



Far Eastern Entomologist

Дальневосточный энтомолог

Journal published by Far East Branch
of the Russian Entomological Society
and Laboratory of Entomology,
Institute of Biology and Soil Science,
Vladivostok

Number 214: 1-8

ISSN 1026-051X

August 2010

A REVIEW OF PALAEARCTIC SPECIES OF THE GENUS *NANNA* STROBL, 1894 (DIPTERA, SCATHOPHAGIDAE) WITH SHINING STRIPES OR SPOTS ON SCUTUM

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The information on species of the genus *Nanna* Strobl possessing shining stripes and spots on scutum, i.e. *N. brevifrons* (Zetterstedt), *N. longicornis* (von Roser), *N. nigriventris* (Loew), *N. puberula* (Becker), and *N. bispinosa* (Malloch) is given. The redescription of *N. longicornis* is provided. The species *N. nigriventris* is restored and removed to the genus *Spathophilus* Becker. Lectotype for *Cordylura breviventris* Loew, 1873 is designated. Two new synonyms are established: *Amaurosoma minuta* Becker, 1894 is a new junior synonym of *Nanna flavipes* (Fallén, 1819), *Cordylura breviventris* Loew, 1873 is a new junior synonym of *Cordylura nigriventris* Loew, 1864. *N. bispinosa* is registered in Russia for the first time.

KEY WORDS: Diptera, Scathophagidae, *Nanna*, Palaearctic.

А. Л. Озеров. Обзор палеарктических видов рода *Nanna* Strobl, 1894 (Diptera, Scathophagidae) с блестящими полосами или пятнами на среднеспинке // Дальневосточный энтомолог. 2010. N. 214. С. 1-8.

Приведена информация о видах рода *Nanna* Strobl, имеющих на среднеспинке блестящие полосы или пятна: *N. brevifrons* (Zetterstedt), *N. longicornis* (von Roser), *N. nigriventris* (Loew), *N. puberula* (Becker) и *N. bispinosa* (Malloch). Дано переописание *N. longicornis*. Восстановлен вид *N. nigriventris*, который переведен в род *Spathophilus* Becker. Обозначен лектотип для *Cordylura brevi-*

ventris Loew, 1873. *Amaurosoma minuta* Becker, 1894 – новый младший синоним *Nanna flavipes* (Fallén, 1819), *Cordylura breviventris* Loew, 1873 – новый младший синоним *Cordylura nigriventris* Loew, 1864. *N. bispinosa* впервые отмечен на территории России.

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INTRODUCTION

The scathophagid genus *Nanna* Strobl, 1894 (syn. *Amaurosoma* Becker, 1894: see Michelsen, 2001) is represented about 30 species in Holarctic (Vockeroth, 1965, 1987; Šifner, 2008).

According to Becker (Becker, 1894: 110–111) and Hackman (Hackman, 1956: 44), there are five species of *Nanna* in the Palaearctic with shining lines or spots on the scutum: *N. brevifrons* (Zetterstedt, 1838), *N. longicornis* (von Roser, 1840), *N. nigriventris* (Loew, 1864), *N. puberula* (Becker, 1894) and *N. bispinosa* (Malloch, 1920). Besides, as it turned out, the scutum of the holotype of *N. minuta* (Becker, 1894) is with narrow shining stripes on the *dc* lines (see below). The review of these species is given below.

REVIEW OF SPECIES

Nanna brevifrons (Zetterstedt, 1838)

Figs 1, 2, 4–6

This species was described in the genus *Cordylura* (Zetterstedt, 1838: 729) from the female sex. Undoubtedly Zetterstedt had several specimens of this species, but ♀ from "Salice ad Lyksele d. 17. Jun." was selected by him ("semen lecta") to fix the current concept of the name (Zetterstedt, 1838: 729).

Through the kindness of Dr. Roy Danielsson (Zoologiska Institutionen, Lund, Sweden), I was given the possibility to examine all the type-specimens from Zetterstedt's collection, including a single ♀ and 3 ♂. The ♀ with original labels as in Fig. 1 was labeled by me as the holotype of *C. brevifrons*. The holotype is pinned, in excellent condition, only mud and dust adhered to the body in some places.

Vockeroth studied these specimens in 1962 and incorrectly mentioned one of these males as a lectotype and the rest as paralectotypes of *C. brevifrons*, but these designations were not published.

