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Taxonomic Notes on the Genus *Nipponapterocis* (Coleoptera, Ciidae), with Descriptions of Two New Species from Japan

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Abstract Two new apterous ciid beetles, *Nipponapterocis inermis* sp. nov. and *N. hirsutus* sp. nov., are described from Japan. Diagnostic characters of the genus and a key to all the species are given.

Nipponapterocis MIYATAKE, 1954, belonging to the tribe Ciini of the subfamily Ciinae, is one of the apterous ciid genus which has been represented by one species, *N. brevis* MIYATAKE, 1954, from Southwest Japan. In the course of my taxonomic study on this family, I have detected two undescribed species from central Honshu and Yaku-shima Island.

In this paper, I am going to describe the two new species from Japan, together with the diagnostic characters of the genus and a key to all the species.

The abbreviations used herein are as follows (after LAWRENCE, 1971): PL – medio-longitudinal length of pronotum; PW – greatest width of pronotum; EL – medio-longitudinal length of elytra from the base of scutellum to the elytral apex; EW – greatest combined width of elytra; TL – sum of PL and EL.

All the type specimens treated in this paper are preserved in the collection of the Entomological Laboratory, College of Agriculture, Ehime University, Matsuyama.

Before going further, I wish to express my deep gratitude to Dr. M. MIYATAKE and Dr. S. HISAMATSU of Matsuyama, and Prof. Dr. N. OHBAYASHI and Dr. M. SAKAI of Ehime University, for their constant encouragement and advice. Thanks are also due to Dr. S.-I. UÉNO of the National Science Museum (Nat. Hist.), Tokyo, for his reading the manuscript and giving me useful suggestions, and Mr. Y. HIRANO of Odawara, Kanagawa Pref., for kindly supplying me with important materials.

Genus *Nipponapterocis* MIYATAKE

Nipponapterocis MIYATAKE, 1954, Sci. Rept. Matsuyama agric. Coll., (14): 42; 1985, Coleopt. Japan Col., Osaka, **3**: 279.

Type species: *Nipponapterocis brevis* MIYATAKE, 1954, original designation, by monotypy.

Body oval, strongly convex, covered with large and deep punctures; vestiture

consisting of very short fine hairs. Head strongly declined, almost exposed from pronotum; genal ridge rather strongly carinate; antennal fossa relatively deep. Maxilla with galea semicircular, bearing very stout bristles; inner margin of lacinia roundly produced inward, bearing rather stout bristles; terminal segment of maxillary palpus relatively stout, oblong-ovate. Antenna 10-segmented; apical three segments forming a relatively compact club; each segment of the club without sensillifers. Pronotum broad, strongly convex, narrowly margined laterally; anterior margin simple in both sexes; anterior corners nearly rectangular in lateral view. Elytra fused, strongly arcuate in outline, irregularly and deeply punctate; punctures very large, umbiliform; elytral suture without apical inflexed margin. Hind wing rudimentary. Scutellum absent. Prosternal disc in front of coxae strongly tumid and carinate medio-longitudinally; prosternal process broad. Metasternum short, without medio-longitudinal groove. Protibia acutely dentate at outer apical angle. Tarsal formula 4–4–4 in both sexes. Abdominal fovea present in male.

Remarks. This genus is closely related to the Hawaiian genus *Apterocis* PERKINS, 1900, in general features, but in the latter, the antennal club is loose and the punctation of elytra is very fine. The cosmopolitan genus *Cis* LATREILLE, 1796 and the Polynesian genus *Polynesicis* ZIMMERMAN, 1938, are also allied to *Nipponapterocis*, but in *Cis* each segment of the antennal club has 4 sensillifers. In *Polynesicis*, the antenna is 9-segmented and the body is covered with long hairs on dorsum.

Nipponapterocis brevis MIYATAKE, 1954

[Japanese name: Daruma-tsutsukinokomushi]
(Figs. 1–3)

Nipponapterocis brevis MIYATAKE, 1954, Sci. Rept. Matsuyama agric. Coll., (14): 43, figs.; 1955, Shin Konchû, Tokyo, **18** (12): 3; 1985, Coleopt. Japan Col., Osaka, **3**: 280, pl. 46, fig. 3.—— HIRANO, 1994, Gekkan-Mushi, Tokyo, (278): 36.

