# About the taxonomic status of some species of the genus *Aeolesthes* Gahan, 1890 (Coleoptera Cerambycidae)

#### Francesco VITALI

Summary - Hoplocerambyx inhirsutus Matsushita, 1932 is transferred to the genus Aeolesthes Gahan, 1890, as it was originally described: Aeolesthes inhirsuta Matsushita, 1932 rest. status. Pachydissus externus Pascoe, 1869 is rehabilitated as valid species inside of the genus Aeolesthes Gahan, 1890, as follows: Aeolesthes externa (Pascoe, 1869) rest. status, nov. comb. This species is also considered as an older synonym of Pachydyssus frenchi nov. syn. Aeolesthes? nishikawai Hayashi, 1975 is transferred to the genus Nadezhdiella Plavilstshikov, 1931, as follows: Nadezhdiella nishikawai (Hayashi, 1975) nov. comb.

Zusammenfassung - Hoplocerambyx inhirsutus Matsushita, 1932 wird zur Gattung Aeolesthes Gahan, 1890, wie es ursprünglich beschrieben war, versetzt: Aeolesthes inhirsuta Matsushita, 1932 rest. status. Pachydissus externus Pascoe, 1869 wird wie eine gute Art der Gattung Aeolesthes Gahan, 1890 rehabilitiert: Aeolesthes externa (Pascoe, 1869) rest. status, nov. comb. Diese Art wird auch wie ein älteres Synonym von Pachydyssus frenchi nov. syn. erkannt. Aeolesthes? nishikawai Hayashi, 1975 wird zur Gattung Nadezhdiella Plavilstshikov, 1931 versetzt: Nadezhdiella nishikawai (Hayashi, 1975) nov. comb.

**Key-words** - Coleoptera Cerambycidae, Cerambycinae, Cerambycini, *Aeolesthes, Hoplocerambyx, Nadezhdiella,* Borneo, Micronesia, New Guinea, taxonomy.

#### Introduction

While writing the description of *Trirachys acanthophorus* Vitali, 1999 I realised that the systematic location of this species was actually doubtful. In fact, while its antennae implied the belonging to the genus *Trirachys* Hope, 1841, its habitus reminded of the genus *Aeolesthes* Gahan, 1890. By studying further the question, I have noticed that *Trirachys* and *Aeolesthes* include in reality numerous species not phylogenetically related.

This research, started some years ago, has involved an enormous quantity of time, bibliography and materials belonging to several world-wide museums. Therefore, it is high time to write down some partial results.

#### **Examined collections**

BNMH	British Museum of Natural History, London (Great Britain)
FVPC	Francesco Vitali Private Collection, Genoa (Italy)
MNHN	Museum National d'Histoire Naturelle, Paris (France)
MSNG	Museo Civico di Storia Naturale, Genoa (Italy)
CELLL	

SEHU Collection of Systematic Entomology, Hokkaido University (Japan)
USNM U. S. National Museum of Natural History, Washington (USA)
WADA Western Australia Department of Agriculture, Perth (Australia)

#### Results

# Aeolesthes textor group

**History.** PASCOE (1869) described two *Neocerambyx*-species from New Guinea and the Moluccas, namely *N. textor* and *N externus*, fairly different from all congeners widespread in Eastern Asia known at the time.

Ten years later, FAIRMAIRE (1879) described another species, namely *Pachydissus ternatensis*, on the basis of materials coming from different countries around New Guinea, without being aware that they belonged to different species.

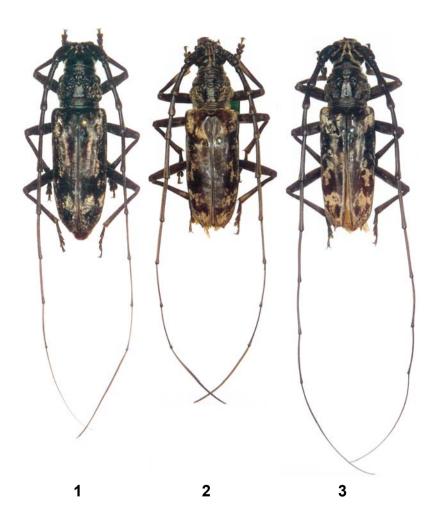
Gahan (1890) introduced the new genus *Aeolesthes* and synonymised all these species with *A. textor* (Pascoe, 1869), even if he noticed that Fairmaire's species belonged to different entities. Moreover, Gahan furnished a key to *Aeolesthes*, stating that *A. textor* was characterised by a strongly backward bowed intergenal groove (Fig. 5).

