

Other four new species from genus *Nanodesma* Zahradník, 2019 (Coleoptera: Bostrichoidea: Ptinidae)

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Abstract. Four new species from genus *Nanodesma* Zahradník, 2019 from Oriental Region are described, illustrated and compared with other species from this genus. There are *N. cechovskyi* sp. nov. (Malaysia), *N. dubia* sp. nov. (Indonesia: Sumatra), *N. pseudofasciata* sp. nov. (Malaysia) and *N. splendida* sp. nov. (Malaysia). The key of all species of the genus *Nanodesma* Zahradník, 2019 is revised.

INTRODUCTION

The genus *Nanodesma* Zahradník, 2019 belongs to subfamily Anobiinae Fleming, 1821, tribe Nicobiini White, 1982, which contains four genera - *Anobiopsis* Fall, 1905, *Nanodesma* Zahradník, 2019, *Nicobium* LeConte, 1861 and *Trichodesma* LeConte, 1861. Key of these genera presents Zahradník (2019). Still was genus *Nanodesma* Zahradník, 2019 contains six new species. Now are given descriptions of four other new species. This genus is distributed only in the Oriental Region. Detailed information about genus *Nanodesma* Zahradník, 2019 and other genera from tribe Nicobiini White, 1982 was published in Zahradník (2019).

MATERIAL AND METHODS

Author studied type material of all six know species of the genus *Nanodesma* Zahradník, 2019.

The type material deposited in the author's collection.

The habitus photographs were made by 3D Microscope with Full HD Camera.

The new species described here is provided with a red, printed label showing the following words: "Holotype" or "Paratype"; on the second white, printed label, there is the text: "*Nanodesma/species name*, sp. n. / P. Zahradník det.

RESULTS

Nanodesma cechovskyi sp. nov.

(Figs. 1a-d)

Type material. Holotype (♂): Malaysia W, Kelantan, 90 km N of Gua Musang, Gunung Basor, 1700 m, Kampong Kubur Dalu, 10 April -5 May 2016, Petr Čechovský lgt.

Description. Male (holotype). Shortly oval, almost rounded, convex, body length 3.1 mm, the greatest width 2.1 mm. Elytra length : width ratio of 1.1. Body piceous, antennae, palpi and legs slightly lighter. Habitus see Figs. 1a-c).

Head almost flattened, with longitudinal slight keel in middle of head, dense and very shortly pubescence and sparsely long erected hairs. Surface matt, with dense coarse punctuated, punctures almost touching. Eyes large, globular, with very sparse white erect setae. Front 1.5 times wider than width of eye in dorsal view. Antennae filiform, consisted of eleven antennomeres. The last three antennomeres enlarged. The 1st antennomere robust, 2.5 times longer than wide, the 2nd and the 3rd antennomeres similar, only half long as the 1st and narrower. The 4th-8th shorter than previous, almost the same length as wide. The 9th antennomere the same length as 2nd to 8th together, slightly serraticorne, three times long as wide. The 10th the same length as previous, but narrower about one third, also slightly serraticorne. The last, 11th antennomere 1.5 times longer than 10th antennomere slightly narrower than previous, spindle form, apex slightly sharpened. All antennomeres with dense semi-erect pubescence. The last maxillary palpomere triangular emarginated on apex.

Pronotum transverse, length : width ratio 0.6, the widest in the 2/3 of their length, rhomboidal, sharpened on lateral margin, anteriorly narrower, posteriorly wider than anterior part. Middle of pronotum with large and high bump slightly inclined backwards. Lateral margin of this bump with long erect black setae inclined backwards. In middle of this bump with white short semi-erect setae inclined also backwards. Surface of pronotum matt, coarsely and densely punctuated, puncture almost touching. Punctures on base of pronotum arranged to four transversal lines. Surface of pronotum coverage by two types of hairs - the first is erected long densely setae, mostly inclined forward and partly with recumbent short white pubescence, especially only back sides and base of pronotum.

Scutellum large, 1.1 times longer than wide with short recumbent white pubescence and two slight short longitudinal keels on each half of scutellum.

Elytra shortly longer than wide, rounded, with distinct shoulders, matt, with 10 striae from large punctures, distance between these punctures same as their diameter. Pubescence of elytra in two types - the first very short white recumbent, covered lateral margin and apex of elytra, disc of elytra (from pronotum to 2/3 of elytra) without recumbent pubescence,



Figs. 1a-d: *Nanodesma cechovskyi* sp. nov.: a- habitus, dorsal view; b- habitus, frontal view; c- habitus, lateral view; d- aedeagus.

so created distinct large piceous spot, the second long white erect sparse setae. The spot on elytra with four combs (on each elytron two) from black dense long setae, inclined backwards.

