

## Redescription of *Amaurobius strandi* Charitonov, 1937, stat.n. from the Crimea (Aranei: Amaurobiidae)

### Переописание *Amaurobius strandi* Charitonov, 1937, stat.n. из Крыма (Aranei: Amaurobiidae)

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КЛЮЧЕВЫЕ СЛОВА: *Amaurobius strandi*, систематика, новая синонимия, Крым.

**ABSTRACT:** *Amaurobius strandi* Charitonov, 1937 is carefully redescribed, diagnosed and illustrated, based on new material collected from the Crimea during 1996–2001. It is raised to full species status, and a neotype is designated to stabilize the taxonomy. *Amaurobius timidus* Thaler et Knoflach, 1995 from Greece is a junior synonym of *A. strandi*.

**РЕЗЮМЕ:** На основании изучения самцов и самок *A. pallidus* var. *strandii* Charitonov, 1937, которые были собраны в Крыму в 1996–2001 гг., и их сравнения с экземплярами *A. timidus* Thaler et Knoflach, 1995 из Греции установлена самостоятельность вида *A. strandi* stat.n., и *A. timidus* syn.n. является его младшим синонимом.

#### Introduction

Two species of the genus *Amaurobius* C. L. Koch, 1837 have been recorded from the Crimea: *A. erberi* (Keiserling, 1863) and *A. pallidus* var. *strandii* Charitonov, 1937 [Thorell, 1875; Spassky, 1927; Charitonov, 1932, 1936, 1937]. Charitonov [1937] described *A. pallidus* var. *strandii* (now a subspecies; see ICZN) from a single adult female and ten immature specimens collected by V. I. Bukovsky on 2.08.1929 in beech wood litter in the territory of the Crimean State Reserve. All subsequent reports of *A. pallidus* from the Crimea [Tyshchenko, 1971; Mikhailov, 1997, 1998] are based on Charitonov's [1937] work. As most/all records of *A. pallidus* L. Koch, 1868 are based on single females, Thaler & Knoflach [1993: 134] considered them unreliable, in need of confirmation, and that *Amaurobius p. strandii* Charitonov from the Crimea may prove to be a distinct species. This paper aims to clarify this problem.

#### Material and Methods

During 1996–2001 we collected a large series of *Amaurobius* specimens from various habitats of the

Crimea, including the type locality of *A. pallidus strandii* (the Crimean State Reserve). In total, 262 *Amaurobius* adults (94 of *A. erberi* and 168 of *A. strandii*: 132♂♂ and 36♀♀) were collected and examined. We also re-examined the specimens of *A. timidus* Thaler et Knoflach, 1995 from Greece, determined personally by Dr. K. Thaler.

Specimens for this study were deposited in the following museums/personal collections: CTh — personal collection of Dr. K. Thaler, Innsbruck, Austria; EMZ — personal collection of Mr. E. M. Zhukovets, Minsk, Belarus; PSU — Department of Zoology of the Perm State University, Perm, Russia (Dr. S. L. Eshyunin); TNU — Department of Zoology, V.I. Vernadsky Taurida National University, Simferopol, Ukraine (Mr. N. M. Kovblyuk); ZMUM — Zoological Museum of the Moscow State University, Moscow, Russia (Dr. K. G. Mikhailov).

Some collectors' names are abbreviated as follows: S.D. — Mr. S. Dyadyushkin; N.K. — Mr. N. Kovblyuk; R.S. — Mr. R. Slushaenko; A.Sh. — Mr. A. Shumsky. The following abbreviations are used hereinafter: BT — Barber (=pitfall) traps, CSNR — the Crimean State Natural Reserve; F — femur, ICZN — International Code of Zoological Nomenclature, Mt — metatarsus, Ti — tibia. The nomenclature of male palp morphology is adopted from Thaler & Knoflach [1993, 1995, 1998 etc.]. All measurements are in millimeters.