Sixty years later, GRESSITT (1951) recorded the Asian species *Aeolesthes induta* (Newman) from New Guinea. Later, GRESSITT (1959) furnished a partial key to *Aeolesthes*, attributing to *A. textor* a straight intergenal groove (Fig. 4), a character opposite to that given by GAHAN.

This taxonomic misunderstanding has been solved through the examinations of the types, thanks to the collaboration of Mr. Carlo A. Casadio, specialist in Cerambycidae Batocerini.

**Discussion.** The examination of a large number of specimens has allowed to verify the presence in New Guinea and Moluccas of two different forms extremely similar between them but different in the shape of the intergenal groove (Fig. 4-5). The same character separates *A. induta* from *A. holosericea* (Fabricius, 1792), at the time considered two different species (GAHAN, 1890).

The species with straight intergenal furrow is widespread in the West Irian Jaya (Sorong) and the adjacent islands Moluccas (Halmahera, Ternate, Bacan, Obira) and Biak, while the species with bowed intergenal furrow is widespread in all New Guinea and some Moluccas (Halmahera, Kai, Aru). The specimens of



**Fig. 1**: Aeolesthes induta (Newman, 1842), male, Topotype. **Fig. 2**: Aeolesthes textor (Pascoe, 1869), male, Topotype. **Fig. 3**: Aeolesthes externa (Pascoe, 1869), pronotum, male, Papua New Guinea.

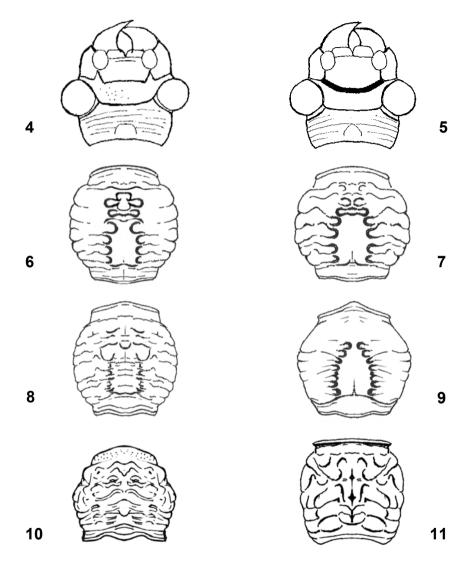


Fig. 4: intergenal groove straight. Fig. 5: intergenal groove backward bowed. Fig. 6: Aeolesthes holosericea (Fabricius, 1792), pronotum. Fig. 7: Aeolesthes induta (Newman, 1842), pronotum. Fig. 8: Aeolesthes textor (Pascoe, 1869), pronotum. Fig. 9: Aeolesthes externa (Pascoe, 1869), pronotum. Fig. 10: Aeolesthes inhirsuta Matsushita, 1932, pronotum. Fig 11: Nadezhdiella nishikawai (Hayashi, 1975), pronotum.

Northern Australia (WADA) identified as *Pachydissus frenchi* Blackburn, 1895, also belong to the latter form.

The holotype of *Neocerambyx textor* comes from Ternate like the type of *Pachydissus ternatensis*. Both have a straight intergenal furrow (Fig. 4); therefore, the synonymy proposed by GAHAN (1890) is correct, though the characters provided for both species were erroneous.

The type of *Neocerambyx externus* comes from Dorey (= Manokwary, Irian Jaya Barat) a region presumably inhabited by both species. But, this specimen has a bowed intergenal furrow (Fig. 5) and it was correctly described as a different species by PASCOE. This is the species having the characters that GAHAN attributed to *A. textor*.

**Conclusions.** Both species are widespread in wide regions, where only one form is present; nevertheless, they cohabit in Halmahera and in West Irian Jaya, where also specimens difficultly attributable to either species are present.

The wide distribution in different lands and the cohabitation in a large region prove their specific separation, while the difficult attributable specimens might be hybrids. Therefore, *N. externus* is here considered as bona species, removed from the synonymy with *N. textor* and inserted in the genus *Aeolesthes*, as follows:

Aeolesthes externa (Pascoe, 1869) rest. status, nov. comb.

