with a short longitudinal groove. Elytra with the longitudinal impressions crenulate, the interstices finely granulosely punctured, scarcely elevated at the first 2 interstices, where it is obliquely wrinkled, the punctures becoming larger towards the lateral margins. Pygidium roughly punctured, the punctures near the base being smaller and somewhat transversely confluent. Legs with the tibiae and tarsi somewhat paler than the ground colour. The male differs from the female in having the higher prothorax in profil. The apical spur of the anterior tibia subequal in length to the 1st lateral tooth, blunt at the apex.

Length—6.5 mm.

Hab.—Honshu and Kiushu. One female specimen was collected at Miyazaki by S. HIRAYAMA (23. IX, 1936) and another female at Narashino in the prov. Chiba by C. YOHENA (23. X, 1935).

This species resembles somewhat *O. viduus* HAR., but much smaller, and at the prothorax with neither gibbosities nor impression.

7. ***Onthophagus ibonus*** n. sp.

Allied to *O. atripennis* WATERH., but differs from it as follows:

♂. Head at the anterior border neither acuminated nor much reflexed,

at the clypeal region rugosely and closely punctured, the punctures being transversely confluent; the hind lamina-like elevation much lower, sloped towards the hind margin, in the middle being scarcely emarginated. Thorax near the anterior border with 2 warty gibbosities, at the interspace of the latter somewhat grooved, where it is distinctly punctured, the punctures on the lateral sides much larger and closer. Elytra with the sutural region and the first interstice finely but distinctly punctured and pubescent. Pygidium somewhat more closely and deeply punctured. The middle and hind femora distinctly more closely punctured, the apical spur of the anterior tibia subequal in length to the 1st lateral tooth, blunt at apex.

♀. Differs from the male in having the obsolete gibbosities near the anterior border of the thorax, while at the interspace being much more shallowly grooved.

Length—6-9 mm. (♂ ♀)

Hab.—Hokkaido, Honshu, Shikoku and Kiushu. Numerous specimens were collected by E. GALLOIS, S. HIRAYAMA, M. MATUSOKA, A. UMENO, K. YAMAUCHI, C. YOHENA, H. TAKABAYASHI, Y. HOSHINO, K. NAKAMURA and R. KAWASAKI.

8. ***Onthophagus jedensis*** MATS. et YOYENA (n. sp.)

Allied to *O. takabayashii* MATS., but differs from it as follows:

♀. Body yellowish brown, not very shiny. The 1st transverse carina of the head rudimentary, being reduced to a mere point; the interspace between the 1st and 2nd carinae more widely separated than the interspace between the 2nd and the 3rd; the punctures on the fore head transversely confluent; the antennal club grayish pruinose; the lateral bossy elevations of the thorax smaller. Elytra much more finely punctured, the 1st interstice scarcely punctured. The apical spur of the anterior tibia subequal in length to the 1st laleral tooth, at the apex being sharply pointed.

Length—6 5 mm.

Hab.—Honshu. One female specimen was collected by C. YOHENA at Toyamagahara in Tokyo (28. IX, 1935).

9. ***Onthophagus kandai*** n. sp.

♂ ♀. Black, opaque, with black and yellowish pubescence, and with a light purplish shade. Head in the outline oval, at the anterior margin distinctly but slightly emarginated, moderately reflexed, roughly punctured, the punctures being transversely confluent; near the middle with an arched transverse carina, near the hind margin with a high erect quadrate projection which is strongly punctate

and at the upper end with 3 short teeth, two of which are provided on each side and the other in the middle. Antennae and palpi fuscous. Thorax coarsely granulosely punctate, with each a black or yellowish hair; at the anterior margin highly ridged, along the ridge with a transverse row of 4 blunt teeth, being situated nearly equidistantly at the anterior declivity, shiny, sparsely granulated; in the middle with a longitudinal depression; the anterior angle acute, at the outside scarcely sinuated. Elytra with shiny narrow striae, sparsely punctate, in the interstices with 2 longitudinal rows of granules, of which has each a strong hair. Legs dark brown, with brownish hair, the anterior tibia with 4 blunt teeth outwardly; the apical spur of the anterior tibia longer than the 1st lateral tooth and sharply pointed at the apex. Underside sparsely punctured, the punctures with each a short brownish hair.

