

Some Species of the Genus *Trichotichnus* (Coleoptera, Carabidae, Harpalini) from Asia

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Abstract Two new species of the genus *Trichotichnus* MORAWITZ, *T. curvatus* and *T. depressus*, are described from the Himalaya and China, respectively. A redescription of *Trichotichnus formosus* SCHAUBERGER from Nepal is also given.

Introduction

In this paper, I am going to redescribe *Trichotichnus* (*Pseudotrichotichnus*) *formosus* SCHAUBERGER (1934). Further I will describe two new species of the genus *Trichotichnus* MORAWITZ, *T. (Pseudotrichotichnus) curvatus* from the Himalaya and *T. (s. str.) depressus* from China. *Trichotichnus curvatus* is easily distinguished from *T. formosus* by the hind wings not entire and the metepisterna much shorter. *Trichotichnus depressus* is different from *T. (s. str.) lewisi* SCHAUBERGER (1935) in having the body smaller in size, the elytra more weakly iridescent and not pointed at apex, and the antennae and legs lighter in color.

I wish to express my deep gratitude to Dr. Fritz GUSENLEITNER of the Oberösterreichisches Landesmuseum, Linz, Dr. Roberto POGGI of the Museo di Storia Naturale, Genova, Dr. Fritz HIEKE of the Museum der Humboldt-Universität zu Berlin, and Dr. Aleš SMETANA and Dr. Yves BOUSQUET of the Agriculture Canada, Ottawa, for their kindly offering valuable materials. I also heartily thank Mr. Taichi SHIBATA, Osaka, for his kind guidance.

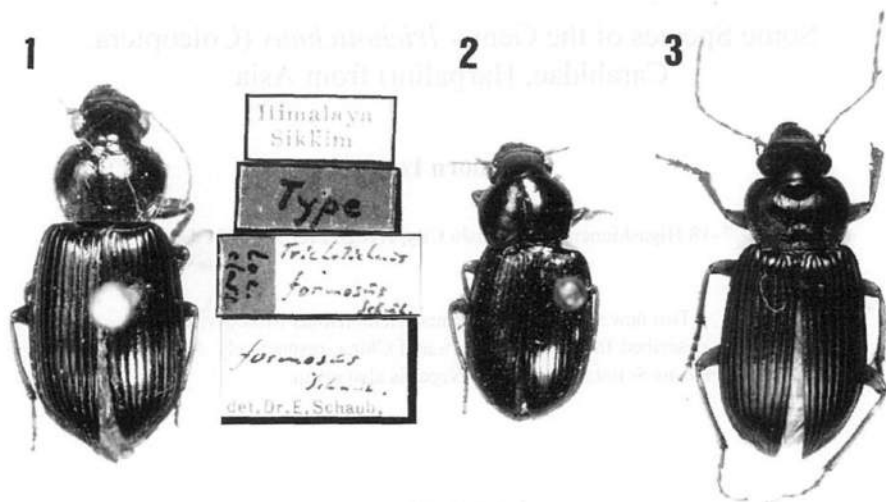
Trichotichnus (Pseudotrichotichnus) formosus SCHAUBERGER

(Figs. 1 & 4)

Trichotichnus formosus SCHAUBERGER, 1935, Ent. Anz., **15**: 110, 148–150.

Body more or less oval, thick, pitchy black and slightly brownish, shiny, with iridescent lustre on elytra; palpi and antennae yellowish brown, lateral margins of pronotum light reddish brown, labrum and legs dark reddish brown.

Head wide, seven-tenths the pronotal width, uniformly and rather well convex on vertex, flattened in triangular portion from vertex to clypeus, without punctures;



Figs. 1-3. Habitus of *Trichotichnus* spp. — 1, *T. (Pseudotrichotichnus) formosus* SCHAUBERGER (Holotype); 2, *T. (Pseudotrichotichnus) curvatus* sp. nov.; 3, *T. (s. str.) depressus* sp. nov.