A. externa is also the species that GRESSITT (1951; 1959) and some English authors (DUFFY, 1968; BIGGER & SCHOEFIELD, 1983) identified and recorded in New Guinea as A. induta. Already GAHAN (1890) considered the species living in New Guinea as different from this Asian species.

Moreover, the specimen preserved at WADA proves that *Pachydissus frenchi* Blackburn, 1895 is not a synonym of *A. induta* (GRESSITT, 1959; DUFFY, 1968) but of *A. externa*.

## Aeolesthes textor (Pascoe, 1869) (Figs. 2, 4, 8)

Neocerambyx textor Pascoe, 1869, p. 511 (Holotype &, Moluccas, Ternate, BMNH). Pachydissus ternatensis Fairmaire, 1879, p. 70 (Holotype &, Moluccas, Ternate, MNHN); Gahan, 1890, p. 253-254 (synonymy); Aurivillius, 1912, p. 46.

Aeolesthes textor (Pascoe) Gahan, 1890, p. 253-254 (pro parte); Aurivillius, 1912, p. 46 (pro parte); Gressitt, 1959, p. 88-89; Bigger & Schoeffeld, 1983, p. 4-5.

**Materials.** Moluccas, Ternate I. (without further indications), Type (MNHN); ditto, C. Oberthür Coll. (MNHN); ditto, Ançoy Coll. (MNHN); ditto, 1861, E. Deyrolle Coll. (MNHN); ditto, 1875, A. A. Bruijn Coll. (MSNG); ditto, 1877, A. A. Bruijn Coll. (MNHN); ditto, 1931, A. A. Argod-Vallon Coll. (MNHN); ditto,

1903, J. Waterstradt lgt. (MNHN); Ternate I., La Glaize (MNHN). Moluccas, Gilolo [= Halmahera I., 1858], A. R. Wallace Coll. (MNHN). Moluccas, Batchian [= Bacan I.] 1902, J. Waterstradt lgt. (MNHN). Moluccas, Obi Major [= Obi, Obira I.], 1902, J. Waterstradt lgt. (MNHN). Moluccas (without further indications), 1878, A. Raffray & R. Maindron lgt. (MNHN)

New Guinea, West Irian Jaya, Ramoi [= Sorong], II.1875, O. Beccari lgt. (MCSNG); Biak I., Korem, 3.XII.1993, both in the same fissure of a broadleaf tree in day-time, C. A. Casadio lgt., 2 ♂♂ (FVPC) (Fig. 12 •).

Further data are the localities mentioned for *A. textor* by GRESSITT (1959): Ternate I., Waigiou [= Waigeo], Biak I., Finschhafen (Morobe) (Fig. 12 \*). The specimen collected in Finschhafen seems to be doubtful since GRESSITT also mentioned four specimens of *A. induta* (actually, *A. externa*) from the same place and collector.

**Description.** Length: 30-40 mm. Body flattened dark or reddish-brown, pubescence golden, making patches according to direction of the light.

Head ridged by a very distinct interantennal carina, intergenal groove straight (Fig. 4); scape thickened.

Prothorax (Fig. 8) more or less globose, pronotum irregularly transverse wrinkled on the disc, with two longitudinal furrows, a smooth field on the basal half and two obtuse relieves at their anterior angles.

Elytra almost parallel-sided, obliquely truncate at the apex, sutural and outer angle more or less spined.

Antennomeres VI-X spined beneath at the apex. ♂: Antennae twice longer than body, the antennomere VII reaches the elytral apex, antennomeres VI-VIII or none of them spined. ♀: Antennae as long as body, antennomeres VI-X always spined at the apex.

**Differential diagnose.** This species differs from all its congeners in the particular sculpture of the pronotum (Fig. 8), having two obtuse relieves near the anterior angles of the smooth field that lack in other species (Figs. 6, 7, 9).

Moreover, *A. textor* also differs from *A. externa* (Fig. 3) in the right intergenal groove (instead of backward bowed), the shorter antennae and the less knocked basal antennomeres.

On the other hand, *A. textor* is closely related to *A. holosericea*, from which it differs in the less parallel and flatter habitus, and in the spined elytral apex (rather than toothed). Finally, *A. textor* differs from *A. induta* (Fig. 1) in the right intergenal groove and in the spined elytral apex (rather than toothed).