Length—5.5–6 mm.

Hab.—Honshu and Korea. One male specimen was collected at Ueda in the prov. Shinano by S. KANDA (16. IV, 1936) and 3 male specimens at Hokusanmen in the prov. Keishokokudo, Korea, by A. UMENO and K. YAMAUCHI (8. V, 1933).

10. ***Onthophagus kawarinus*** n. sp.

Closely allied to *O. ater* WATERH., but differs from it as follows:

♀. Head and thorax subopaque, the elytra being less shiny. Head at the anterior margin distinctly more acuminated, scarcely reflexed, with the broader anterior carina at the anterior clypeal region, the transverse wrinkles narrower; the punctures in the interspace between the carinae much less and smaller, being not distinctly transversely confluent; the posterior carina in the middle scarcely emarginated and at the occiputal region less punctured, the punctures being not confluent. Prothorax with smaller punctures, the anterior angle narrower. Elytra with the longitudinal impressions narrower, not shiny, being concolorous with the ground colour; the interstices less rugosely punctured and less obliquely wrinkled. Pygidium less rugosely punctured. Anterior tibia with 4 scarcely discernible blunt teeth on the outside, the apical spur short, blunt at the apex.

♂. In the form of the thorax it resembles that of *O. ater* WATERH., but punctation coincides with that of the female.

Length—9 mm. (♂ ♀)

Hab.—Honshu. One female specimen was collected by S. NOMURA at Konaka in the prov. Gunma (14. VIII, 1935); 2 female specimens at Chuzenji in the prov. Tochigi by E. GALLOIS; one female at Osaka by K. MINO (28. V, 1935); one male specimen at Tokyo by M. MATSUOKA.

11. ***Onthophagus kogatanus*** n. sp.

♂. Black, with an aeneous lustre, shiny. Head with 2 transverse carinae, one of which is between the eyes, somewhat arched when seen from above, in the middle scarcely emarginated, and towards the hind margin gently sloped, having very fine punctures along the transverse middle line; another carina nearly at the midway between the anterior margin and the hind carina, straight, abbreviated on both ends, so long as the hind carina; at the anterior margin scarcely acuminated, distinctly reflexed, at the anterior clypeal region rugosely punctured, somewhat transversely confluent, the punctures between the carinae smaller, being not transversely confluent. Antennae and palpi ferruginous, the antennal club paler. Prothorax rugosely and uniformly punctured throughout, in the middle near the anterior margin strongly excavated and where it is very shiny and impunctured, on its lateral sides with each an elongated warty protuberance; the lateral bossy protuberances not very distinct, somewhat elongated. Elytra punctate-striate, the sutural region and the following interstice scarcely punctured; the other interstices somewhat elevated, with 2 or 3 longitudinal rows of granulose punctures which become larger towards the lateral margins, each having a fulvous hair. Pygidium sparsely punctured, in the middle with a longitudinal obsolete keel, the punctures having each a short fulvous hair. Legs pitchy brown, tarsi and spurs ferruginous; the apical spur of the anterior tibia shorter than the 1st lateral tooth, blunt at the apex.

♀. Differs from the male in having the hind carina of the head lower, the gibbose protuberances of the thorax smaller, the central excavation being much shallower.

Length—6.5–7.5 mm. (♂ ♀)

Hab.—Honshu and Kiushu. Numerous specimens were collected by E. GALLOIS, H. TAKABAYASHI, M. MATSUOKA, C. YOHENA, Y. HOSHINO, R. KAWASAKI, A. UMENO, K. YAMAUCHI, S. HIRAYAMA and the author.

Closely resembles *O. atripennis* WATERH., but differs from it in the following points:

Head at the occiputal region with no horn-like projection; at the anterior margin neither narrowly acuminated nor reflexed much; punctures between the apex and the anterior carina not transversely confluent; prothorax with much shallower excavation near the anterior border, the lateral gibbosities not extending to the longitudinal keel; the punctures on the prothorax distinctly larger and more closely placed; elytra with the granulose punctures larger, but the hair finer.

12. ***Onthophagus komabellus*** n. sp.