Nanna brevifrons has four small shining spots on the scutum, almost completely shining anepisternum, 3 *or*, fore femur with 1 *pv* in basal third (Fig. 2). Male sternite 5, epandrium and surstyli as in Figs 4–6.

This is a good species, correctly recognized by Ringdahl (1936: 164), Hackman (1956: 44), Gorodkov (1970: 449).

***Nanna longicornis* (von Roser, 1840)**

Fig. 3, 7–9

This species was described in the genus *Cordylura* (von Roser, 1840). It was not mentioned in the primary description that shining spots are present on the scutum, as it was noted by Becker (Becker, 1894: 110-111). Šifner (2008: 104) discussed this difference of opinion, rejected Becker's point of view and redescribed *longicornis* [in *Amaurosoma*] as species without shining spots on the scutum.

Von Roser's collection is kept in the Naturkundemuseum Stuttgart, but as Dr. Hans-Peter Tschorsnig informed [pers. comm.], there are no types of any Scathophagidae species described by Von Roser in the Museum now. However, all of them were in the collection of the Museum in 1903. Becker (Becker, 1903: 53) examined them and confirmed the propriety for the description of *longirostris*, given by him in 1894 (Becker, 1894: 110). I have reasons to believe Becker and support his point of view on *longicornis*. Redescription of this species in English is given below.

REDESCRIPTION. Male, female. Length of body 3.6-4.0 mm. Length of wing 2.9-3.3 mm.

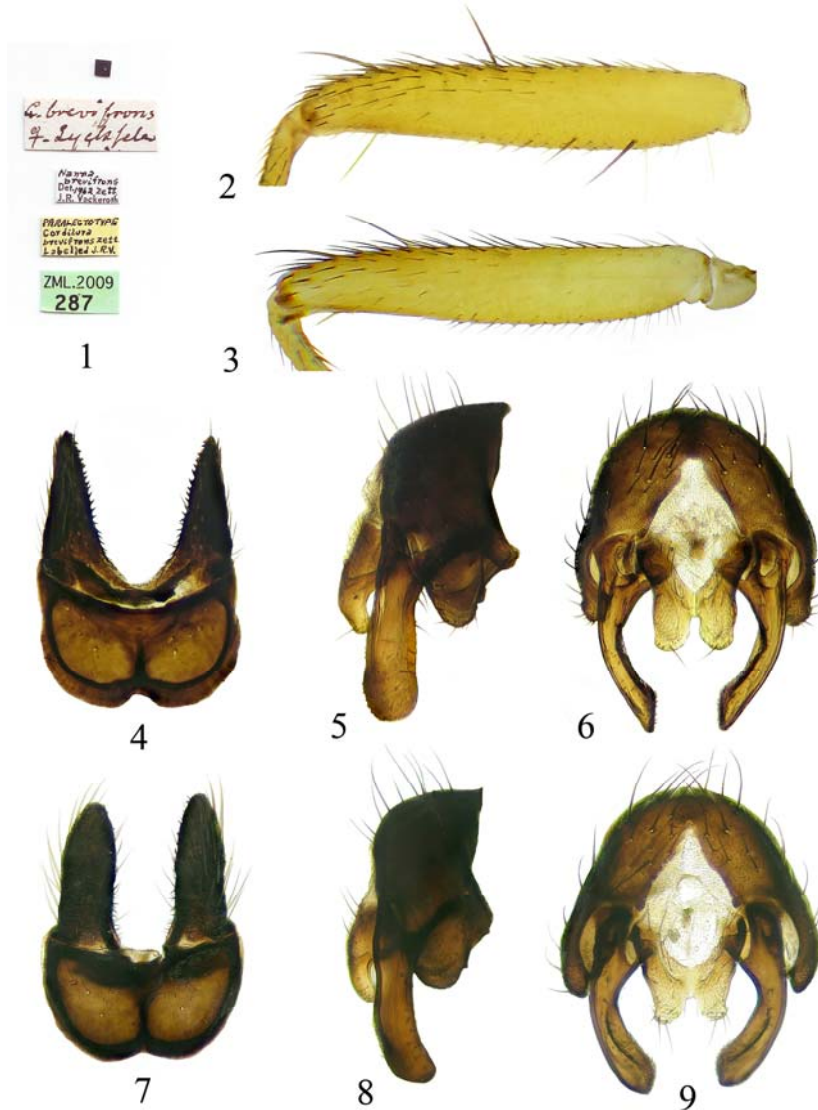
Head. Frons black in upper half and yellow in lower half, matt; black with whitish pollen along margin of eye. Ocellar triangle black. Parafacial, face and gena yellow, with whitish reflection. Postcranium black, whitish dusted, only along eye margin subshining. Gena approximately equal to width of postpedicel. Setae: 2 orbitals, 2-3 frontals, 1 ocellar, 1 postocellar, 1 inner vertical, 1 outer vertical (approximately 1/2 length of inner one). One pair of vibrissae and 0-1 pair of short subvibrissae. Antenna black. Postpedicel with acutely angled upper apical corner, approximately 3 times as long as broad. Arista black, short haired on whole length. Clypeus black. Palpi yellow.