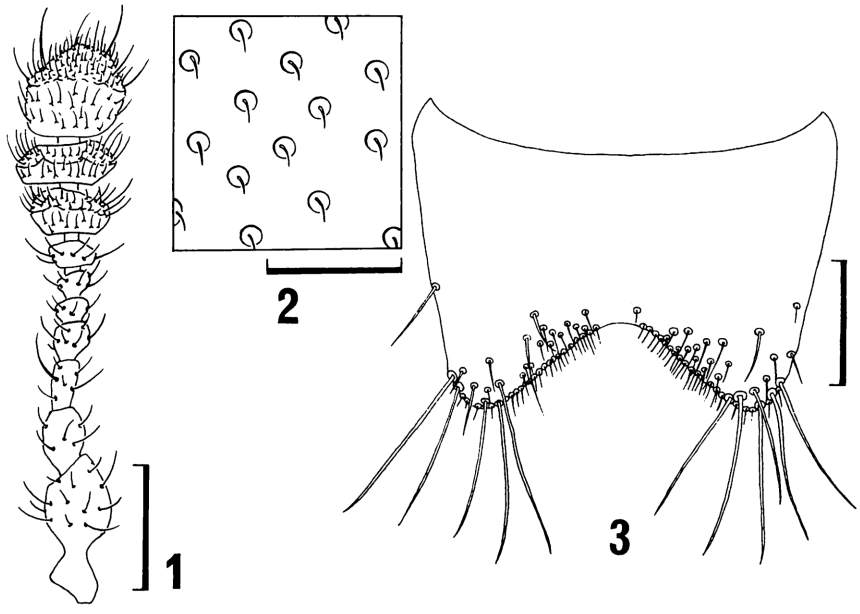
Additional description. Male. Fronto-clypeal ridge of head narrowly margined and very slightly produced at each side, with two small but conspicuous conical projections. Third antennal segment 1.4 times as long as 4th.

Elytral punctures deep but obscure in outline, subequal to or somewhat smaller than those on pronotum, separated by a distance equal to 2 to 4 diameters, appearing to form longitudinal rows in some places, especially along suture and sides, each bearing a short and fine hair which is similar to those on pronotum, 0.2 times as long as the diameter of eye; suture narrowly margined.

Prosternal process rather stout, subparallel-sided, 1.2 times as long as prosternal disc in front of coxae, and 0.4 times as broad as procoxal cavity.

Eighth abdominal sternite with the apical margin strongly emarginate at the middle, armed with long hairs on the lateral projections and with short ones at the bottom of the emargination.

Variation in the type specimens and the specimens from Omogokei, Ehime Pref.,



Figs. 1–3. *Nipponapterocis brevis* MIYATAKE. —— 1, Antenna; 2, surface on elytra; 3, eighth abdominal sternite of male. Scales for Figs. 1 & 2: 0.1 mm; for Fig. 3: 0.05 mm.

Shikoku.

Male (n = 15)	Female (n = 15)
TL (mm): 1.28–1.55 (1.41 ± 0.09)	TL (mm): 1.28–1.68 (1.39 ± 0.1)
EW (mm): 0.73–0.85 (0.8 ± 0.04)	EW (mm): 0.73–0.94 (0.8 ± 0.05)
TL/EW: 1.69–1.82 (1.76 ± 0.04)	TL/EW: 1.72–1.8 (1.76 ± 0.02)
PL/PW: 0.77–0.85 (0.82 ± 0.02)	PL/PW: 0.8–0.86 (0.83 ± 0.02)
EL/EW: 1.02–1.1 (1.06 ± 0.02)	EL/EW: 1.04–1.09 (1.05 ± 0.01)
EL/PL: 1.45–1.59 (1.51 ± 0.04)	EL/PL: 1.43–1.56 (1.5 ± 0.04)

Specimens examined. [Honshu] 〈Osaka Pref.〉 1 ex., Minoo, 4–IV–1960, K. UEDA leg. 〈Tottori Pref.〉 5 exs., Mt. Daisen, 26 ~ 27–VII–1989, M. KAWANABE leg. [Shikoku] 〈Ehime Pref.〉 5 exs., Omogokei, 1–IV–1954, M. MIYATAKE leg. (holotype and paratypes); 1 ex., same locality, 2–V–1954, M. MIYATAKE leg. (paratype); 1 ex., same locality, 5–VIII–1966, M. MIYATAKE leg.; 1 ex., same locality, 18 ~ 19–V–1969, M. MIYATAKE leg.; 84 exs., same locality, 26 ~ 27–V–1989, M. KAWANABE leg.; 11 exs., Mt. Omogosan, 23–VII–1989, M. KAWANABE leg.; 2 exs., Mt. Ishizuchisan, 22–VII–1958, M. MIYATAKE leg.; 8 exs., Mt. Saragamine, 8–VII–1989, M. KAWANABE leg.; 4 exs., Kuromori-tôge, Onsen-gun, 18–VI–1955, M. MIYATAKE leg.; 3 exs., Mt. Takanawasan, 23–X–1954, K. MORIKAWA leg.; 4 exs., Mt. Narabarasan, 23–XI–1968, K. ISHIKAWA leg.; 3 exs., Odamiyama, 19–VI–1989, M. KAWANABE leg. 〈Tokushima