Dark brown, with a shiny lustre, pale fulvous pubescent. Head nearly as long as wide, roughly punctured, with 2 transverse carinae which are situated nearer to each other than to either of the anterior and posterior margins; the anterior carina somewhat excurved, while the posterior one being very lightly incurved; the anterior margin highly reflexed, somewhat truncated; at the anterior clypeal region the punctures transversely confluent, those in the interspace between the carinae sparser and larger, and somewhat transversely confluent, while those in the interspace between the hind carina and the hind margin somewhat smaller and not transversely confluent, in the middle being somewhat transversely elevated. Palpi and antennae ferruginous. Prothorax roughly, closely punctured, in the middle the punctures smaller; in the middle at the posterior half with an obsolete longitudinal groove; the anterior angle obtuse. Elytra punctate-striate, the interstices somewhat elevated, with 2 or 3 longitudinal rows of granulose punctures which become larger towards the lateral margins. Pygidium roughly punctured, the punctures being transversely confluent. Legs somewhat paler, the tarsi being ferruginous (the apical spur broken), the lateral teeth of the anterior tibia blunt at the apices.

Length—7mm.

Hab.—Honshu. One female (?) specimen was collected by S. HIRAYAMA at Komaba, Tokyo (10. XI, 1929).

This resembles somewhat *O. misujianus* MATS., but it is easily distinguished from the latter in having only 2 carinae in the middle of the head.

13. ***Onthophagus kozunonis*** n. sp.

Closely allied to *O. yohenai* MATS., but differs from it as follows:

♂. Prothorax with a purplish shade. Frons with closer and less confluent punctures, especially at the front of the horns; the horns very short, each reduced to a cone-like projection; just before the horns with a low transverse carina which in the middle is somewhat elevated, at the hind region being shiny and not punctured. Prothorax at the anterior margin with a scarcely punctured region where it is somewhat elevated; at the disk less elevated, and the central groove at the posterior half broader. Elytra shiny, the longitudinal striations narrower, concolorous with the ground colour.

♀. Differs from the male in having no cone-like projection at the frons, having 2 transverse carinae, the anterior one obscure and arched, while the other straight, at the hind part sloped, not shiny and very finely punctured. The apical spur of the anterior tibia short, blunt at the apex.

Length—7.5 mm. (♂), 8 mm. (♀)

Hab.—Honshu. One male specimen was collected at Sugadaira in the prov. Shinano (21. VII, 1936) and one female in the same place (28. VII, 1936) by M. MATSUOKA.

14. ***Onthophagus matsuokai*** MATS. et YOHENA (n. sp.)

Body black, pale fulvous pubescent, the head and thorax aeneous black, shiny, roughly punctured, the elytra orange-yellow. Head with 2 transverse carinae, at the anterior clypeal region transversely roughly wrinkled, the anterior margin somewhat acuminated, scarcely emarginated in the middle; the anterior carina slightly excurved, the posterior one being shorter and slightly incurved, in the interspace between them the punctures larger and sparser; at the back of the hind carina with a single transverse row of punctures. Antennae fuscous brown, the mouth-part and palpi ferruginous. Prothorax uniformly punctured, the punctures on the disk being not smaller, with an obsolete longitudinal carina at the anterior half, near the hind margin being longitudinally impressed. Elytra with narrow longitudinal impressions which are very finely punctured; the interstices distinctly elevated, with 2 or 3 longitudinal rows of small punctures which are finely pubescent; the sutures and a short bar acrossing the line, a broad bar on each lateral side and one roundish spot on each apex black. Pygidium much roughly punctured, with fine pubescence. Legs dark brown, the tarsi being ferruginous; the lateral teeth of the anterior tibia long, the apical spur much shorter than the 1st lateral tooth, blunt at the apex.

Length—4 5 mm.

Hab.—Honshu. One male (?) specimen was collected at Shiba, Tokyo (14. VIII, 1936) by M. MATSUOKA.

This resembles somewhat *O. trituber* WIED. from Formosa, but it has no tuberous projection on the prothorax.

15. ***Onthophagus minoi*** MATS. et YOHENA (n. sp.)