Thorax black, grey dusted. Scutum with 4 shining spots distal from *dc*: two large ones before the suture and two small spots behind it. Katepisternum with fuzzy shining spot in upper posterior corner. Anepimeron shining along anterior margin. Setae: 2 postpronotals, 2 notopleurals, 1+2 supra-alars, 2 postalars, ?1+2 intra-alars, 2+3 dorsocentrals, additionally, anterior margin of scutum with 2 erect black setae; acrostichal hairs in two rows. Proepisternum with setulae and 1-2 setae near lower margin. Proepimeron with 1 seta under anterior thoracic spiracle. Anepisternum covered with rare short setulae in posterior half and with 3-4 setae near posterior margin. Katepisternum with 2 setae. Anepimeron bare. Scutellum with 2 strong and long discal setae; apicals short, hair-like.

Legs yellow, only apex of mid and hind femora, mid and hind tibiae in apical half and tarsi of all legs darkened. Femur of fore leg with a fuzzy row of *pd*, with 2 *d* in apical half; anterior side of fore femur without setae (Fig. 3). Fore tibia with 1 *pd*, 1 *ad* and 1 *p* at middle, with preapical *d*, and with apical *pv* and *av*. Mid femur with a row of *a*, with 1-5 *av*, with 1 *p* near apex. Mid tibia with 1 *ad*, 1 *pd*, 1 *p* and 1 *av* at middle and with ring of apical setae. Hind femur with a row of *ad*, with 1 preapical *pd*. Hind tibia with 2 *d/pd*, 2 *ad*, with 1 preapical *d*, and with apical *a*, *pv* and *av*.

Wing clear; veins brown. R_1 bare. Calypters, their margins and halteres pale yellow.

Abdomen black, grey dusted. Syntergite 1-2 with 2-4 long setae at sides and with a row of setae along posterior margin. Tergites 3-5 each with a row of setae along posterior margin. Male sternite 5 as in Fig 7. Epandrium, cerci and surstyli as in Figs 8-9.



Figs 1–9. *Nanna* ssp.: *N. brevifrons*: 1) labels of holotype; 2) fore femur, anterior view; 4) male sternite 5; 5) epandrium and surstyli, lateral view; 6) the same, dorsal view; *N. longicornis*: 3) fore femur, anterior view; 7) male sternite 5; 8) epandrium and surstyli, lateral view; 9) the same, dorsal view.

MATERIAL. Russia: 1 ♂, Karelia, Kon: 6906: 552, 2 km SE of Kivach, sweeping, birchwood, 27.V 2003, Polevoy (ZMUM); 1 ♂, 1 ♀, Karelia, Kon: 6906: 553, "Kivach" Reserve, sweeping, birchwood, 26.VI 2001, Polevoy (ZMUM and Forest Research Institute, Karelian Research Centre of RAS). First record for Russia.

NOTE. It is possibly that species described by Šifner as *A. longirostris* (see: Šifner, 2008: 104) is *Nanna articulata* (Becker, 1894).

***Nanna nigriventris* (Loew, 1864)**

Figs 10, 13, 16

This species was described in the genus *Cordylura* (Loew, 1864: 19). Šifner (2008: 153) synonymized this species with *Nanna flavipes* (Fallén, 1819): "All characters of *C. nigriventris* are within the limit of variability of *A.* [= *Amaurosoma*, syn. of *Nanna*] *flavipes*, and I therefore suggest *C. nigriventris* as a junior synonym of *A. flavipes*". I don't agree with this point of view.