labrum subsquare, shallowly emarginate at apex; clypeus rather thick, weakly and transversely swollen in basal half, obscurely rugose near each side, with apex shallowly emarginate; clypeal suture clearly impressed, slant at front margin; frontal impressions deeply carved throughout, but slightly shallower than those of usual species of the subgenus; eyes large, rather prominent, though not hemispherical; temple somewhat developed, three-tenths the eye length, rather steeply contracted behind; genuine ventral margin of eye widely separated from buccal fissure; mandibles robust, vertically truncate at tip of left mandible, retinacular tooth of left mandible weakly produced, the tooth of right mandible trapezoidal; antennae submoniliform, short, reaching pronotal base, 3rd segment pubescent in apical two-thirds, a little shorter than the 4th (0.86 in ratio) and a half longer than the 2nd; labial and maxillary palpi missing; ligula triangularly emarginate, with sharp apical corners; paraglossae narrow, rounded at apical external margins, bearing pointed tips, prolonged forwards beyond ligula and separated from ligula by deep incisions; mentum sharply toothed at bottom of apical emargination, epilobes narrow and not dilated distad, suture with submentum engraved in middle; microsculpture detectable only near supraorbital grooves, composed of obscure transverse meshes.

Pronotum subsquare, widest at apical two-fifths, three-eighths wider than long, relatively convex, mostly smooth and finely and sparsely punctate only in lateral furrows and basal foveae; sides clearly arcuate lengthwise, stronger apicad than basad in the arcuation; apex shallowly emarginate, with border complete and obscure in middle;

base one-fifth wider than apex, truncate, finely and brokenly bordered; apical angles widely rounded; basal angles angulate and wider than rectangle; lateral furrows wholly carved in a line and isolated from basal foveae which are large, shallow and ill-defined; front transverse impression vaguely engraved like the hind one; median line fine and shallow, not reaching apex and base; surface vaguely micro-lined in part.

Elytra suboval, about two-fifths longer than wide, rather convex, very sparsely and microscopically punctate; sides weakly arcuate at humeri, shallowly sinuate before apices; bases shallowly emarginate, very obtuse and angulate at humeral angles; apices rather narrow, more or less prominent behind, narrowly rounded at tips and not separated from each other; striae somewhat wide, deep and finely crenulate, scutellar striae rather long; intervals weakly convex on disc, gently convex laterally and apically, 3rd interval with a setiferous pore a little behind middle along 2nd stria; marginal series interrupted in middle, composed of 8+(10–11) umbilicate pores; microsculpture invisible under 80× magnification. Hind wings entire.

Ventral surface mostly smooth, sparsely and minutely punctate medially on mesosternum and 2nd to 6th abdominal segments, the punctures bearing very short pubescence; metepisternum rather well contracted behind, three-fifths longer than wide; abdomen bearing sparse and very short pubescence along middle of 2nd to 6th segments, 6th in ♂ bisetose at each side and truncate at apex.

Hind femur bisetose along hind margin; fore tibia rather expanded distad, unispinous apico-externally, clearly sulcate to near apex on dorsal side, with apex truncate and minutely protuberant in middle, terminal spur short and robust; hind tarsus in ♂ about one-fourth shorter than the width of head including eyes (0.77 in ratio), 1st segment one-eighth shorter than the 2nd and 3rd together and a half longer than the 2nd, 3rd one and one-third as long as the 4th, claw segment bisetose along each ventral margin.

Aedeagus (Fig. 4) thick and gently arcuate, with a small hook at tip; apical lobe triangular, one-fifth longer than wide, narrowly rounded at tip; apical orifice wide and open towards the left, inner sac without sclerites.

♀ Unknown.

Length: 9.5 mm. Width: 4.4 mm.