Closely allied to *O. shurianus* MATS. et YOHENA, but differs from it as follows:

Body less shiny. Head near the anterior margin with no trace of the rudimentary carina; at the anterior clypeal region the punctures confluent and transversely wrinkled, the 1st carina much thicker and opaque. Prothorax not shiny, near the anterior margin with a larger roundish impression; the punctures being larger and closer. Elytra with the 1st 2 interstices distinctly elevated, the punctures being distinctly larger; the sutural region with no dark purplish shade. Pygidium with the punctures mostly transversely confluent.

The lateral teeth of the anterior tibia developed (the apical spur broken).

Length—7.5 mm.

Hab.—Honshu. One female (?) specimen was collected at Osaka by K. MINO (VIII, 1934).

16. ***Onthophagus misujianus*** n. sp.

♂. Black, shiny, with short pale fulvous hair. Head with 3 transverse carinae, the 1st situated between the antennae, the 2nd between the eyes and somewhat curved in its middle, the 3rd just near the posterior margin, being weaker and shorter than the rest; the 2nd the highest, somewhat sloping towards the anterior part and scarcely nearer to the 3rd than to the 1st; between the carinae the punctures smaller and sparser, in the anterior clypeal region transversely and rugosely wrinkled, being not distinctly punctured; at the anterior margin somewhat acuminated, weakly reflexed. Antennae and palpi ferruginous. Thorax on the disk finely and coarsely punctured, towards the lateral and hind margins the punctures larger and mostly ocellated; at the anterior border flattened, in the middle crossed by a short, obsolete longitudinal carina; the anterior angle obtuse; the lateral bosses oblong, impunctate; towards the hind margin in the middle with a shallow longitudinal groove; at the hind margin ridged. Elytra with an aeneous shade, punctate-striate, the interstices somewhat elevated, with 2 or 3 longitudinal rows of granulose punctures, the punctures being larger towards the lateral margins; with humeral and apical spots of reddish yellow. Pygidium with small and large punctures, reddish brown beneath, with very fine grayish hair. Legs brownish, the middle and posterior femora paler, very sparsely punctured; the teeth of the posterior tibia strong, the apical spur slender and curved, sharply pointed at the apex.

♀. Differs from the male in having less vaulted prothorax in profil.

Length—8 mm. (♂ ♀)

Hab.—Shikoku and Okinawa. One male and one female specimens were collected at Okinawa by S. HIRAYAMA and C. YOHENA (8. VIII, 1936); another male at Tosa by M. MATSUOKA (12. IV, 1936).

This species is somewhat allied to *O. fodiens* HAR., but it is easily distinguished from the latter in having 3 developed transverse carinae in the head.

17. ***Onthophagus miyazakianus*** n. sp.

Closely allied to *O. okushirianus* MATS., but differs from the latter as follows:

Head broader than long, oval, more coarsely punctured, the transverse

carinae being narrower. Thorax in profil lower, more densely punctured, at the anterior part in the middle not impressed. On the disk with an obsolete trace of a short longitudinal carina, towards the hind part lacking the longitudinal groove. Elytra much deeply punctate-striate, the impressions distinctly narrower, the 1st and 2nd interstices distinctly elevated. Pygidium brownish, less and finely punctured, some punctures being transversely confluent. Underside and legs brownish, the tarsi being paler. The apical spur of the anterior tibia subequal to the 1st lateral tooth, not sharply pointed at the apex.

Length—6 mm.

Hab.—Kiushu. One female (?) specimen was collected by S. HIRAYAMA (23. IX, 1926) at Miyazaki.

18. ***Onthophagus oishii*** n. sp

Closely allied to *O. yumigatanus* MATS., but differs from it as follows:

♂. Body testaceous, shiny, with fine grayish short hair. Head at the anterior margin rounded, not acuminated, less reflexed; the anterior carina scarcely less arched, in the interspace between the carinae distinctly less punctured. Antennae and palpi somewhat paler than the ground colour. Prothorax at the posterior part more minutely and less closely punctured, the anterior excavation much less in dimension and shallower, the discal gibbosities being lower and warty. Elytra with the longitudinal impressions more finely crenulate-striate; interstices with much finer granulose punctures. Pygidium less punctured, not distinctly confluent, the longitudinal keel being only visible at the base. Underside and legs paler in colour, the teeth of the anterior tibia being darker, the apical spur of the anterior tibia subequal in length to the 1st lateral tooth, blunt at the apex.