Pref.〉 1 ex., Mt. Shôsanjisan, 20–X–1968, M. YOSHIDA leg. [Kyushu] 〈Ôita Pref.〉 8 exs., Mt. Sobosan, 18～19–VII–1989, M. KAWANABE leg. 〈Fukuoka Pref.〉 3 exs., Mt. Hikosan, 6–VII–1957, M. MIYATAKE leg.; 1 ex., Hisayama, 12–V–1977, S. TANAKA leg. 〈Miyazaki Pref.〉 1 ex., Kirishima-araso, 21–IV–1977, S. TANAKA leg.

Distribution. Honshu, Shikoku, Kyushu.

Host fungi. Fomes fomentarius (L.: FR.) FR. (Tsuriganetake in Japanese), *Elfvingia applanata* (PERS.) KARST. (Kofuki-sarunokoshikake in Japanese), *Daedalea dickinsii* (BERK. ex CKE.) YASUDA (Hôrokutake in Japanese), *Inonotus mikadoi* (LLOYD) IMAZEKI (Kawausotake in Japanese) and *Inonotus xeranticus* (BERK.) IMAZEKI et AOSHIMA (Daidaitake in Japanese). This species is often extracted from litter by using Berlese's funnel.

Nipponapterocis inermis sp. nov.

[Japanese name: Togenashi-daruma-tsutsukinokomushi]

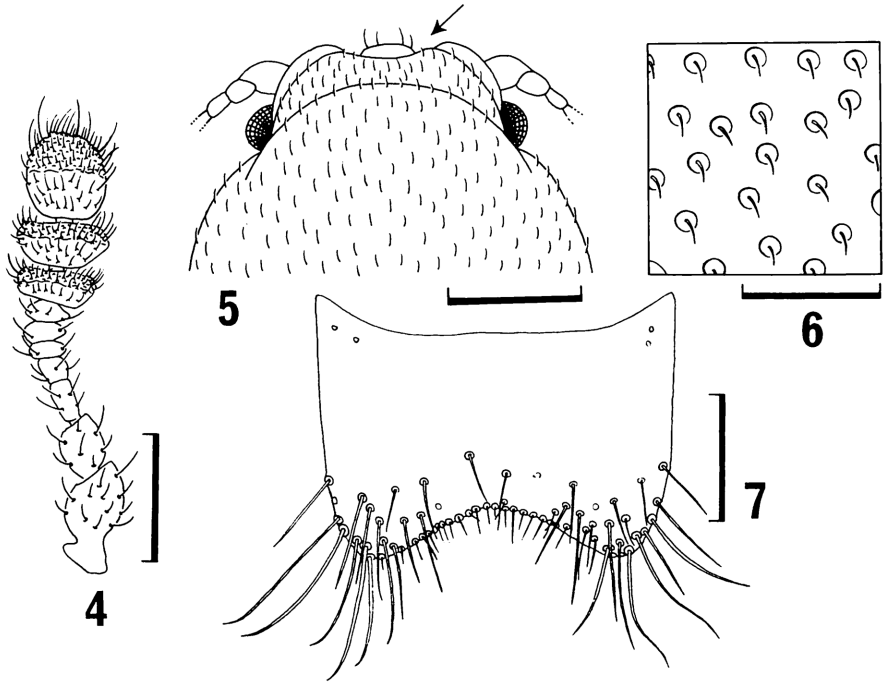
(Figs. 4–7)

Holotype (*Male*). Body length (excluding head): 1.21 mm; greatest width of elytra: 0.71 mm.

Body oval, shiny on dorsum, 1.69 times as long as elytral width, strongly convex. Color blackish brown; elytra dark reddish brown; mouthparts and antennae deep yellowish brown, legs reddish brown and tarsi yellowish brown. Punctures on dorsum each bearing a fine, short and inconspicuous hair.