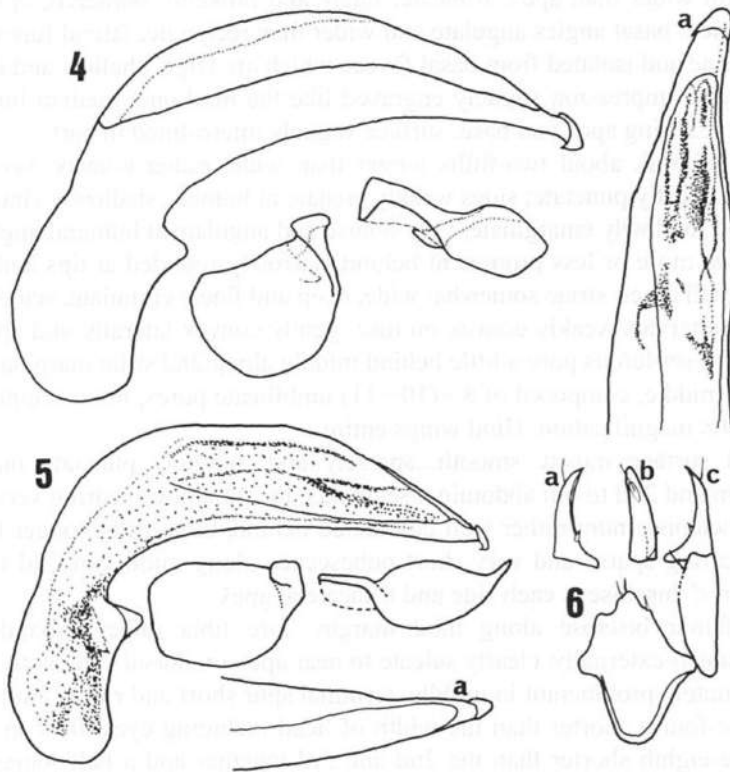
Specimen examined. 1 ♂ (Holotype), Sikkim, Himalaya (preserved in the Oberösterreichisches Landesmuseum, Linz).

This species is different from *Trichotichnus (Pseudotrichotichnus) miyakei* HABU (1980) in having the pronotum wider, more strongly contracted in front and behind from the widest point, with the sides not straight behind and with more obtuse basal angles, and the terminal spur longer.

Trichotichnus (Pseudotrichotichnus) curvatus sp. nov

(Figs. 2, 5 & 6)

Body oblong-oval, well convex, pitchy black, shiny, with slightly aeneous tinge;



Figs. 4-6. Genitalia of *Trichotichnus* spp. — 4, *T. (Pseudotrictichnus) formosus* SCHAUBERGER; 5 & 6, *T. (Pseudotrictichnus) curvatus* sp. nov.; 4 & 5, male; 6, female; a, dorsal view; b, lateral view; c, ventral view.

palpi and antennae light brown, legs light reddish brown.

Head wide, seven-tenths the pronotal width, a little more convex than in *Trichotichnus (Pseudotrictichnus) birmanicus* BATES (1982), very sparsely and microscopically punctate; labrum transversely quadrate, shallowly emarginate at apex; clypeus gently swollen transversely, with subtruncate apex; clypeal suture deeply engraved, but not slant at front side; frontal impressions abruptly divergent behind, strongly deepened, not changing in depth to supraorbital grooves; eyes more or less prominent but not hemispherical; interocular space wide, about three-fourths times the width of head; temple rather tumid, longer than in *T. birmanicus* and a half the eye length; genuine ventral margin of eye more widely separated from buccal fissure than in *T. birmanicus*; mandibles short and robust, thick at apices, left mandible weakly produced at terebral tooth and rather deeply incised before molar, retinacular tooth of right mandible more or less prominent and also incised before molar; antennae short but slender, 3rd pubescent in apical three-fifths, one-tenth longer than the 4th and

about twice the 2nd; 3rd segment of labial palpus sparsely pubescent and relatively tumid, almost equal in length to the 2nd; ligula constricted before apex, separated from paraglossae in front of the constriction, more or less prominent latero-distad at apical corners; paraglossae prolonged forwards from ligula, gradually widened towards apices; median tooth of mentum strongly produced in front and sharp at tip, epilobes narrow and subparallel-sided, suture with submentum fine, obscure near sides; microsculpture obscure, but a little more clearly observed than in *T. birmanicus*, consisting of transverse meshes behind frons.

Pronotum subquadrate, widest at basal three-fifths, two-fifths wider than long and than the width of head, widely and strongly convex, largely smooth, sparsely and minutely punctate only in baso-lateral areas; sides clearly arcuate in front and feebly so behind from the widest point, never sinuate before base, more finely bordered than in *T. birmanicus*; apex almost truncate, with fine and entire border; base one-fifth wider than apex, slightly arcuate, unbordered in most portions; apical angles widely rounded; basal angles obtuse and angulate; lateral furrows wholly engraved in a line; basal foveae very shallowly impressed and indistinct because the discal convexity approaches to near sides and base; front and hind transverse impressions vague; median line fine and shallow, obsolete near apex and base; microsculpture composed of fine and transverse meshes.