Length—7.5 mm.

Hab.—Kiushu. One male specimen was collected by S. OISHI at Hirao in the prov. Chikuzen (1. X, 1932).

19. ***Onthophagus okushirianus*** n. sp.

Closely allied to *O. spurius* MATS. et YOHENA, but differs from it in the following points:

Body much smaller, the 1st and 2nd carinae of the head situated much nearer to each other than to the 3rd one; the 2nd carina distinctly arched and broader; the hind carina much nearer to the hind margin and leaving practically no space behind. Thorax at the anterior region in the middle with an obsolete circular impression; on its hind lateral parts with each an obsolete bossy elevation; in the middle with an obsolete longitudinal groove; the punctures on the lateral

sides sparser but larger. The interstices of the elytra distinctly more elevated, the longitudinal impression crenulated, the 1st interstice with less and finer granulose punctures; near the apices of the elytra with each 2 reddish patches, a humeral spot being brownish. Legs brown, the femora somewhat paler in colour; the apical spur of the anterior tibia shorter than the 1st lateral tooth, blunt at the apex.

Length—7 mm.

Hab.—Hokkaido. One female (?) specimen was collected at the island of Okushiri by M. MATSUOKA (28. VIII, 1936).

20. ***Onthophagus oniellus*** n. sp.

Closely allied to *O. shinanensis* MATS., but differs from it as follows:

♂. Head with the punctures distinctly finer, the central carina reduced to a short obscure elevation; the horns nearly parallel to each other, somewhat curving backwardly at the apices; the blade-like ridge at the hind margin between the horns nearly straight, in the middle somewhat elevated, seen from above a little curved forwardly, being not emarginated. Prothorax distinctly lower, with finer and closer punctures, at the humeral region not shiny and punctured though less than in the other parts; the anterior shiny part much smaller, somewhat quadrate in shape and less excavated. Elytra black, with a brownish shade, crenulate striate, the striation being shiny, in the interstices with distinctly finer granulose punctures. The apical spur of the anterior tibia shorter than the 1st lateral tooth and blunt at the apex.

This resembles also closely *O. yohenai* MATS., but it may differ from it as follows:

The frontal horns run parallel with the anterior slope of the prothorax; prothorax at the anterior slope with a quadrate, impunctured excavation, while in *yohenai* MATS. the excavation in the middle with a longitudinal keel, so that 2 oblong oblique, impunctate impressions are visible; elytra below the scutellum transversely impressed, the sutural margins not elevated except at the apical third, the 2nd and 3rd interstices not elevated.

Length—8 mm.

Hab.—Honshu. One male specimen was collected at Sugadaira in the prov. Shinano by M. MATSUOKA (21. VIII, 1936).

21. ***Onthophagus shigeoi*** n. sp.

Somewhat resembles *O. misujianus* MATS., but differs from it especially in having a much higher transverse carina at the occiput. It differs from the latter in the following details:

♂. The anterior carina after geniculating before the eye reaches to the lateral margins; the middle carina just close behind the anterior one, parallel, its ends incurving rectangularly and each reaches nearly to the middle of the eye; the hind carina quite high and straight, much longer than the middle one. Prothorax near the anterior margin with a high transverse ridge which is somewhat boss-like elevated on both ends and at the anterior margin building quite a sharp declivity; the punctation not ocellated, on the lateral sides much finer and distinctly less. The interstices of the elytra much elevated and very finely and sparsely punctured. The punctation at the pygidium much finer, with an aeneous shade. The apical spur of the anterior tibia longer than the 1st lateral tooth, pointed at the apex.

Length—8 mm.

Hab.—Honshu. One male specimen was collected at Yokohama (12. V, 1936) by SHIGEO KANDA.

22. ***Onthophagus shurianus*** MATS. et YOHENA (n. sp.)

