

## A NEW SPECIES OF *PSEUDOCCELLUS* PLATNICK, 1980 (RICINULEI: RICINOIDIDAE) FROM GUANTANAMO BAY, SOUTHEASTERN CUBA

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**Abstract:** The ricinulid *Pseudocellus aridus* n.sp. is described from a single adult male collected in a xerophytic locality east of Guantanamo Bay, southeastern Cuba. This new taxon is very easy to distinguish from all its described Cuban congeners by the morphology of the leg II and a unique combination of other characters such as the degree of attenuation and sculpture of the body and appendages, size, coloration, and structure of the copulatory organ. This represents the fourth species described from Cuba, as well as the third from its eastern region and the second from Guantanamo province.

**Key words:** Ricinulei, Ricinoididae, *Pseudocellus*, new species, Cuba.

**Una especie nueva de *Pseudocellus* Platnick 1980 (Ricinulei: Ricinoididae) de la Bahía de Guantánamo, Cuba suroriental**

**Resumen:** Se describe el ricinuleido *Pseudocellus aridus* n. sp., a partir de un macho adulto capturado en una localidad xerófila al este de la Bahía de Guantánamo, Cuba suroriental. Este nuevo taxón es muy fácil de distinguir de todos sus congéneres cubanos descritos por la morfología de la pata II y una combinación única de otros caracteres como el grado de atenuación y escultura del cuerpo y los apéndices, talla, colorido y estructura del órgano copulador. Esta representa la cuarta especie descrita para Cuba, así como la tercera de su región oriental y la segunda de la provincia de Guantánamo.

**Palabras clave:** Ricinulei, Ricinoididae, *Pseudocellus*, especie nueva, Cuba.

**Taxonomía/Taxonomy:** *Pseudocellus aridus* n. sp.

### Introduction

So far, only three Cuban species of ricinulids are recognized as valid, all of them belonging to the genus *Pseudocellus* Platnick, 1980: the single Central species *P. silvai* (Armas, 1977, from a single coastal locality in northern Sancti Spiritus province), and the two Eastern species *P. paradoxus* (Cooke, 1972, widespread across Las Tunas, Granma, Holguín and Santiago de Cuba provinces) and *P. pachysoma* Teruel & Armas, 2008 (from a few nearby localities in northeastern Guantanamo province). For a complete taxonomic history of these taxa and supplementary information about their ecology, apart from the original descriptions listed above see also Armas (1976, 1980), Teruel & Pérez (2003), Teruel & Cala (2007), and Teruel & Schramm (2014).

Moreover, there are other four taxa that still remain undescribed: three from caves in the western region of the country (Armas, 2007) and another in the southern foothills of the Guamuhaya Mountains in the central provinces of Sancti Spiritus (Armas *et al.*, 2009) and Cienfuegos (R. Teruel & T. M. Rodríguez-Cabrera, unpublished data).

During a recent field trip conducted by the author as an arachnological/herpetological survey of the Guantanamo Bay area, a single adult male of a very peculiar, undescribed species of ricinulid was collected in a dry forested hill surrounded by semidesertic plains. The formal description of this new taxon represents the main objective of the present paper.

### Material & methods

Specimens were studied under a Zeiss Stemi 2000-C stereomicroscope, equipped with a line scale and a Canon PowerShot A620 digital camera; habitat photographs were taken with a Nikon Coolpix S8100 digital camera. High-resolution images were processed with Adobe Photoshop® 8.0 to optimize resolution and brightness, and to remove artifacts or unnecessary details from the background.

All measurements are given in millimeters: total length of the body (= size) corresponds to the sum of the individual lengths of the cucullus, carapace and the abdomen, all measured along midline with exclusion of the pygidium.

All specimens mentioned herein are preserved in ethanol 80%, with original labels either laser-printed or handwritten in Spanish (transcribed into English here for text coherence only), and deposited in the personal collection of the author (RTO).

### Systematics

#### *Pseudocellus aridus*, new species

Figures 1-4. Table I

**HOLOTYPE.** ♂ (RTO): GUANTÁNAMO province: CAIMANERA municipality: Sierra del Maquey: Loma El Mayal; 20°00'11"N – 75°04'46"W; 100 m a.s.l.; October 22, 2015; R. Teruel.

**ETYMOLOGY.** The selected epithet is a Latin adjective that means "dry, xeric", and alludes to the particular habitat of the species.