Head somewhat strongly convex, very finely and conspicuously reticulate, closely and irregularly punctate; punctures shallow; fronto-clypeal ridge narrowly margined and very slightly produced at each side, devoid of conical projections. Third antennal segment 1.5 times as long as 4th.

Pronotum 0.8 times as long as broad; anterior margin not ridged, gently rounded; anterior corners angulate, nearly rectangular in lateral view; lateral margins narrowly ridged, somewhat crenulate, barely visible from above, nearly subparallel in basal halves, then somewhat arcuately convergent apicad in dorsal view; basal margin narrowly ridged, and slightly sinuate; hind angles obtusely angulate in lateral view; dorsum weakly shiny, irregularly, distinctly and closely punctate; punctures uniform in size and shape, deep and clear, larger than those on head; each puncture bearing a short, fine and decumbent hair; interstices between punctures feebly and finely reticulated. Scutellum not visible from above. Elytra 1.02 times as long as broad, 1.54 times as long as pronotum, and broadest at the middle; sides weakly divergent from base to basal half, then gradually convergent apicad; external margin invisible from above; disc strongly shiny, irregularly and rather closely punctate; punctures deep but obscure in outline, subequal to or somewhat larger than those on pronotum, separated by a distance equal to 0.5 to 2 diameters, appearing to form longitudinal rows in some places, especially along suture and sides, each bearing a short and fine hair which is somewhat longer than those on pronotum, 0.2 times as long as the diameter of eye;



Figs. 4–7. *Nipponapterocis inermis* sp. nov. —— 4, Antenna; 5, head of male; 6, surface on elytra; 7, eighth abdominal sternite of male. Scales for Figs. 4 & 6: 0.1 mm; for Fig. 5: 0.2 mm; for Fig. 7: 0.05 mm.

suture not or very narrowly margined.

Prosternal disc in front of coxae very strongly tumid medio-longitudinally, transversely and conspicuously depressed just before each coxa; prosternal process rather stout, somewhat tapered behind, and on the same level as the base of prosternum, 1.22 times as long as prosternal disc in front of coxae, and 0.5 times as broad as procoxal cavity. First abdominal sternite with a large, circular and marginally pubescent fovea at the middle.

Eighth abdominal sternite with the apical margin moderately emarginate at the middle, armed with long hairs on the lateral projections and with short ones at the bottom of the emargination.

Female. First abdominal sternite devoid of pubescent fovea.

Variation in the type specimens.

Male (n = 3)	Female (n = 13)
TL (mm): 1.17–1.22 (1.2 ± 0.02)	TL (mm): 1.26–1.46 (1.35 ± 0.15)
EW (mm): 0.71–0.73 (0.72 ± 0.01)	EW (mm): 0.75–0.83 (0.79 ± 0.03)
TL/EW: 1.64–1.69 (1.67 ± 0.02)	TL/EW: 1.62–1.79 (1.71 ± 0.05)

PL/PW: 0.78–0.8 (0.79±0.01)	PL/PW: 0.74–0.84 (0.79±0.03)
EL/EW: 1.0–1.02 (1.01±0.01)	EL/EW: 0.98–1.08 (1.04±0.03)
EL/PL: 1.54–1.57 (1.56±0.01)	EL/PL: 1.48–1.64 (1.55±0.04)

Type series. Holotype: ♂, Nakanokawa near Mt. Kasugayama, Nara City, Nara Pref., 10–VIII–1989, M. KAWANABE leg. Paratypes: 4♂♂, 5♀♀, same data as holotype.

Distribution. Central Honshu (Kinki District).

Host fungi. Inonotus xeranticus (BERK.) IMAZEKI et AOSHIMA (Daidaitake in Japanese) and *Phellinus gilvus* (SCHW.: FR.) PAT. (Nendotake in Japanese).

Remarks. All the known species of the genus *Nipponapterocis* are closely allied to one another. This new species is separated from *N. brevis* by the denser punctures on elytra, the fronto-clypeal ridge in male without conical projections and weak emargination of eighth abdominal sternite in male. This new species is also allied to *N. hirsutus* sp. nov. in the feature of elytral punctation, but in the latter the fronto-clypeal ridge in male is armed with conical projections, the hairs on dorsum are rather distinct and the emargination of the eighth abdominal sternite in male is much shallower.

Nipponapterocis hirsutus sp. nov.