Closely allied to *O. miyazakianus* MATS. but differs from it as follows:

♀. Body larger, very shiny, with an aeneous lustre. Head towards the anterior margin somewhat narrower, the interspace between the 2 hind carinae distinctly more deeply excavated; the hind slope of the posterior carina broader and shorter. Prothorax especially at the posterior part more elevated and the punctures less in number; near the anterior margin in the middle with a roundish flat region, which is in the middle somewhat longitudinally excavated. Elytra with the first 2 interstices nearly flat; the sutural region with a dark purplish shade; the longitudinal impressions narrower and not crenulatedly punctured; at the humeral region with one and at the apical parts with each 2 yellowish red markings. The apical spur of the anterior tibia subequal in length to the 1st lateral tooth, being blunt at the apex.

Length—6.5 mm.

Hab.—Okinawa. Two male specimens were collected at Shuri by C. YOHENA (17. III, 1935).

23. ***Onthophagus sobosanus*** n. sp.

Closely allied to *O. hikosanus* MATS., but differs from the latter as follows:

♀. Head with the antennae ferruginous, the club fuscous; frons much narrower, towards the anterior margin more acuminated; the hind carina somewhat more arched, in the middle not emarginated, enclosing a semioval space between this and the hind margin, while in *hikosanus* encloseing a spindle-shaped space; near the hind margin with a shiny, carina-like elevation. Pro-

thorax with the punctures somewhat smaller and closer, in the middle at the posterior half with a longitudinal groove which is distinctly punctured. Elytra with the interstices distinctly obliquely wrinkled. The apical spur of the anterior tibia longer than the 1st lateral tooth, sharply pointed at the apex.

Length—10 mm.

Hab.—Kiushu. One female specimen was collected at Mt. Sobo in the prov. Chikugo by K. YAMAUCHI (27. VII, 1934).

24. ***Onthophagus spurius*** n. sp.

Closely allied to *O. misujianus* MATS., but differs from it as follows:

Body much smaller, aeneous brown. Three transverse carinae on the frons situated at nearly equal distance, the 1st one obsolete, being nearly a half length of the 2nd, somewhat arched, the 2nd just before the eyes, straight, the 3rd more apart from the hind margin, lower, broader and shiny, and very minutely punctured; at the anterior clypeal region the punctures finer and transversely confluent. Thorax much lower in profil, somewhat more finely and closely punctured at the sides; at the anterior border with 2 oblong impressions which are situated obliquely each other; in the middle with an obsolete short trace of a longitudinal keel, the lateral bosses being much smaller. The interstices of elytra less elevated, the granulose punctures smaller, the hair shorter and obsolete, with no humeral and apical reddish patches. The middle and posterior femora concolorous with the other part of the legs; the apical spur of the anterior tibia shorter than the 1st lateral tooth and blunt at the apex.

Length—6 mm.

Hab.—Honshu and Kiushu. One male (?) specimen was collected at Narashino in the prov. Chiba (15. X, 1935) by C. YOHENA and another male (?) specimen at Tosa by S. HIROOKA (21. VIII, 1935).

25. ***Onthophagus takabayashii*** n. sp.

Allied to *O. miyazakianus* MATS., but it is distinguished from the latter in the following points:

♂. The 3rd transverse carina of the head more widely separated from the hind margin, behind which there is a somewhat carina-like elevated, impunctured space; at the anterior clypeal region densely punctured, scarcely transversely confluent; in the interspace between the 2nd and 3rd carinae distinctly wider and somewhat deeply impressed, so that the interstices less elevated and somewhat more coarsely granulosely punctured. Underside and legs pale brownish; the apical spur of the anterior tibia shorter than the 1st lateral

tooth and blunt at the apex.

♀. Differs from the male especially in having a less vaulted prothorax in profil.

Length—6.5 mm. (♂ ♀)

Hab.—Honshu, Kiushu and Okinawa. Nine (3♂, 6♀) specimens were collected by H. TAKABAYASHI, S. HIRAYAMA, C. YOHENA, A. UMENO, and K. YAMAUCHI.

26. ***Onthophagus tricornis*** WIED.

Onthophagus tricornis WIEDEMANN, Zoo. Mag. II, I, p. 17 (1875).

This is the first record to the fauna of Japan, being collected by S. UMENO at Kurume.