All legs the same, stout, femora thick and flattened, tibia slim, longer than femora. All tarsi with five tarsomeres, almost twice shorter than tibia. The 1st tarsomere the same length as 4th, the 2nd and 3rd slightly shorter, as long as wide. The 4th slightly emarginated. The 5th the largest, the same length as 3rd and 4th together, slightly wider than previous. Two claws robust with broad basal tooth.

Aedeagus symmetric, see Fig. 1d.

Female. Unknown.

Differential diagnosis. See key of species. Aedeagus differs from other species (Fig. 1d).

Name derivation. Dedicated to the collector of holotype, my friend coleopterologist Petr Čechovský (Brno, Czech Republic).

Distribution. Malaysia

Nanodesma pseudofasciata sp. nov.

(Figs. 2a-g)

Type material. Holotype (♂): Malaysia W, Kelantan, Kg. Tunku, Mt. Noring Timur, 150 km S of Jeli, 1200 m, 12 February -14 March 2013, P. Čechovský lgt. Paratype (1 ♀): the same data as holotype.

Description. Male (holotype). Shortly oval, almost rounded, convex, body length 2.5 mm, the greatest width 1.5 mm. Elytra length : width ratio of 1.2. Body black, antennomeres 1st-8th, palpi and tarsi brown, antennal clubs and femora and tibia piceous. Habitus see Figs. 2a-c.

Head slightly transversally convex, surface shiny, densely finely punctuated, punctures almost touched. Centre of head without pubescence; all margins with short recumbent white pubescence, on the lateral margins denser and shortly longer, all inclined backwards. Eyes small, globular, with sparse white erect setae. Front 3 times wider than width of eye in dorsal view. Antennae filiform, consisted of eleven antennomeres. The last three antennomeres enlarged. The 1st antennomere robust, 2.5 times longer than wide, the 2nd only half long as the 1st and the same width as the 1st, the 3rd 1.1 times longer than wide, the 4th-8th slightly transversally, 0.9 shorter than wider compared to the previous one, almost the same length as wide, all slightly narrower than 2nd antennomere. The 9th antennomere 1.9 times longer as all previous together, 5 times wider as 8th antennomere. The 10th the same length as previous, but 0.9 times narrower. The last, 11th antennomere 1.5 times longer than 10th antennomere slightly narrower than previous, spindle form, apex slightly sharpened. All antennomeres with dense short recumbent pubescence.

Pronotum transverse, length : width ratio of 0.7, the widest in the 1/3 of their length, rhomboidal, rounded on lateral margin, anteriorly narrower, posteriorly wider than anterior



Figs. 2a-e: *Nanodesma pseudofasciata* sp. nov.: a- habitus, dorsal view (male); b- habitus, frontal view (male); c- habitus, lateral view (male); d- habitus, dorsal view (female); e- habitus, frontal view (female); f- habitus, lateral view (female); g- aedeagus.

part. Middle of pronotum with large blunt bump slightly inclined backwards. Surface of pronotum shiny, coarsely and densely punctuated, distance between punctures the same as their diameter. Pubescence consist of two types. The first recumbent dense white on the middle of anterior part and lateral margin in the second half, on the other part only less distinct. The second long sparse erect black, on the surface of bump denser, slightly inclined backwards.

Scutellum small, slightly transverse, 1.2 times wider than length, with short recumbent white pubescence inclined backwards.

Elytra shortly longer as wide, rounded, with distinct shoulders, matt, with 10 striae of large punctures, distance between these punctures same as their diameter. Pubescence of elytra in two types. The first short white recumbent, on each elytron with five irregular spots from the base of pronotum to apex of elytra. The largest is spot on anterior part of each elytron on longitudinal space, other two is small, rounded on lateral margin of elytron or beside on sutura, the last two created transverse stripes before of apex on elytra and margin of apex of elytra. These pubescence inclined backwards. The second dense long erect setae, mostly white, only on disc of elytra black, created slightly comb on each elytron, all inclined backwards.

All legs the same, stout, femora thick and flattened, tibia slim, longer as femora. All tarsi with five tarsomeres, almost twice shorter than tibia. The 1st tarsomere the same length as 4th, the 2nd and 3rd slightly shorter, as long as wide. The 4th slightly emarginated. The 5th the largest, the same length as 3rd and 4th together, slightly wider than previous. Two claws robust with broad basal tooth.