Elytra uniformly and well convex, oblong-oval, two-fifths longer than wide, very sparsely and microscopically punctate, weakly arcuately widened from behind humeri, subparallel in middle and thence gradually strongly narrowed towards apices; apical sinus shallow; apices more or less produced behind, not separated from each other, sharply angulate at sutural angles; bases shallowly sinuate, obtusely and angularly meeting with the sides; striae narrow and shallow, not deepened even near apices, finely crenulate, scutellar striole short; intervals flat lengthwise, a dorsal pore on 3rd interval at middle along 2nd stria; marginal series interrupted medially, composed of (8-9)+(10-11) umbilicate pores; surface hardly microsculptured, vaguely micro-lined only on 9th intervals. Hind wings rudimentary, one-fourth as long as elytra.

Ventral surface almost smooth, very sparsely punctate on metepisterna and laterally on metasternum, furnished with very short and sparse pubescence on prosternum, and medially on metasternum and 2nd to 6th abdominal segments; metepisternum not elongate, one-fourth longer than wide; 6th abdominal segment bisetose at each side in both sexes, finely bordered and feebly notched at apex in ♂ and clearly arcuate in ♀.

Mid coxae sparsely setose; hind femur bisetose along hind margin; fore tibia sulcate dorsally in basal half, weakly sinuate at apex, armed with two spines apico-externally, terminal spur lanceolate; 1st segment of mid tarsus in ♂ not bearing adhesive hairs, hind tarsus one-tenth shorter in ♂ and three-tenths in ♀ than the width of head, 1st segment one-fourth shorter than the 2nd and 3rd together and a half longer than the 2nd, 3rd one and two-fifths as long as the 4th, claw segment bisetose ventrally at each side.

Aedeagus (Fig. 5) robust, abruptly curved behind basal orifice; apex thinly knob-

shaped, obliquely directed; apical orifice widely open to the left, inner sac without any sclerites. Stylus (Fig. 6) weakly curved, bearing a short spine near base of external margin; valvifer armed apically with a short spine and seta at apex and ante-apically with a seta.

Length: 7.8–8.5 mm. Width: 3.5–3.8 mm.

Holotype: ♂, East Thieme, (Darjeeling), Himalaya (preserved in the Museum of Humboldt University). Paratypes: 1 ♂, (Darjeeling), Himalaya; 1 ♀, alt. 2,200–2,300 m, Forest S. Manisingma, Khandbari, Nepal, 11–13–IV–1984, A. SMETANA & I. LÖBL leg.

This new species resembles *Trichotichnus* (*Pseudotrichotichnus*) *formosus* SCHAUBERGER, but is easily distinguished from the latter by the hind wings reduced, the elytra bearing weak aeneous lustre instead of being purely black and not convex on intervals, and the metepisternum much shorter.

As compared with *Trichotichnus* (*Pseudotrichotichnus*) *uenoi* HABU (1969), this new species has the body smaller in size, the pronotum less densely and coarsely punctate in basal areas, the elytra more convex and bearing flat intervals, the hind wings rudimentary, and the metepisternum not elongate.

Trichotichnus (s. str.) *depressus* sp. nov.

(Figs. 3, 7 & 8)

Body oblong, similar in form to *Trichotichnus* (s. str.) *lewisii* SCHAUBERGER, shiny, slightly brownish black to blackish brown, with weak iridescent lustre on elytra; palpi and antennae light reddish brown, legs light to moderate reddish brown.

Head gently raised on vertex, obliquely flattened in frons, about two-thirds the pronotal width (0.65–0.69 in ratio), narrow at interocular space which is about two-thirds the width of head, and rather sparsely punctate, with three small and obscure foveae, one of which lies near the middle of frons and the other two between vertex and supraorbital grooves; labrum weakly arcuate at sides, deeply and triangularly emarginate at apex; clypeus vaguely and transversely depressed between a pair of lateral setae, with emarginate apex straight in the middle; clypeal suture fine and shallow, but clearly carved, from each end of which the frontal impression is arcuately divergent behind, relatively deep in apical half and well shallowed near supraorbital groove; eyes larger than in *T. lewisii* and considerably prominent; temples short, rather steeply sloping towards neck constriction; genuine ventral margin of eye not or slightly separated from buccal fissure; mandibles short and robust, abruptly curved before tips, both terebral and retinacular teeth of left mandible small and rounded at tips, right mandible rather sharp apically, well prominent at blunt retinacular tooth; antennae slender, reaching basal sixth of elytra, 3rd segment glabrous in basal three-eighths, a little shorter than the 4th (0.92 in ratio) and twice the 2nd; labial palpi slender, 2nd segment one-seventh longer than the 3rd; ligula well expanded distad, truncate at apex, separated from narrow paraglossae in apical half; mentum transverse, with clear mentum