Hab.—Kiushu.

Gen. Distr.: Malay Archipelago, Indo-China, Formosa, Japan.

27. ***Onthophagus ushiodai*** n. sp.

Much allied to *O. fodiens* HAR., but differs from it in the following points:

♀. Head distinctly broader at the anterior margin, more rugosely punctured, the punctures being transversely confluent; the anterior carina nearer to the anterior margin, but less nearer to than that of *O. ater* WATERH.; in the interspace between the carinae very rugosely wrinkled; the hind carina somewhat arched and more widely separated from the hind margin; the occipital region coarsely punctured; just before the hind margin with a scarcely punctured, short, shiny, transverse, carina-like elevation. Prothorax somewhat higher in profil, more closely punctured, the punctures on the anterior part being distinctly smaller; in the middle with an obsolete longitudinal keel which is not distinct on both ends; the anterior angle more acute. Elytra opaque, the longitudinal impressions shiny, becoming narrower towards the lateral sides, being chain-like crenulated, the interstices with 3 or 4 longitudinal rows of granulose punctures, the 1st interstice being the broadest. The apical spur of the anterior tibia longer than the 1st lateral tooth, and sharply pointed at the apex.

Length—9 mm.

Hab.—Honshu. One female specimen was collected by K. USHIODA at Yamada in the prov. Shinano (14. X, 1936).

28. ***Onthophagus uedanus*** n. sp.

Closely allied to *O. kandai* MATS., but differs from the latter in the following characters:

♂. The horn of the head much slenderer, at the apex with two long teeth, each on its lateral ends somewhat diverging each other; the transverse carina nearly in the midway between the anterior margin and the horn, while in *kandai* MATS. it is nearer to the horn. Prothorax on the anterior declivity somewhat sloping more backwardly, more shiny, having less granules; the tuberculose projections on the anterior margin distinctly narrower, building a sharp ridge; the middle longitudinal groove towards the hind margin indistinct.

♀. Differs from the male in having a very short trace of the horn, the anterior declivity more sloping backwardly and in the middle of the excavation having a low transverse elevation. The apical spur of the anterior tibia subequal in length to the 1st lateral tooth, curved and pointed at the apex.

Length—5.5 mm. (♂ ♀)

Hab.—Honshu and Korea. One male specimens was collected at Ueda in the prov. Shinano (10. V, 1936) by M. MATSUOKA, and one female and 2 males by A. UMENO and K. YAMAUCHI at Korea (26. X, 1932); the author has a male specimen collected by S. YUUKI at Jinsen, Korea (2. IV, 1923).

29. ***Onthophagus yohenai*** n. nom.

Onthophagus shinanensis MATSUMURA f. *brevicornus* YOHENA, Ins. World, Gifu, Vol. XLI, p. 435 (1936) (nec *brevicornis* FÄHRAEUS).

♂. Allied to *O. shinanensis* MATS., but differs from it in the following points:—

Head broader than long, while in *shinanensis* longer than wide, with much finer and closer punctures; the transverse carina obsolete, lacking the middle longitudinal elevation; the horns nearly parallel to each other, scarcely converging towards the apices, slightly sloping backwardly, so that they building an acute angle with the anterior declivity of the prothorax; the blade-like ridge between the horns in the middle scarcely elevated, lacking the median incision. Prothorax with finer and closely ocellated punctures, at the anterior margin with 2 shallow, oblong excavations, where the punctures are scarce; the humeral region closely punctured, being not sulcated as in *shinanensis*; the longitudinal groove at the posterior half much narrower. The longitudinal impressions of the elytra more distinct and shiny, the granules in the interstices finer. Pygidium with less punctures. The lateral teeth of the anterior tibia not pointed, the apical spur subequal in length to the 1st lateral tooth, blunt at the apex.

Hab.—Honshu. One male specimen was collected by M. MATSUOKA at Sugadaira in the prov. Shinano (21. VII, 1936); another male at the base of Mt. Yatsugadake by S. Kanda (19. VIII, 1936). The type specimen was collected at Karuizawa by H. NAGAMATSU.

30. ***Onthophagus yubarinus*** n. sp.