**Biology.** Adults are active during the night, under barks or in fissures of logs during the day. Both specimens collected in Korem (C. A. Casadio lgt.) have mutilated antennae, a fact demonstrating the fight for females typical of some Palaearctic genera such as *Cerambyx* Linnaeus, 1758. The larvae bore in all likelihood living ill broadleaf trees.

**Distribution.** This true Indonesian species is widespread in the West Irian Jaya (Sorong) and the adjacent islands (Fig. 12). The islands where this species has been checked are: Halmahera, Ternate, Bacan, Obira (Moluccas) and Biak (Central Irian Jaya). Possibly, this species has a wider spreading in the West Irian Jaya.

The examined specimens from the Yule Isle (MNHN, MCSNG) prove that such localities, provided in the original description, must be referred to the following species.

## Aeolesthes externa (Pascoe, 1869) (Figs. 3, 5, 9)

*Neocerambyx externus* PASCOE, 1869 (Holotype ♂, Irian Jaya, Dorey, BMNH).

Pachydissus ternatensis (pro parte) FAIRMAIRE, 1879, p. 70 (Paratypes: Papua New Guinea, Yule Isle, MNHN); GAHAN, 1890, p. 253-254, AURIVILLIUS, 1912, p. 46.

Aeolesthes textor (Pascoe) GAHAN, 1890, p. 253-254; AURIVILLIUS, 1912, p. 46 wrong synonymy

Pachydissus frenchi Blackburn, 1895: p. 222 (Holotype: Queensland); GRESSITT, 1959, p. 88-89; DUFFY, 1968, p. 103. nov. syn.

Aeolestes induta (Newman) GRESSITT, 1951, p. 7-8; 1959, p. 88-89; DUFFY, 1968, p. 103; BIGGER & SCHOEFIELD, 1983, p. 5, 14-15 erratum.

**Materials.** Moluccas, Halmahera I. (MNHN). Moluccas, Little Kay [= Kai Kecil I.], Kühn lgt. (MNHN); Key [= Kai Is.], 1873, O. Beccari lgt. (MCSN). Moluccas, Aru Is., C. Oberthür Coll. (MNHN); ditto, Wokan [= Tanahbesar I.], 1873, O. Beccari lgt. (MCSN). Moluccas, 1875, O. Beccari lgt. (MCSN).

West Irian Jaya, Manokwari, Mansinam I., 1875, Coll. Bruyn (MCSN).

Papua New Guinea: Moroka [Mts.], 3500 ft., X.1895, Antony lgt. (MNHN); Fly River, 1876-77, L. M. D'Albertis lgt. (MCSN); Kapakapa, VI-VII.1891, L. Loria lgt. (MCSN); Upuli, X.1890, L. Loria lgt. (MCSN); Rigo, VII.1889, L. Loria lgt. (MCSN); Ighibirei, VII-VIII.1890, L. Loria lgt. (MCSN); Yule I., VI.1875, L. M. D'Albertis lgt. (MCSN) (Fig. 13 ●).

Further data are the localities mentioned for *A. induta* by GRESSITT (1951b, 1959). Irian Jaya: Sorong, Maffin Bay, Mt. Gyifrie, Hollandia [= Jayapura], Cyclops Mts. Papua New Guinea: Kiuga (Fly River), Yule I., Rigo, Konedobu, Port Moresby, Finschhafen, Bubia near Lae, Mt. Misin, Mt. Lamington, Dogura, Mamoo Plantation (Popondetta), Kokoda, Normanby I., Doini I. Woodlark I. (Fig. 13\*).

**Description.** 26-39 mm. Body flattened dark or reddish-brown, pubescence golden, making patches according to the light direction.

Head ridged by a very distinct interantennal carina, intergenal groove backward bowed (Fig. 5); scape thickened.

Prothorax (Fig. 9) globose, the disc irregularly transverse wrinkled, with two longitudinal furrows and a smooth place at the hind half.