#### *Amaurobius strandii* Charitonov, 1937 stat. n.

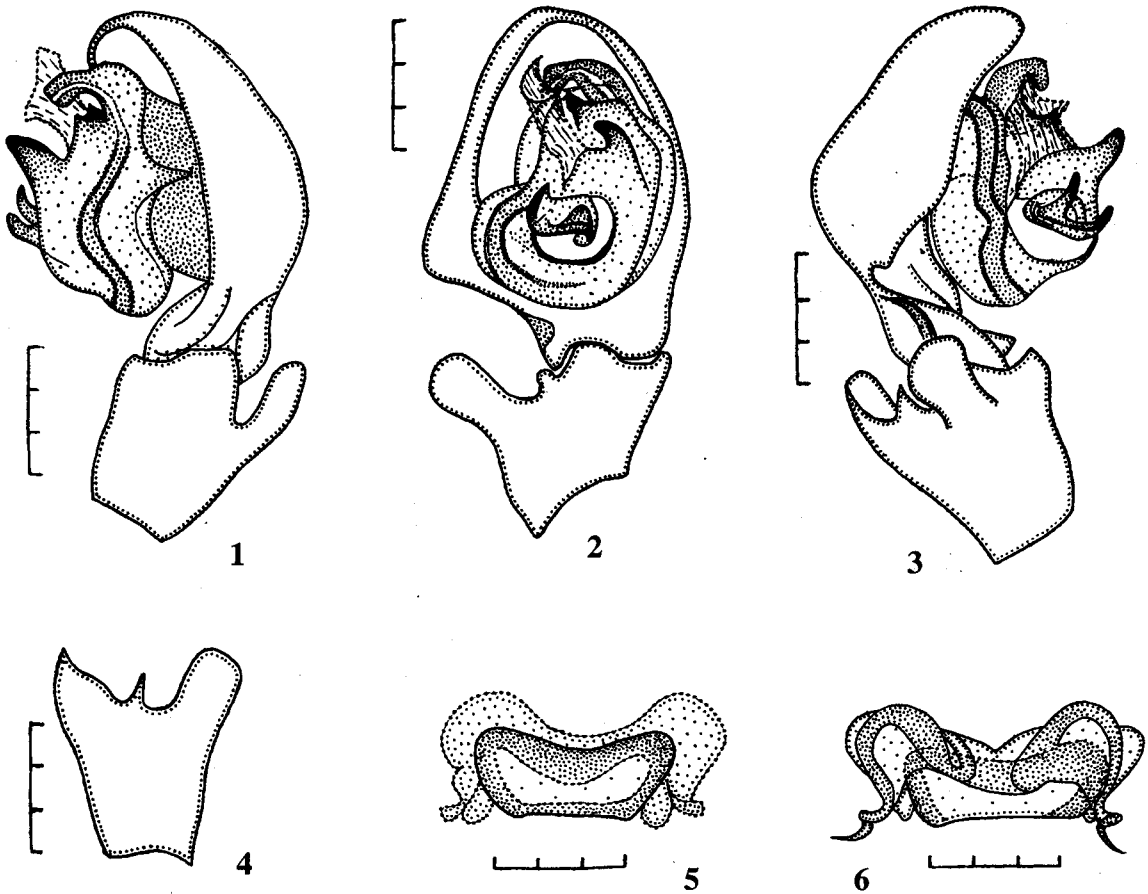
Fig. 1–6.

*Amaurobius pallidus* var. *strandii* Charitonov, 1937: 134, fig. 1 (♀; syntypes in the PSU, lost and not examined; ♂ neotype designated here, deposited in the ZMUM).

*Amaurobius timidus* Thaler et Knoflach, 1995: 44, figs 5, 6, 19, 29, 39, 40 (♂♀; holotype and paratypes in the Muséum d'Histoire Naturelle, Genève; not examined). **Syn.n.**

*Amaurobius timidus*: Thaler et Knoflach, 1998: 113, figs 13–15 (♂).

**MATERIAL:** UKRAINE, THE CRIMEA: ALUSCHTA DISTR.: 1 ♀ (EMZ), Abduga Mt. Range, Crimean State Natural Reserve, 09.05.1997 (N.K.); 3 ♀♀ (EMZ), W slope of Demerdzhi, Cholbash Mt. Range, oak-beech forest, under stones, 10.05.1997 (A.Sh.); 1 ♀ (TNU), CSNR, Bukovsky's cordon, 1000 m a.s.l., beech wood, in stumps and under stones, 12.06.2000 (N.K.); 1 ♀ (TNU), CSNR, Trout farm, *Fagus*, *Carpinus betulus*, *Quercus*, *Populus* forest, in litter, 28.06.2001 (N.K.); 1 ♀ (TNU), CSNR, Asport cordon, wood (*Fagus*, *Carpinus betulus*, *Populus*), in litter, 29.06.2001 (N.K.); 1



Figs. 1-6: Copulatory organs of *Amaurobius strandi* stat.nov.: 1-3 — male palp, prolateral view (1), ventral view (2), retrolateral view (3); 4 — tibia of male palp, dorso-retrolateral view; 5-6 — epigyne, ventral view (5), dorsal view (6). Scale lines: 0.3 mm.