Aedeagus symmetric, see Fig. 2e.

Female. The last three antennomeres shorter, see Fig. 2d.

Differential diagnosis. See key of species. Aedeagus differs from other species (Fig. 2e).

Name derivation. Derived from species of *N. fasciata* Zahradník, 2019, according to similarity with this species.

Distribution. Malaysia

***Nanodesma splendida* sp. nov.**

(Figs. 3a-c)

Type material. Holotype (♀): Indonesia, Sumatra, Utara, Brastagi, Gn. Sinabung, 1400-2000 m, 29-30 January 2005, Bolm lgt.

Description. Female (holotype). Shortly oval, almost rounded, convex, body length 3.5 mm, the greatest width 2.1 mm. Elytra length : width ratio of 1.2. Body piceous, antennae, palpi and legs brown. Habitus see Fig. 3a-c.

Head almost flattened, with longitudinal slight keel in middle of head and very slight transversal keel between antennae, sparsely long erected hairs. Surface shiny, with dense coarse punctuated, punctures almost touching. Eyes large, globular, with sparse black erect setae. Front twice wider than width of eye in dorsal view. Antennae filiform, consisted of eleven antennomeres. The last three antennomeres enlarged. The 1st antennomere robust, 3 times longer than wide, the 2nd almost rounded, as wide as long, 0.8 narrower than the 1st. The 3rd 1.2 times longer and 0.8 narrower than previous. The 4th - 8th the same length and wide, slightly shorter and narrower than 3rd antennomere. The 9th antennomere 0.8 shorter than length of 3rd to 8th together, slightly serraticorne, as long as wide. The 10th antennomere 1.2 times longer than 9th and slightly narrower than previous. The last, 11th antennomere 1.5 times longer than 10th antennomere slightly narrower than previous, spindle form, apex slightly sharpened. All antennomeres with dense recumbent shortly pubescence.

Pronotum transverse, length : width ratio of 0.6, the widest in the 1/3 of their length, rhomboidal, sharpened on lateral margin, anteriorly narrower, posteriorly wider than anterior part. Middle of pronotum with large and blunt bump slightly inclined backwards. This bump with two combs long erect black setae inclined backwards and between them and lateral margin with short recumbent yellow-white pubescence inclined backwards. Also lateral margin and partly anterior part of pronotum with yellow-white pubescence inclined backwards. From anterior base of pronotum to bump longitudinal lines without pubescence.



Figs. 3a-c: *Nanodesma splendida* sp. nov.: a- habitus, dorsal view; b- habitus, frontal view; c- habitus, lateral view.

Before bump two spots of dense black erect hairs. Another type of pubescence consists of erect long densely yellow-brown setae. Surface of pronotum shiny, coarsely and densely punctuated, punctures almost touching. Punctures on base of pronotum arranged to four irregular transversal lines.

Scutellum small, transverse, 1.8 times wider than long with long semi-erect grey pubescence inclined backwards.

Elytra shortly longer than wide, rounded, with distinct shoulders, shiny, with 10 striae from large punctures, distance between these punctures the same as their diameter. Pubescence of elytra in three types. The first very short yellow-orange (partly also white on margins) recumbent, covered anterior part between suture and shoulders, in middle of elytra create transversal stripe from lateral margin to suture and the second part from elytra longitudinal stripe along to suture and reach also to apex of elytra and narrow transverse stripes on apex, all inclined backwards. The second semi-erect yellow (on top created to short longitudinal combs). The third erected sparse white long setae (on lateral margin black), on apex denser. Each elytron with three combs from dense erect black setae inclined backwards. The first is located to the first third of elytron transversally in middle, the other are two located shortly before apex of elytron symmetric from middle of elytron.

Tibia of anterior legs slim and long; other tibia shorter and stronger. All tarsi with five tarsomeres, almost twice shorter than tibia. The 1st tarsomere the same length as 4th, the 2nd and 3rd slightly shorter, as long as wide. The 4th slightly emarginated. The 5th the largest, the same length as 3rd and 4th together, slightly wider than previous. Two claws robust with broad basal tooth. All tarsomeres with short dense erect setae.

Male. Unknown.

Differential diagnosis. See key of species.

Name derivation. Derived from Latin name “*splendidus*” means magnificent.

Distribution. Indonesia: Sumatra.

***Nanodesma dubia* sp. nov.**
(Figs. 4a-c)

Type material. Holotype (♀): Malaysia, Pahang, Tanah Rata, Gn. Jasa, 1600 m, 3-9 February 2005, Bolm lgt.