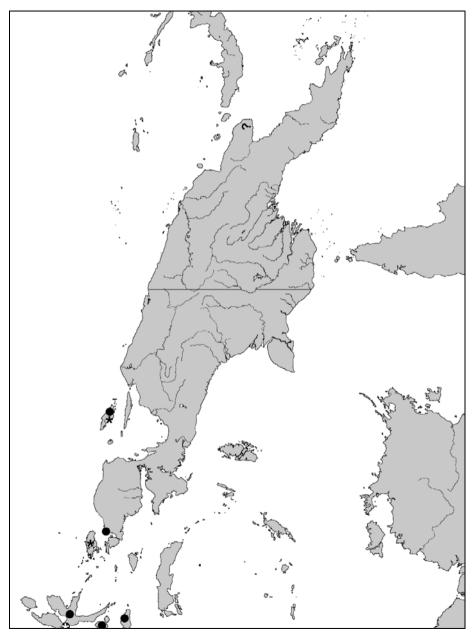


Fig. 12: Distribution of Aeolesthes textor (Pascoe, 1869).

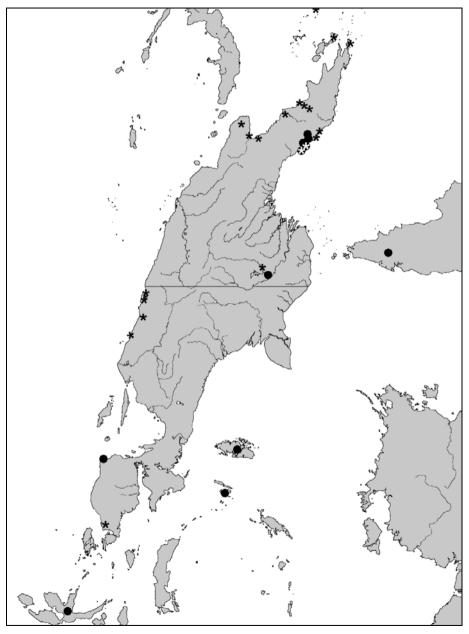


Fig. 13: Distribution of Aeolesthes externa (Pascoe, 1869).

Elytra almost parallel-sided, obliquely truncate at the apex, sutural and outer angle more or less spined.

Antennomeres VI-X spined beneath at the apex.  $\circlearrowleft$ : Antennae more than twice longer than body, the antennomere VII reaches the elytral apex, antennomeres VI-VIII or none of them spined.  $\circlearrowleft$ : Antennae as long as body, antennomeres VI-X always spined at the apex.

**Differential diagnose.** This species can be separated from *A. textor* (Fig. 2) through the backward bowed intergenal groove (instead of straight), the longer antennae and the knocked basal antennomeres.

Among the less related species, it may be confused only with *A. induta* (Fig. 1) from which it differs in the long elytral spines (rather than obtuse teeth), the knocked basal antennomeres and the different pronotal sculpture (Fig. 9).

**Distribution.** This species seems to be widespread in all New Guinea, some Moluccas (Kai Islands and Aru) and Northern Australia (Queensland). It cohabits with the former species in Halmahera and in West Irian Jaya (Fig. 13).

#### Aeolesthes inhirsuta Matsushita, 1932 rest. status (Figs. 10, 14-19)

Aeolesthes inhirsutus Matsushita, 1932, p. 170, Fig. 2 (Holotype ♂, Caroline, Palau, Korol, SEHU; Paratype ♂, ditto, M. Matsushita coll.).

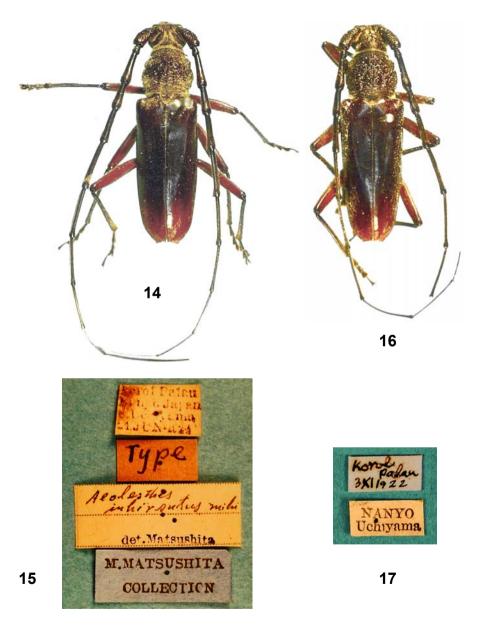
Hoplocerambyx brevispinis GRESSITT, 1951b, p. 8 (Holotype ♀, Caroline, Palau, Peleliu, USNM; Paratype, ♀, Palau, Taiwan Agriculture Research Institution); GRESSITT, 1956, p. 73 (synonymy).