Рис. 1-6. Копулятивные органы *Amaurobius strandi* stat.nov.: 1-3 — палец самца (1 — пролатерально, 2 — вентрально, 3 — ретролатерально); 4 — голень пальца самца (дорзо-ретролатерально); 5-6 — эпигина (5 — вентрально, 6 — дорзально). Масштаб: 0,3 мм.

♀ (TNU), CSNR, Trout farm, mixed nemoral forest, in litter, 22.08.2001 (N.K.). SEVASTOPOL DISTR.: 1 ♀ (EMZ), Aiya Cape, 50-500 m a.s.l., 9.11.1997 (N.K.). SIMFEROPOL DISTR.: 2 ♀♀ (EMZ), near Krasnolesye Vil., 05.07.1996 (S.D.); 1 ♀ (EMZ), left bank of Burul'cha River, Dedov Kuren' Mt., beech forest, under stones, 10.05.1997 (A.Sh.); 1 ♀ (EMZ), Simferopol, Petrovskaya Balka locality, under stones, 14.05.1997 (S.D.); 1 ♀ (EMZ), near Krasnolesye Vil., slope of Kosh-Kaya Mt., under stones, 29.05.1997 (S.D.); 1 ♀ (EMZ), near Kirpichnoye Vil., Petrovskaya Balka boundary, woodland belt, BT, 31.05-12.06.1997 (N.K.); 1 ♀ (EMZ), near Krasnolesye Vil., 07-09.06.1997 (R.S.); 2 ♀♀ (EMZ), near Pereval'noye Vil., Malaya Burul'cha River, edge of oak and beech and hardbeam forest under the Yaila, 15.06.1997 (R.S.); 4 ♀♀ (EMZ), near Krasnolesye Vil., N slope of Kosh-Kaya Mt., hardbeam and beech and oak forest, under stones, 18.06.1997 (N.K.); 1 ♀ (EMZ), same locality, oak-hardbeam-maple forest, under bark, 20.06.1997, (N.K.); 6 ♂♂ (EMZ), 1.5-2 km N of Fersmanovo Vil., Bairakly Mt. (519 m a.s.l.), Kessler's Wood boundary, BT, 4.09-18.10.1998 (N.K.); 19 ♂♂ (TNU), same locality, mixed oak dry forest, BT, 03.10-14.11.1999 (N.K.); 57 ♂♂, 2 ♀♀ (TNU), same locality, BT, 26.03-26.11.2000 (N.K.); 22 ♂♂ (TNU), same locality, grassland, *Brachypodium-Elytrigium pratense* (*Brachypodium pinnatum* — *Elytrigia maeotica* — *Filipendula vulgaris*), BT, 27.05-19.12.2000 (N.K.); 1 ♀ (CTh), same locality, 400 m a.s.l., *Stipetum* (*capillatae*) *mixtoherbosum* subsp. *Festucetum filipendulosum*, BT, 26.04-6.05.2000 (N.K.); 4 ♀♀ (EMZ), tract of Zolotoe Yarmo, spur of Dolgoru-

kovskaya Yaila, SW slope, 650-700 m a.s.l., mixed nemoral forest, under stones, 7.11.1998 (N.K.); 3 ♀♀ (EMZ), 0.5-1 km N of Zalesye Vil., Yukhary-Guzel'-Dagh Mt., Chumakarskiye Dubki locality, in litter and under stones, 28.02.1999 (N.K.); 1 ♂ (ZMUM; the neotype, designated here), near Pereval'noye Vil., NE spur of Chatyr-Dagh Massive, elfin-wood of *Quercus petraea* and *Cornus mas*, BT, 21.05-01.06.2000 (N.K.); 22 ♂♂, 1 ♀ (TNU), same locality, BT, 08.05-19.12.2000 (N.K.); 4 ♂♂, 1 ♀ (PSU 2412-2415), near Lozovoe Vil., Mt. Bairakly (519 m a.s.l.), watershed, *Festuceto-Stipetum artemidosum* + *Amygdalus nana* + *Pinus pallasiana* — Hortus, BT, 6.02-8.12.2000 (N.K.).