[Japanese name: Keba-daruma-tsutsukinokomushi]

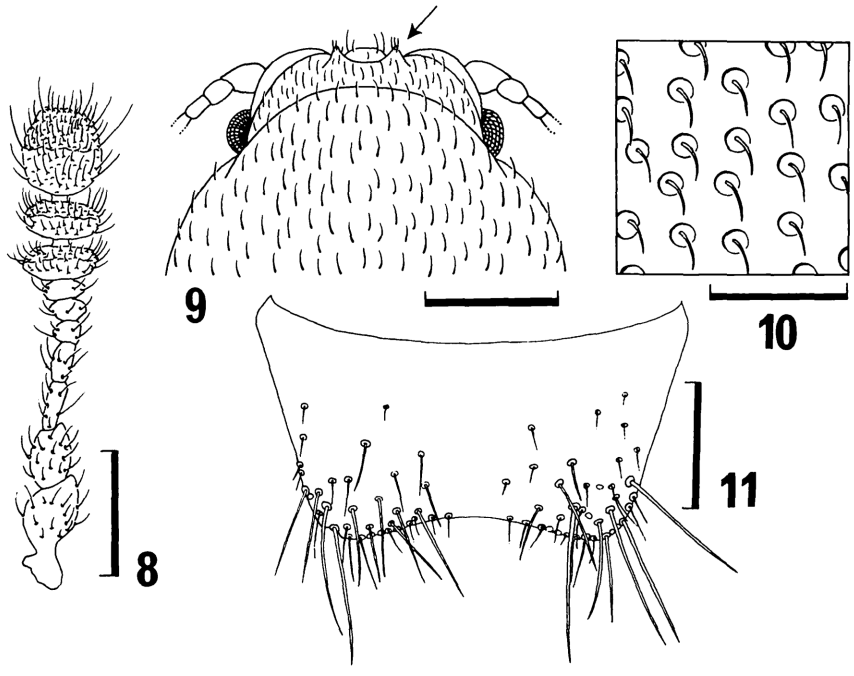
(Figs. 8–11)

Holotype (*Male*). Body length (excluding head): 1.38 mm; greatest width of elytra: 0.75 mm.

Body oval, shiny on dorsum, 1.84 times as long as elytral width, strongly convex. Color blackish brown; mouthparts, antennae and legs reddish brown; tarsi yellowish brown. Punctures on dorsum each bearing a fine, short but rather conspicuous hair.

Head somewhat strongly convex, weakly concave in the middle of frons, very finely and conspicuously reticulate, closely and irregularly punctate; punctures shallow; fronto-clypeal ridge narrowly margined and very slightly produced at each side, armed with two small but conspicuous conical projections. Third antennal segment 1.3 times as long as 4th.

Pronotum 0.77 times as long as broad; anterior margin not ridged, gently rounded; anterior corners obtusely angulate in lateral view; lateral margins narrowly ridged, somewhat crenulate, barely visible from above, nearly subparallel or very slightly divergent in basal halves, then somewhat arcuately convergent apicad in dorsal view; basal margin narrowly ridged, and slightly sinuate; hind corners obtusely angulate in lateral view; dorsum weakly shiny, irregularly, distinctly and closely punctate; punctures uniform in size and shape, deep and clear, larger than those on head; each puncture bearing a short, fine and decumbent hair; interstices between punctures feebly and finely reticulated. Scutellum not visible from above. Elytra about 1.16 times as long as broad, 1.7 times as long as pronotum, and broadest at the middle; sides weakly



Figs. 8–11. *Nipponapterocis hirsutus* sp. nov. —— 8, Antenna; 9, head of male; 10, surface on elytra; 11, eighth abdominal sternite of male. Scales for Figs. 8 & 10: 0.1 mm; for Fig. 9: 0.2 mm; for Fig. 11: 0.05 mm.

divergent from base to the middle, then gradually convergent apicad; external margin invisible from above; disc strongly shiny, irregularly and rather closely punctate; punctures deep but obscure in outline, subequal to or somewhat larger than those on pronotum, separated by a distance equal to 0.5 to 2 diameters, somewhat confluent in some places on basal portion and appearing to form longitudinal rows along suture and sides, each bearing a short, suberect, fine but conspicuous white hair which is somewhat longer than those on pronotum, 0.4 times as long as the diameter of eye; suture not or very narrowly margined.