Hoplocerambyx inhirsutus GRESSITT, 1956, p. 73, Fig 2a-c.

**Materials.** Caroline Is, Palau I., Korol, 24.VI.1924, S. Uchiyama Igt., Holotype  $\circlearrowleft$  (ex coll. M. Matsushita, SEHU) (Figs. 14-15); Caroline Is., Palau I., Korol, 3.XII.1922, S. Uchiyama Igt., 1  $\circlearrowleft$  (general coll., SEHU) (Figs. 16-17); Caroline Is., Palau I., Korol, 15.I.1994, C. A. Casadio Igt., 1  $\circlearrowleft$  (FVPC) (Fig. 19); Caroline Is., Palau I., Peleliu, Holotype  $\circlearrowleft$  (USNM) (Fig. 18).

**Remarks.** Aeolesthes inhirsutus had already been correctly identified as a species of the genus Aeolesthes by its first author. In fact, although it had glabrous elytra and a very fine pubescence on head, pronotum, antennae, legs and ventral side, it also had a distinct carina between the antennal tubercles typical of this genus. MATSUSHITA (1932) also compared the habitus of this Micronesian endemism to Aeolesthes induta (Newman, 1842), a widespread Oriental species, even if the pronotal sculpture is quite different.

Afterwards, GRESSITT (1951b) described the same species as *Hoplocerambyx brevispinis*, comparing it with *Holpocerambyx spinicornis* (Newman, 1842) and even evidencing the missing of the inter-antennal furrow, of the antennal spines at the inner apical side and the different shape of the prothorax.



**Fig. 14**: *Aeolesthes inhirsuta* Matsushita, 1932, Holotype, male (SEHU). **Fig. 15**: ditto, labels. **Fig. 16**: male (SEHU). **Fig. 17**: ditto, labels (Photo K. Mizota).

Later, GRESSITT (1956), having noticed that his new species had already been described, recognised the synonymy with *A. inhirsutus* and transferred Matsushita's species to the genus *Hoplocerambyx* Thomson, 1864.

In reality, *A. inhirsutus* has none of the characters of *Hoplocerambyx*, except perhaps for a superficially similar elytral pubescence. But this is evidently a character without any importance since both pubescent and glabrous species are present in numerous other genera (e.g. *Cerambyx*, *Monochamus*, *Batocera*). Moreover, a similar pubescence is also present in some other Laotian *Aeolesthes*-species (GRESSITT & RONDON, 1970).

On the contrary, *A. inhirsutus* has all the characters (head, neck and prothorax not elongated, inter-antennal ridge, antennae not furrowed, body convex) of other typical *Aeolesthes*. Hence, *A. inhirsutus* must be re-transferred to the genus *Aeolesthes*, as it was originally described. However, its name must be changed in *Aeolesthes inhirsut*a according to ICZN, Art. 34.2.

#### Nadezhdiella nishikawai (Hayashi, 1975) nov. comb. (Figs. 20-21)

Aeolesthes? nishikawai HAYASHI, 1975, p. 176-178, Pl. 2 Fig. 13 (Holotype, ♀, Borneo, Sabah, Kinabalu National Park, Headquarter, Coll. M. Hayashi); HEFFERN, 2005, p. 15.

**Material.** Malaysia, Borneo, Sabah, Mt. Trus Madi, ~1200 m, 7-11.IV.1994, N. Kanie lgt., 1 ♀ (ex coll. M. Hasegawa, FVPC).

**Remarks.** Already in the original description (HAYASHI, 1975), *A. nishikawai* was doubtfully included in the genus *Aeolesthes* due to its uniform coloration, the shape of the inter-antennal ridge, the wrinkles on the pronotum and the antennal structure.

In reality, the antennae of this species do not differ from those of other typical *Aeolesthes*, while MATSUSHITA (1932) and GRESSITT & RONDON (1970) also described species with atypical uniform coloration.

Instead, the main differences between *A. nishikawai* and other *Aeolesthes*-species are the particular pronotal wrinkles (Fig. 20) and the prosternal process bluntly tuberculated at the apex (Fig. 21). The fact that this last character is not present in other *Aeolesthes*-species implies that the location of *A. nishikawai* inside of *Aeolesthes* is actually erroneous.