suture, median tooth small, rounded at tip, epilobes narrow and subparallel-sided; microsculpture mostly invisible, partly and obscurely visible only near vertex.

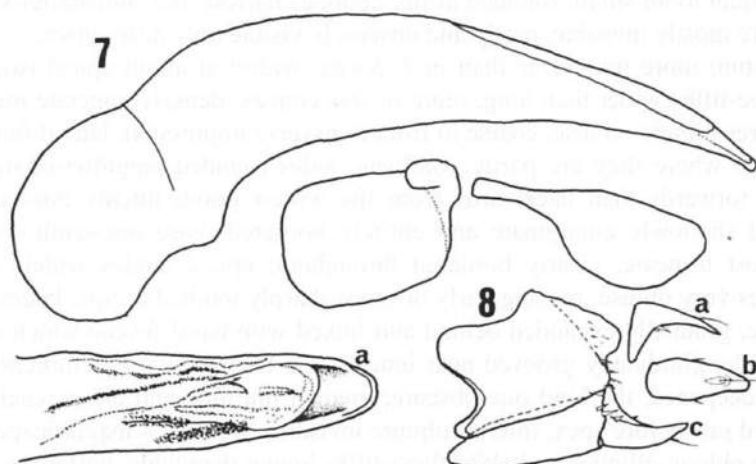
Pronotum more transverse than in *T. lewisi*, widest at about apical two-fifths, a half to three-fifths wider than long, more or less convex, densely punctate throughout, the punctures minute on disc, coarse in front transverse impression, lateral furrows and basal foveae where they are partly confluent; sides rounded lengthwise, stronger in roundness forwards than backwards from the widest point, thickly bordered; apex evenly and shallowly emarginate and entirely bordered; base one-tenth wider than apex, almost truncate, clearly bordered throughout; apical angles widely rounded; basal angles very obtuse, rectangularly or more sharply toothed at tips; lateral furrows rather wide, gradually expanded behind and linked with basal foveae which are large, deeply and longitudinally grooved near inner sides; front transverse impression comparatively deepened, the hind one obscure; median line fine and clear, reaching base and reduced just before apex; microsculpture invisible under 80× magnification.

Elytra oblong-elliptical, a half to three-fifths longer than wide, uniformly and gently convex, more steeply declivous latero-apically than in *T. lewisi*, microscopically punctate in most areas and slightly more coarsely so on 9th intervals; sides weakly arcuate at humeri, very shallowly sinuate before apices; apices more or less produced, narrowly rounded at tips; bases slightly emarginate; humeral angles angulate and much larger than rectangle; striae rather wide, deep and finely crenulate, scutellar striole long; intervals weakly convex on disc, gradually becoming more convex apicad, a setiferous pore of 3rd interval situated at about apical two-fifths; marginal series interrupted medially, consisting of (8–11)+(10–13) umbilicate pores; microsculpture very obscure on disc and somewhat clearer on 9th interval, composed of transverse lines. Hind wings fully developed.

Ventral surface rather densely covered with a mixture of fine and coarse punctures on pre-, mese- and metepisterna and laterally on prosternum and 2nd and 3rd abdominal segments, with short pubescence fine on prosternum and medially on 3rd segment of abdomen and very sparse on the remaining segments; metepisternum moderately contracted behind, a half longer than wide; 6th abdominal segment unisetose in ♂ and bisetose in ♀ at each side, truncate or hardly emarginate in ♂ and gently arcuate in ♀ at apical margin.