COMPARATIVE MATERIAL of *Amaurobius timidus* Thaler et Knoflach, 1995: 2 ♂♂, 2 ♀♀ (TNU), N. Greece, Epiros, Pindos Range, route Arta-Trikala, near Vourgareli 1000-1200 m a.s.l., in *Abies* forest, 14.09.1997 (K. Thaler).

DIAGNOSIS. *Amaurobius strandi* Charitonov, 1937 is similar to a number of closely related species (*A. deelemanae* Thaler et Knoflach, 1995, *A. longipes* Thaler et Knoflach, 1995, *A. pallidus* L. Koch, 1868, *A. paon* Thaler et Knoflach, 1993 and *A. pelops* Thaler et Knoflach, 1991), but differs from them all, in having a straight intermediate tibial apophysis (curved in related species) which is also elongated, slightly sharpened and situated near the base of the prolateral-dorsal apophysis (Figs. 3, 4). The slightly sharpened tegular process protrudes strongly and is directed anteriorly (Fig. 2); the tegular apophysis is subdivided into almost equal lobes (Fig.

3). The females of *A. strandi* can be distinguished from those of related species by the shape of the insemination ducts, in which the distal parts are curved laterally, approximately at right angles (ca. 90 degrees) (Fig. 6).

NOTES: The variety *Amaurobius pallidus* var. *strandii* was described by Charitonov [1937] on the basis of a single adult female and ten immature specimens and is currently considered a subspecies, as this name had been published before 1961 (see paragraph 45.6.4 of ICZN). Body size, colouration, leg spination and epigynal structure in the specimens collected by us (see above under Material) clearly correspond with the description and figure of Charitonov [1937: fig.1]. Furthermore, spiders were collected in the same localities and habitats of the CSNR, from where Charitonov's specimens came, and where only a single *Amaurobius* species, *A. strandi*, has been found to occur (*A. erberi* is absent). In describing the colour pattern of *A. pallidus strandi*, Charitonov [1937: 134; translated from Russian by NK] stated: "...abdomen grey, with a dusky grey pattern as in *A. pallidus* L. Koch". The colour of our specimens from the type locality, match precisely this description. On the contrary, the abdominal colour pattern (re: shape and arrangement of grey patches) of *A. erberi* is very distinct from that of *A. pallidus* [see Loxsa, 1969: fig. 14E]. Consequently, our materials can be assigned, beyond doubt, to *A. pallidus strandi* rather than to another species.

Conspecific males of *A. pallidus strandi* were taken in the same habitats, together with females. The structure of the male palp (Figs 1–3) does not correspond to that of true *A. pallidus*

Table 1. Morphometric data for *Amaurobius strandi* from the Crimea.  
Таблица 1. Морфометрические данные по *Amaurobius strandi* в Крыму.

	Males (n=52)	Females (n=4)
Total length	5.1±0.47	7.55±0.61
Maximum total length	6.25	8.0
Minimum total length	3.95	6.5
Length of cephalothorax	2.75±0.21	3.275±0.57
Maximum length of cephalothorax	3.2	4.0
Minimum length of cephalothorax	2.3	2.5
Width of cephalothorax	1.93±0.49	2.26±0.31
Maximum width of cephalothorax	2.25	2.65
Minimum width of cephalothorax	1.6	1.8

[cf. fig. 269 in Wiehle, 1953; after Chyzer et Kulczyński, 1892: tab. 7, fig. 40]; see also Thaler & Knoflach [1993: figs 3, 6, 9, 12]. Thus, we conclude that *A. strandi* Charitonov, 1937, **stat.n.** is a distinct species, rather than a subspecies of *A. pallidus*, or *A. pallidus* itself. Since neither the syntypes (1 ♀ and 10 juveniles), nor the lectotype were traced in the collections of the PSU and are now considered lost [S.L.

Table 2. Leg armature of *Amaurobius strandi*.  
Таблица 2. Вооружение ног *Amaurobius strandi*.