**DIAGNOSIS** (single adult male). Size medium for the genus (3.9 mm). Coloration pale reddish brown, essentially uniform; eyespots absent; entire body and appendages covered with short, acuminate silver setae. Body and appendages slender (length/width ratio of abdomen 2.04). Leg II long but thick (length/width ratio of femur and tibia 3.15 and 2.57, respectively); tibia enlarged, internal surface conspicuously concave and without a well-defined prolateral spur, but two rows of large denticles instead; basitarsus heavily denticulate on all surfaces. Median plate of tergites XI-XII narrowly rectangular (each much longer than wide), the latter without discal dome. Cucullus and carapace sparsely punctate and covered with

**Table 1. Measurements (mm) of the type-specimen of *Pseudocellus aridus* n.sp.** Abbreviations: length (L), width (W).

Measurements		♂ holotype
Cucullus	L / W	0.40 / 0.94
Carapace	L / W	1.05 / 0.95
Abdomen	L / W	2.45 / 1.20
Median plate, tergite XI	L / W	0.61 / 0.50
Median plate, tergite XII	L / W	0.75 / 0.44
Median plate, tergite XIII	L / W	0.80 / 0.50
Pedipalp	L	1.63
Telofemur	L / W	0.17 / 0.17
Tibia	L / W	0.60 / 0.19
Tarsus	L / W	0.86 / 0.09
Leg II	L	5.23
Femur	L / W	1.45 / 0.46
Patella	L / W	0.60 / 0.30
Tibia	L / W	1.08 / 0.42
Basitarsus	L / W	1.00 / 0.13
Telotarsus	L / W	1.10 / 0.22
<b>Total</b>	<b>L</b>	<b>3.90</b>

small granules only around margins, tergal plates densely punctate, legs I, III and IV sparsely granulose to essentially smooth. Pygidium not notched.

**DESCRIPTION** (adult male holotype). **Coloration** (fig. 1) pale reddish brown, without any discernible patterns but slightly darker on carapace and legs II; cuticular granulation and denticulation much darker due to heavier sclerotization; pleural and articular membranes beige. **Cucullus** (fig. 2a; tab. I) more than twice wider than long; tegument sparsely punctate and densely covered with small but sharp granules and short, acuminate silver setae; anterior margin with a shallow, wide, densely setose median notch. **Carapace** (fig. 2a; tab. I) longer than wide, almost flat and with ordinary furrows for the genus; anterior margin straight, posterior margin widely, but deeply convex, lateral margins very shallowly convex and slightly convergent anteriorly; tegument sparsely punctate and densely covered with small but sharp granules and short, acuminate silver setae; eyespots absent. **Abdomen** (fig. 2b; tab. I) very long and narrow; median plate of tergites XI–XIII each with a pair of lateral furrows and much longer than wide: XI trapezoidal, XII–XIII essentially rectangular, the latter essentially flat (i.e., without a conspicuously raised discal dome); tegument densely punctate, smooth and densely covered with short, acuminate silver setae. **Pygidium** very short and wide, not notched; tegument smooth and with minute silver microsetae. **Chelicerae** typical for the genus. **Pedipalps** (fig. 1b; tab. I) short and slender, densely covered by minute translucent microsetae; tarsus smooth. **Legs** (figs. 1a–b, 2c–e; tab. I) I moderately long, slender and densely covered with short, acuminate silver setae, tegument sparsely covered with small but sharp granules; tibia with two parallel rows (dorsointernal and ventrointernal) of larger denticles. Legs II long, robust and densely covered with short, acuminate silver setae; femur thick (length/width ratio 3.15) but progressively narrower distally, moderately covered by small granules; patella short, stout (length/width ratio 2.00) and densely covered with small granules; tibia stout (length/width ratio 2.57), internal surface with basal third inflate and distal two-thirds conspicuously concave, with two parallel rows (dorsointernal and ventrointernal) of large, sharp, rough denticles, tegument essentially smooth except internally, where it is densely granulose to tuberculate between both denticle rows; basitarsus subcylindrical and sinuose, tegument densely covered with large denticles on all surfaces, especially internal. Legs III

moderately long, slender and densely covered with short, acuminate silver setae, tegument essentially smooth; copulatory organ depicted in figure 2e. Legs IV moderately long, slender and densely covered with short, acuminate silver setae, tegument essentially smooth.

**COMPARISONS** (males only): *P. aridus* n.sp. can be easily recognized from all other species of the genus described from the country on the basis of two very peculiar characters relative to the armature of leg II, i.e., internal surface of tibia lacking a prolateral spur but with two parallel rows of large denticles, and basitarsus heavily and irregularly denticulate. All other Cuban species possess instead a large spur of variable size but always clearly defined and in dorsointernal position, and basitarsus feebly granulose to moderately but evenly denticulate.

Apart from this, the other two species from eastern Cuba can be distinguished from *P. aridus* n.sp. as follows:

- *P. pachysoma*: size remarkably larger (4.8–5.2 mm); coloration very dark reddish to blackish brown, with yellowish membranes; body and appendages conspicuously more robust (e.g., length/width ratio of abdomen 1.58–1.61); leg II femur subcylindrical, not progressively narrower distally; median plate of tergites much shorter and wider (XI wider than long, XI–XII as long as or slightly longer than wide); copulatory organ different in shape and proportion of structures (see Teruel & Schramm, 2014: fig. 2d).