Description. Female (holotype). Shortly oval, almost rounded, convex, body length 3.5 mm, the greatest width 1.6 mm. Elytra length : width ratio of 1.5. Body black, antennae, palpi and legs brown. Habitus see Fig. 4a-c.

Head slight transversally convex, clypeus bordered anteriorly and posteriorly by transversally keels. Surface shiny, with dense coarse punctuated, distance between punctures the same as their diameter. Temples with white dense recumbent pubescence inclined mostly backward; other part of head almost without these pubescence. Whole surface of head with sparse long erect black setae. Eyes large, globular, with sparse white erect setae. Front 1.9 times wider than width of eye in dorsal view. Antennae filiform, consisted of eleven antennomeres. The last three antennomeres enlarged. The 1st antennomere robust, 3.5 times longer than wide, the 2nd antennomere twice short and the same width as the 1st. The 3rd the same length as the 2nd, but twice narrower than the 2nd. The 4th-8th the same length, twice shorter than the 3rd antennomere, as long as wide, the 7th slightly serraticorne. The 9th and 10th the same length, the 9th five times wider than the 8th antennomere, the 10th four times wider than 8th. The 11th antennomere missing. All antennomeres with very sparse erect setae.



Figs. 4a-c: *Nanodesma dubia* sp. n. : a- habitus, dorsal view; b- habitus, frontal view; c- habitus, lateral view.

Pronotum transverse, length : width ratio of 0.8, the widest in the 1/3 of their length, rhomboidal, anteriorly narrower, posteriorly wider than anterior part. Middle of pronotum with high bump slightly inclined backwards, on their top with dense long erect black setae, created to triangular shape comb converges to posteriorly. Surface of pronotum shiny, coarsely and densely punctuated, puncture almost touching. Punctures between bump and base of pronotum arranged to five irregular transversal lines. Pubescence of two types - one short recumbent white denser on anterior, posterior and lateral margins, the other part dense long erect grey-white setae, slightly inclined backwards.

Scutellum small, triangular, 1.1 times longer than wide with short recumbent white pubescence.

Elytra shortly oval, with distinct shoulders, shiny. Surface irregularly punctuated on the 2/3 created distinct striae, puncture large dense, almost touching. Pubescence of elytra in two types. One sparse short white recumbent, partly created denser small array, especially behind of scutellum along suture and also along of suture before apex of elytra and margin of apex of elytra. The other sparse semi-erect or erected white setae. In the middle of each elytron next to suture two short comb from black long dense setae inclined backwards.

All legs the same, stout, femora thick and flattened, tibia slim, longer as femora. All tarsi with five tarsomeres, almost twice shorter than tibia. The 1st tarsomere the same length as 4th, the 2nd and 3rd slightly shorter, as long as wide. The 4th slightly emarginated. The 5th the largest, the same length as 3rd and 4th together, slightly wider than previous. Two claws robust with broad basal tooth.

Male. Unknown.

Differential diagnosis. See key of species.

Name derivation. Derived from Latin name “*dubius*” means unreliable.

Distribution. Malaysia.

KEY TO SPECIES OF THE GENUS *NANODESMA* ZAHRADNÍK, 2019

- 1 Each elytron with a few spots from erect dense setae 2
- Elytra without spots from erect setae 7
- 2 On each elytron one spot from short yellow setae *N. luteopubens* Zahradník, 2019
- Each elytron without yellow spot 3
- 3 Each elytron with one spot from black setae *N. dubia* sp. nov.
- Each elytron with more than one spot from black setae 4
- 4 Each elytron with two spots from black setae *N. pseudofasciata* sp. nov.
- Each elytron with more than two spots from black setae 5
- 5 Each elytron with three spots from black setae 6
- Each elytron with four spots from black setae *N. splendida* sp. nov.
- 6 Elytra without large area on their base *N. nigromaculata* Zahradník, 2019
- Elytra on basal part with large black area without pubescence *N. cechovskyi* sp. nov.
- 7 Almost whole surface of pronotum with dense recumbent pubescence, covering the entire surface 8
- Part of surface of pronotum without recumbent pubescence, missing especially in middle of pronotum 9

- 8 Surface of pronotum with white-yellow pubescence, except small part on base of pronotum *N. haucki* Zahradník, 2019
 - Surface of pronotum with white pubescence *N. knížeki* Zahradník, 2019
 9 Elytra with two transversal stripes without recumbent pubescence *N. fasciata*, Zahradník, 2019
 - Transversal stripes less pronounced, sometimes the first missing *N. laosensis* Zahradník, 2019

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