Hind femur bisetose on posterior margin and tri- or quadrispinous on anterior margin; fore tibia slender, truncate at apex, longitudinally sulcate, with uniseriate short spines along the sulcus, trispinous at apico-lateral portion, terminal spur lanceolate; hind tarsus one-tenth in ♂ and one-seventh in ♀ shorter than the width of head, 1st segment one-fifth shorter than the 2nd and 3rd together and one-fourth longer than the 2nd, 3rd about a half longer than the 4th, claw segment quadrisetose along each ventral margin.

Aedeagus (Fig. 7) slender, almost straight, gently curved behind basal orifice, apex thin and weakly arcuate; apical lobe subtriangular, rounded at tip; inner sac armed with a rather long peg-shaped sclerite. Stylus (Fig. 8) short, weakly curved out-



Figs. 7-8. Genitalia of *Trichotichnus* (s. str.) *depressus* sp. nov.; 7, male; 8, female; a, dorsal view; b, lateral view; c, ventral view.

wards, with a short spine on each external margin; valvifer triangular, bisetose at apex and trisetose behind the apex.

Length: 11.9–12.2 mm. Width: 4.6–5.0 mm.

Holotype: ♂, Tsa-jiu-san (=Tsa-pin-san, 25.00°N, 113.49°E, 50 km ENE Shaoguan), Guangdong, China, VII–IX–1910, S. V. MELL leg. Paratypes: 1 ♂, 3 ♀♀, same data as the holotype; 1 ♀, Kuaichang, Fangding Shan, 20 km of Jiangkou, NE Guizhou, China, 27–V–1995, E. JENDEK & O. SAUSA leg.

This new species is distinguished from *Trichotichnus* (s. str.) *lewisii* SCHAUBERGER by the elytra more weakly iridescent and not toothed at the tips of apices, besides the features mentioned in the above description.

要 約

伊藤 昇：アジア産 *Trichotichnus* 属の数種について。—— *Trichotichnus* (*Pseudotrictichnus*) *formosus* SCHAUBERGER を再記載した。また、ネパールから *Trichotichnus* (*Pseudotrictichnus*) *curvatus* を、中国から *Trichotichnus* (s. str.) *depressus* を、それぞれ記載した。前者は、*T. (P.) formosus* とは、上翅が真黒ではなく微弱な青銅色の光沢をもち間室が隆起しない点、後翅が退化している点、および後胸後側板がきわめて短い点などで異なる。後者は、*Trichotichnus* (s. str.) *lewisii* SCHAUBERGER に似ているが、より小さく上翅がより弱い虹光沢をもちかつ先端に刺をもたないことなどで容易に区別できる。

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Elytra, Tokyo, **24** (2): 211–212, November 15, 1996

List of the Host Fungi of the Japanese Ciidae (Coleoptera), II

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Family Polyporaceae

- Schizoporia paradoxa* [Anatake]
Anoplocis poriae, *Anoplocis ryukyensis*, *Ennearthron chujoi*
- Polyporus alveolarius* [Hachinosutake]
*Cis seriatulus**
- Microporus vernicipes* [Tsuyauchiwatake]
Cis seriatopilosus, *Cis subrobustus*, *Cis taiwanus*, *Neoennearthron hisamatsui*,
Octotemnus japonicus, *Octotemnus laminifrons*
- Microporus flabelliformis* [Uchiwatake]
Cis seriatopilosus, *Cis taiwanus*, *Neoennearthron hisamatsui*, *Octotemnus japonicus*,
Octotemnus laminifrons
- Cryptoporus volvatus* [Hitokuchitake]
Ennearthron chujoi, *Euxestocis bicornutus*, *Neoennearthron bicarinatum*
- Piptoporus betulinus* [Kanbatake]
Cis seriatopilosus, *Ennearthron robusticorne*
- Picnoporus coccineus* [Hirotake]
Cis sasakawai, *Cis seriatopilosus*, *Cis seriatulus*, *Lipopterocis simplex*, *Cis subrobustus*, *Ceracis laminicollis*, *Octotemnus japonicus*, *Octotemnus laminifrons*
- Gloeophyllum subferrugineum* [Hirohanokikaigaratake]
Cis mikagensis
- Gloeophyllum abietinum* [Kogeiokaigaratake]
Cis mikagensis
- Daedalea dickinsii* [Hôrokutake]
Cis nipponicus, *Cis seriatopilosus*, *Nipponapterocis brevis*, *Odontocis denticollis*,