Moreover, *C. nigriventris* differs well from *A. flavipes*, for example, in the color of the postpedicel (see Fig. 10 and Fig. 11), and it is clear from the original description that this species belongs to another genus, *Spathephilus* Becker, 1894. All species of *Nanna* have a pair of hair-like apical setae and a pair of strong discal setae on the scutellum (Fig. 12); the scutellum in *Spathephilus* is without apical setae, only with strong discal setae (Fig. 13).

I decided to resolve the situation, once and for all. Through the kindness of Dr. Joachim Ziegler (Museum für Naturkunde an der Humboldt-Universität, Berlin, Germany: ZMHUB) I was able to examine the types of *Cordylura nigriventris* Loew, 1864 and *Cordylura breviventris* Loew, 1873.

C. nigriventris described from the female sex, number not stated, but in my opinion from a single specimen. The locality is "Posen". The holotype is pinned, with original labels as in Fig. 16. The left mid leg and right hind tarsal segments 2-5 are missing and the apex of the right wing is damaged, but otherwise it is in good condition.

C. breviventris described from the male sex (Loew, 1873: 250), number not stated, collected in "Sarepta" (this place belongs to the town of Krasnoarmeisk in Volgogradskaya Oblast', Russia now: 48.512011°N, 44.554488°E). The specimen with original labels as in Fig. 17 and studied by me, was designated by Dr. J. Vockeroth in 1962 as the lectotype of *C. breviventris*, but this designation was not published. I have designated it herewith and labelled it as the lectotype of *Cordylura breviventris*. This species was correctly recognized and illustrated well by Šifner (1968).

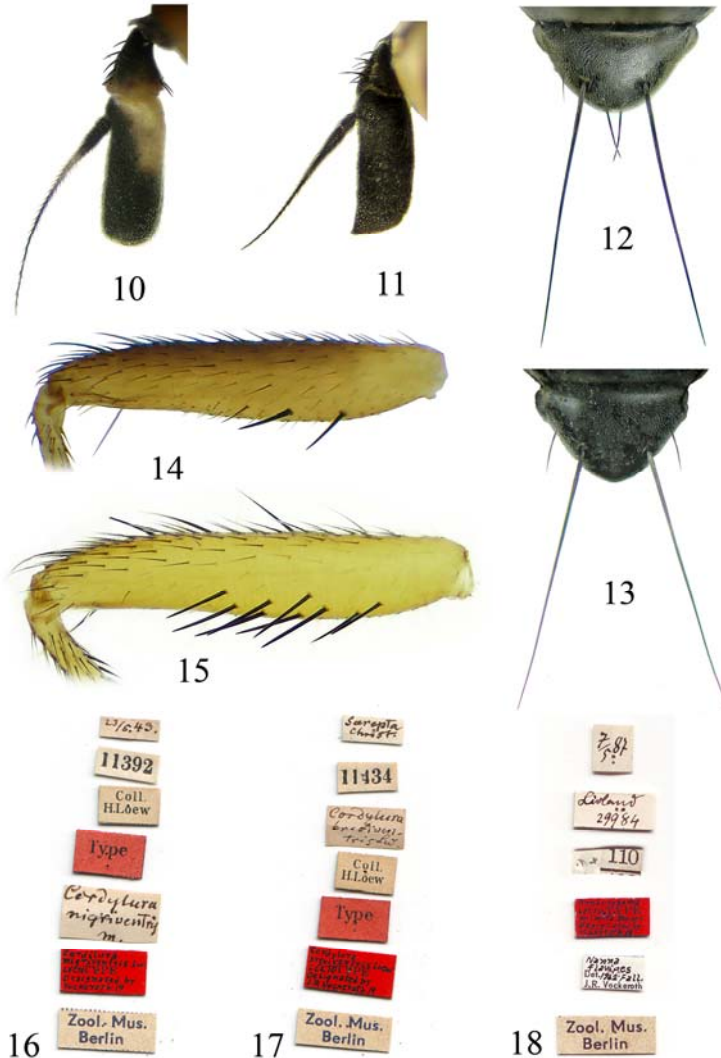
The comparison of the holotype of *Cordylura nigriventris* and the lectotype of *C. breviventris* demonstrated that they both belong to one species. Consequently, *Cordylura nigriventris* is a good species in the genus *Spathephilus* (**comb. n.**) and *Cordylura breviventris* is a new junior synonym (**syn. n.**) of *Cordylura nigriventris*.