Leg	Segment	Armature			
		Dorsal	Ventral	Anterior	Posterior
I	F	1., in ♀ can be 0.	0.	1.	0.
	Ti	0.	2.2.2., in ♀ can be 2.2. [Charitonov, 1937]	1.1., in ♂ can be 1.0.	1.1.
	Mt	2.	2.2.1., in ♂ can be 2.2.2. [Charitonov, 1937]	1.1., in ♀ can be 1. [Charitonov, 1937]	1.1., in ♀ can be 1. [Charitonov, 1937]
II	Fe	2.1., in ♀ can be 2.	0.	1.	0., in ♂ can be 1.
	Ti	0.	2.2.2., in ♀ can be 1.1.2. [Charitonov, 1937] or 2.1.2., in ♂ can be 1.2.2.	1.1.	1.1., in ♀ can be 1. [Charitonov, 1937]
	Mt	2.	2.2.1., in ♀ can be 2.2.2. [Charitonov, 1937] or 1.2.1., in ♂ can be 2.1.1.	1.1., in ♀ can be 1. [Charitonov, 1937]	1.1., in ♀ can be 1. [Charitonov, 1937]
III	Fe	1., in ♀ can be 2. [Charitonov, 1937], in ♂ can be 1.1. or 1.1.2	0.	1., in ♂ can be 1.1.	1., in ♂ can be 1.1.
	Ti	0.	1.1.2., in ♂ can be 1.1., 2.2. or 1.2.2.	1.1.	1.1., in ♂ can be 1.
	Mt	2., in ♀ can be 2.2.	2.1.1., in ♀ can be 1.1.2. [Charitonov, 1937], in ♂ can be 2.2.1.	1.1.	1.1., in ♂ can be 1.
IV	Fe	0., can be 1.	0.	0.	1.
	T	0.	1.1.2., in ♀ can be 1.2.2., in ♂ can be 1.1.1. or 1.0.2.	0.	1. in ♀, 1.1. in ♂
	Mt	2.	2.1.1., in ♀ can be 2.1.2. [Charitonov, 1937], in ♂ can be 1.1.1. or 2.0.1.	1., in ♂ in Crimea and in ♂ and ♀ from Greece 1.1.	1., in ♂ can be 0.

\*The spines are described starting from proximal end of the leg segment.

\*Примечание: расположение шипов указано, начиная с проксимального конца членика.

Esyunin, personal communication], the male collected from the type locality (the CSNR) was designated as the **neotype** (kept in the ZMUM) in order to stabilize the taxonomic status of this species.

*Amaurobius timidus* Thaler et Knoflach, 1995 was described from males and females collected in Greece; subsequently it was recorded from Bulgaria [Thaler & Knoflach, 1998]. The structure of the male and female copulatory organs [Thaler & Knoflach, 1995: figs. 5, 6, 19, 29, 39, 40] is identical to that of *A. strandi* (cf. Figs 1–6). A re-examination of the Greek specimens, determined personally by Dr. K. Thaler as *A. timidus*, showed them to be identical to the Crimean specimens of *A. strandi*. According to the principle of priority, the name *A. strandi* is regarded as a senior synonym of *A. timidus* **syn.n.**

*A. strandi* is redescribed below, based on the Crimean specimens (leg armature and measurements are given in Tables 1 and 2).

**DESCRIPTION.** Body/carapace length/width of this species very variable (Table 1).

**Leg armature** is provided in Table 2. It seems the number and position of spines is highly variable. Differences can even be seen in legs of the same pair. So leg armature appears to be a poor diagnostic character in *Amaurobius* species.

**Coloration:** Carapace, maxillae, labium, sternum yellow-brown. Cephalic part of the female carapace dark brown. Chelicerae brown. Coxae, trochanters, femora, patellae of legs and palps monochromously yellowish brown, as cephalothorax. Tibiae, metatarsi and tarsi III–IV darker (brown), and legs I–II brown. Tibiae and tarsi of the male and female palps brown. Abdomen grey yellowish, with dark grey pattern as in *A. pallidus* [Loksa, 1969: 22, fig. 14E].

**Male palp structure and female epigyne** are shown in Figs 1–6.

**DISTRIBUTION.** Greece, Bulgaria and Ukraine (the Crimea). The Crimean mountains are the north-easternmost record for this species. It is highly likely that it was this species reported by G.A. Sekirova [1977: 88, fig. 1, ♂] from Moldova under the name *A. pallidus*.

**HABITAT.** In the Crimea, *A. strandi* inhabits the litter of oak, hardbeam, and beech forests and grasslands in the forest belt of the mountainous region of the peninsula. Adult specimens are found throughout autumn, winter and spring, from August to June. Their highest abundance is recorded in April and October. Males were collected in pitfall (=Barber) traps more frequently than females, while females (unlike males) were easily collected by hand.

Males missing the terminal palp segment (palpal tarsus) occur frequently. We did not observe such a phenomenon in any other species.

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