Apart from the missing of the pronotal lateral tooth, the habitus of *A. nishikawai* reminds of *Nadezhdiella* Plavilstshikov, 1931, a genus widespread in Eastern Asia with four species, namely *N. cantori* (Hope, 1845), *N. japonica* Hayashi, 1972, *N. fulvopubens* (Pic, 1933) and *N. spadix* Holzschuh, 2005.

The massive body, the uniform pubescence, the elytra parallel-sided and sub-truncated at the apex, the smooth scape, the antennae flattened and internally spined at the apex of *A. nishikawai* are typical characters of this genus.

Moreover, the procoxal cavities of *Nadezhdiella* are externally rounded (PLAVILSTSHIKOV, 1931), and not strongly angulate as GRESSITT (1951a) claimed. Secondly, *Nadezhdiella* does not have the prosternum rounded like that of *Cerambyx* Linnaeus, 1758, as PLAVILSTSHIKOV stated, but posteriorly elevated. Thirdly, its inter-antennal space is also different from what PLAVILSTSHIKOV stated, since it is not entirely furrowed but ridged by a short inter-antennal carina followed by a deep long furrow. All these characters are also present in *A. nishikawai*.

Finally, a deeper examination of the pronotal wrinkles of *A. nishikawai* has evidenced that the pronotum of this species has the same structure of *N. cantori* and of *N. fulvopubens* (wrinkles irregular at each side and longitudinal on the disc) and different from *Aeolesthes*-species (wrinkles irregular at each side and transversal on the disc). The antennal spines are not present in *N. cantori* but they are present in *N. fulvopubens* and *N. spadix*. Moreover, the lateral tooth of the prothorax is also a variable character, being more developed in *N. fulvopubens*, less developed in *N. cantori* and nearly obsolete in *N. spadix*.

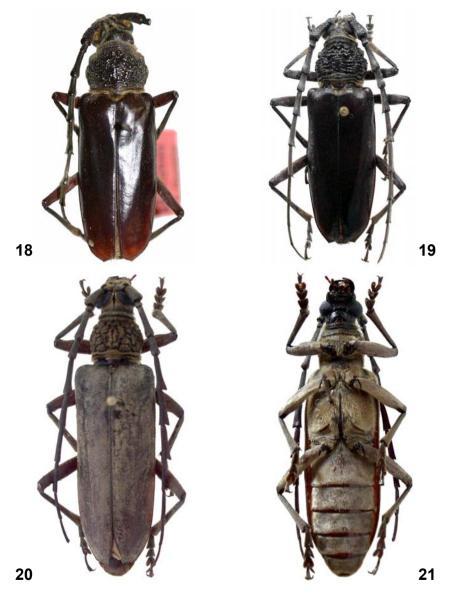
Some characters (pubescence, pronotal wrinkles, prosternal process) are also present in the genus *Trachylophus* Gahan, 1888, which nevertheless has the prothorax strongly angulated at each side.

In conclusion, *A. nishikawai* finds a more correct location inside of the genus *Nadezhdiella*, where it is therefore transferred.

Among its congeners, *N. nishikawai* is more closely related to the more southern species, characterised by antennomeres internally spined at the apex.

## A key to the genus *Nadezhdiella* is proposed below:

1. Antennomeres internally unarmed at the apex	2.
Antennomeres V-X internally spined at the apex	
2. Pronotum uniformly pubescent, feebly rounded at sides; spines a emerging from the sides (China)	bruptly
Pronotum more densely pubescent at sides, laterally angulated; spines	conical
(Japan, Taiwan)	
3. Lateral tooth of the pronotum missing, pubescence yellowish grey (Borne	(o:
N. nishikawai (Hayashi	, 1975)
Lateral tooth at least obsolete; pubescence golden	4.
4. Lateral tooth well developed, under intergenal space smooth (China, V	ietnam,
Laos, Thailand)	, 1933)
Lateral tooth obsolete; under intergenal space wrinkled (Borneo)	



**Fig. 18**: *Hoplocerambyx brevispinis* Gressitt, 1951, female, Holotype (USNM). **Fig. 19**: *Aeolesthes inhirsuta* Matsushita, 1932, female, Topotype. **Fig. 20**: *Nadezhdiella nishikawai* (Hayashi, 1975), female, Mt. Trus Madi, Borneo, dorsal side. **Fig. 21**: ditto, ventral side.

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