***Nanna puberula* (Becker, 1894)**

Fig. 15

This species was described in the genus *Amaurosoma* from a single male in the F. Kowarz collection (Becker, 1894: 114). The holotype is absent in the Zoological Museum, Oxford and in the Zoological Institute, St.-Peterburg (Dr. Adrian Pont and Dr. Emilia Nartchuk, pers. comm.).

Dr. M. Barták sent me a male of this species for study (Czech Republic: Krkonoše, Labský důl near Labe river, MT, 1040 m (50°45'48"N, 15°33'05"E), 15-21.VI 2006, J. Vaněk). This specimen corresponded with the original description by Becker (1984). The habitus of this species is more similar to that of *N. longirostris* (see above), but the fore femur of *N. puberula* has 8-10 *pv* (Fig. 15).



Figs. 10–18. *Spathephilus* and *Nanna* ssp. *S. nigriventris*: 10) antenna, lateral view; 13) scutellum, dorsal view; 16) labels of holotype; *N. flavipes*: 11) antenna, lateral view; 12) scutellum, dorsal view; *N. breviventris*: 17) labels of lectotype; *N. puberula*: 15) fore femur, anterior view; *Nanna minuta*: 18) labels of holotype; *N. bispinosa*: 14) fore femur, anterior view.

***Nanna minuta* (Becker, 1894)**

Fig. 18

This species was described in the genus *Amaurosoma* from a single male in the Sintenis collection (Becker, 1894: 116). The holotype is preserved in ZMHUB and through the kindness of Dr. Ziegler I was able to examine it. The holotype is micro pinned, with original labels as in Fig. 18; the abdomen, tarsomeres 2-5 of right fore leg and of both hind legs are missing. Scutum with narrow shining stripes on *dc* lines, but this character was not indicated either in the original description or in the key (Becker, 1894: 116, 110-111).

This specimen was studied by Vockeroth, designated as the lectotype of *Amaurosoma minuta* by him and determined as *Nanna flavipes* (Fallén), but it was never published. I agree with the determination by Vockeroth. So I propose that formally *Amaurosoma minuta* Becker should be treated as a new junior synonym of *Nanna flavipes* (Fallén), **syn. n.**, which is clear from the present publication.

Additionally, I have studied the male which was sent to me by Dr. M. Barták and identified by him as *N. minuta* (**Czech Republic**: Vraz u Pisku (49.23N, 14.08E), damp meadow, 400 m, 22.V 1995, M. Barták). This specimen has scutum with subshining stripes on *dc* lines (not shining); genitalia are identical to these of *N. flavipes*.

***Nanna bispinosa* (Malloch, 1920)**

Fig. 14

This species was described in the genus *Amaurosoma* from a single female collected in Alaska (Malloch, 1920: 285); Hackman (1956: 44) was the first to register it in the Palaearctic region from 2 females taken from Finland. Through the kindness of Dr. Jim O'Hara, I was able to examine American males and females from the Canadian National Collection of Insects, Arachnids and Nematodes. I also found 1 ♀ from Karelia (Russia) among the material of Scathophagidae sent to me for determination by A.V. Polevoy (**Russia**: Karelia, Kon. 6977: 570, Medvezh'egorsk 4 km W, bilberry pine forest, Malaise trap, 9-11.VI 2000, Polevoy – **new record**).

N. bispinosa has the scutum with 4 (thin) or 2 (wide) shining stripes, fore femur with 2 *pv* in basal half (Fig. 14), frons with 3 *or*.

ACKNOWLEDGEMENTS

I wish to thank Dr. M. Barták (Prague, Czech Republic), Dr. R. Danielsson (Lund, Sweden), Dr. J. O'Hara (Ottawa, Canada), Dr. A.V. Polevoy (Petrozavodsk, Russia), and Dr. J. Ziegler (Berlin, Germany) for the loan of Scathophagidae material, including types. I am grateful to Dr. E.P. Nartchuk (S.-Petersburg, Russia), Dr. A.C. Pont (Oxford, England) and Dr. H.P. Tschorsnig (Stuttgart, Germany) for the search and provided information about types of *N. puberula* (Becker) and *N. longicornis* (von Roser).

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