Closely allied to *O. fodiens* WATERH., but differs from it as follows:

♀. Dark brown, opaque, fulvous pubescent. Head somewhat broader than long, with 2 transverse carinae, one of which is situated in the middle and somewhat arched, the other situated near the hind margin, being attenuated towards both the ends, coarsely punctured; at the anterior clypeal region transversely wrinkled, at the anterior margin moderately reflexed; the posterior carina nearly straight, on both the ends being attenuated; the interspace between these carinae nearly as wide as the anterior clypeal region, deeply excavated, the punctures being transversely confluent. Antennae and palpi pitchy brown, the antennal club being grayish pruinose. Prothorax so thick as the abdomen, roughly and closely punctured, the punctures becoming larger towards the lateral margins; at the posterior half with quite a deep longitudinal groove, the lateral bosses being shiny and impunctured. Elytra crenulate-striate, the interstices scarcely elevated, towards the lateal margin distinctly elevated, with 2 or 3 longitudinal rows of granules of quite a larger size. Pygidium roughly punctured, some punctures transversely confluent, with each a pale golden hair. Tibiae and tarsi pitchy brown; the lateral teeth of the anterior tibia long, but blunt at the apices; the apical spur of the same subequal in length to the 1st lateral tooth and sharply pointed at the apex.

Hab.—Hokkaido. One female specimen was collected at Yubari (VIII, 1935) by S. HIRAYAMA.

The author has another female specimen collected at Mt. Taihei in Formosa (27. VII, 1935) by S. HIRAYAMA, but it differs from the original specimen in having somewhat smaller granules in the interstices of the elytra and shiny longitudinal impressions. To this specimen he want to give a new name—f. ***taiheizana.***

31. ***Onthophagus yugianus*** n. sp.

♂. Allied to *O. fodiens* HAR., but differs distinctly from the latter in having the shorter head, the transverse carina behind the eyes obsolete and straight, the prothorax on the lateral sides scarcely sloped, the gibbosities being lower, lacking keel-like projection on each side. The longitudinal impressions of the elytra narrower and the granulose punctures in the interstices finer, the apical spur of the anterior tibia shorter than the 1st lateral tooth, blunt at the apex.

Hab.—Kiushu. One male specimen was collected at Yugi in the prov. Chikugo by K. YAMAUCHI (1. VI, 1934).

32. ***Onthophagus yumigatanus*** n. sp.

Closely allied to *O. viduus* HAR., but differs from it as follows:

♂. Head at the anterior margin more acuminated and more strongly reflexed; the anterior carina bow-like excurved, so that it with the posterior carina encloseing a semicircular space, where the punctures are larger and coarser; the hind carina nearly straight and in the middle not elevated. Thorax more largely and ocellatedly punctured; the anterior excavation roundish, the discal gibbosities lower, and sometimes in the middle of the excavated space with an obsolete longitudinal keel; the anterior angle distinctly broader. Elytra more broadly crenulate-striate, the interstices with larger granulose punctures. Pygidium transversely confluently punctured, in the middle with an obsolete longitudinal carina. The apical spur of the anterior tibia subequal in length to the 1st lateral tooth, blunt at the apex.

♀. Differs from the male in having the discal gibbosities smaller or obsolete, and the anterior impression shallower.

Length—7–8 mm. (♂♀)

Hab.—Honshu, Kiushu, Okinawa and Korea. Numerous specimens were collected by E. GALLOIS, H. TAKABAYASHI, C. YOHENA, S. HIRAYAMA, A. UMENO, K. YAMAUCHI, S. NOMURA, S. YUUKI, F. WADA and M. MATSUOKA.

摘　　要

最近三ケ年間に亘り採集せる多數のマルマグソコガネ (*Onthophagus*) 屬の內新種と思はれる三十種を玆に發表することにした。他に本邦未記錄の一種を加へたが、本種は臺灣では稀でない。尙 *Onthophagus shinanensis* MATS. f. *brevicornus* YOHENA は明らかに獨立の一種と認むべきものである。玆には臺灣及び朝鮮產のものは發表しないが、近き將來にそれ等を發表する積りである。本文に記載せる新種の模式標本は全て北大昆蟲學敎室に保存せられてある。