Prosternal disc in front of coxae very strongly tumid medio-longitudinally, transversely and conspicuously depressed just before each coxa; prosternal process rather stout, subparallel-sided, 1.0 times as long as prosternal disc in front of coxae, and 0.33 times as broad as procoxal cavity, and on the same level as the base of prosternum. First abdominal sternite with a large, circular and marginally pubescent fovea at the middle.

Eighth abdominal sternite with the apical margin weakly emarginate at the middle, armed with long hairs on the lateral projections and sparsely with short ones at the bottom of the emargination.

Female. Fronto-clypeal ridge without two small conical projections; first

abdominal sternite devoid of pubescent fovea.

Variation in the type specimens.

Male (n=11)	Female (n=13)
TL (mm): 1.14–1.38 (1.23±0.07)	TL (mm): 1.17–1.41 (1.28±0.08)
EW (mm): 0.68–0.75 (0.71±0.03)	EW (mm): 0.66–0.8 (0.73±0.04)
TL/EW: 1.63-1.84 (1.73±0.06)	TL/EW: 1.68–1.8 (1.76±0.03)
PL/PW: 0.76–0.82 (0.79±0.02)	PL/PW: 0.78–0.85 (0.82±0.02)
EL/EW: 0.98–1.16 (1.04±0.05)	EL/EW: 1.0–1.1 (1.06±0.03)
EL/PL: 1.46–1.59 (1.53±0.07)	EL/PL: 1.46–1.62 (1.53±0.04)

Type series. Holotype: ♂, Hanayamahodô-iriguchi, Yaku-shima Is., 23–IX–1989, M. KAWANABE leg. Paratypes: 12♂♂, 12♀♀, same data as holotype; 1♀, Kosugidani, Yaku-shima Is., 21～22–V–1974, M. MIYATAKE leg.

Distribution. Yaku-shima Is.

Host fungus. Phellinus tricholor?

Remarks. This new species is closely allied to *N. brevis*, but in the latter, punctation on the elytra is sparser, hairs on the dorsum are indistinct and the eighth abdominal sternite in male is distinctly emarginate in the middle of posterior margin. This species is also allied to *N. inermis* sp. nov. in the feature of the elytral punctation, but in the latter, the fronto-clypeal ridge in male is devoid of conical projections.

Key to the Species of the Genus *Nipponapterocis*

1. Punctures on elytra sparser, separated by a distance equal to 2 to 4 diameters. Eighth abdominal sternite rather deeply emarginate in male. ..... *N. brevis* MIYATAKE
— Punctures on elytra denser, separated by a distance equal to 0.5 to 2 diameters. Eighth abdominal sternite weakly emarginate in male. 2
2. Fronto-clypeal ridge in male without conical projections. Hairs on dorsum inconspicuous, 0.2 times as long as the diameter of eye. ..... *N. inermis* sp. nov.
— Fronto-clypeal ridge in male with a conical projection at each side. Hairs on dorsum rather conspicuous, 0.4 times as long as the diameter of eye. ..... *N. hirsutus* sp. nov.

要　約

川那部　真：日本産ダルマツツキノコムシ属の2新種の記載を含む分類学的知見．——ダルマツツキノコムシ属に属する種は，本州の近畿以西，四国および九州に分布するダルマツツキノコムシ *Nipponapterocis brevis* 1種が知られるだけであった．しかし各地の標本を検討した結果，近畿地方（奈良県）に産するものと，屋久島に産するものは，*N. brevis* によく似ているものの，いくつかの重要な点に差異が認められるので，前者をトゲナシダルマツツキノコムシ *N. inermis*，後者をケバダル

マツツキノコムシ*N. hirsutus*と新しく命名して記載した.

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A Synonymic Note on *Paraxestocis unicornis* MIYATAKE (Coleoptera, Ciidae)

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In his study of the Japanese ciid beetles, NOBUCHI (1955) described *Xylographus nakanei* based on one female specimen collected at Kibune, Kyoto Pref., central Honshu. Since then, there has been no record of this species. Recently, through the courtesy of Dr. NOBUCHI of Tsukuba-shi and Prof. Dr. Y. WADA of Nagasaki University, I was given an opportunity to examine the type specimens of some Japanese ciid beetles, and found that *Xylographus nakanei* NOBUCHI was a junior synonym of *Paraxestocis unicornis* MIYATAKE.

I wish to express my hearty thanks to Dr. A. NOBUCHI and Prof. Dr. Y. WADA for their kind aid and for permitting the present publication, and to Dr. S.-I. UÉNO of the National Science Museum (Nat. Hist.), Tokyo, for his critical reading of the manuscript.