- *P. paradoxus*: size variable, but usually larger (up to 4.9 mm); body slightly more robust (e.g., abdomen length/width ratio 1.60–2.00); leg II conspicuously more slender (see Teruel & Pérez, 2003: figs. 1a, 2a; Teruel & Schramm, 2014: fig. 6), especially femur which is essentially cylindrical; carapace and tergites with granulation remarkably denser; median plate of tergites shorter and wider, especially XI–XII (see Cooke, 1972: fig. 1); copulatory organ different in shape and proportion of structures (see Armas, 1977: fig. 5 as *Cryptoceillus mayari*).

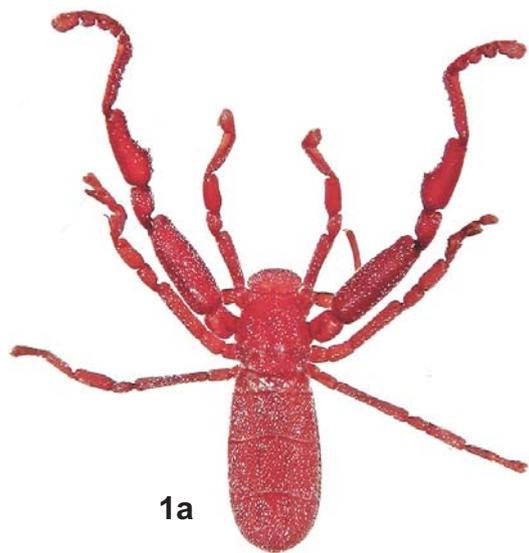
Last, *P. silvai* (the single described species of central Cuba) has the body and appendages much longer, more slender and less sculptured than *P. aridus* n.sp.

**DISTRIBUTION** (fig. 3). Known only from the type-locality, which represents the extreme southern foothills of the Sierra del Maquey mountain range. The latter is a north-to-south oriented, low karstic limestone formation that flanks the Guantanamo Bay all along its east side.

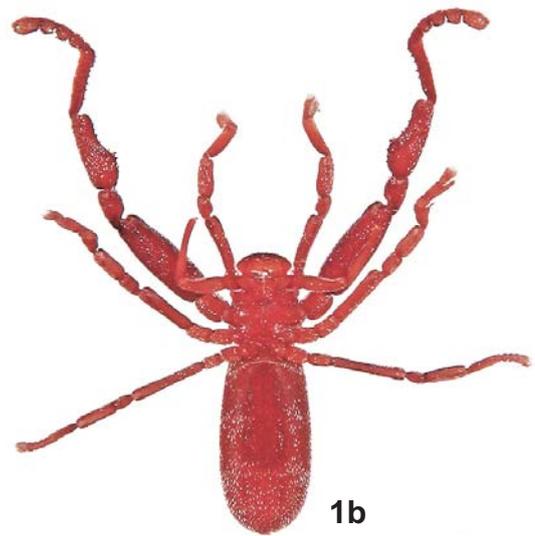
**ECOLOGICAL NOTES.** The single specimen available was found hanging to the underside of a mid-size limestone rock, semi-buried in the bare loess soil of a southwest-facing slope of a small hill ("loma" is a Spanish toponym widely used in Cuba to denote any low to medium hill or mountain that stands out from others in a range), at the bases of an *Agave* plant and a small *Erythroxylum* bush (fig. 4).

The vegetation in this area is a dry, subcoastal semi-caducifolious forest which varies markedly with the relief and the humidity conditions it provides: the forest is sparser, shorter and microphyllous on the lowest, flatter hillsides (e.g., the site where the ricinulid was found), but denser, taller and with larger leaves on the highest tops and ravines. The entire vegetation is remarkably dry and belong to the semidesertic coastal strip of southern Guantanamo province.

This species seems to be extremely uncommon or hard to find, because a single specimen was found during one



1a



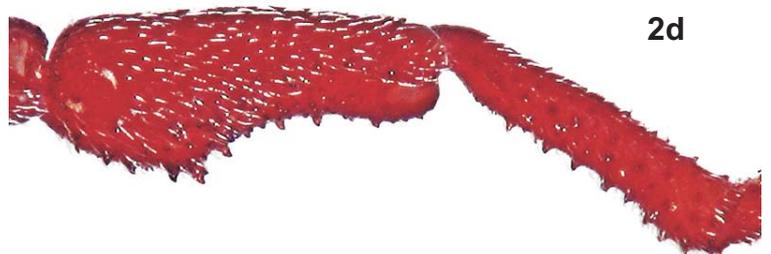
1b



2a



2c



2d

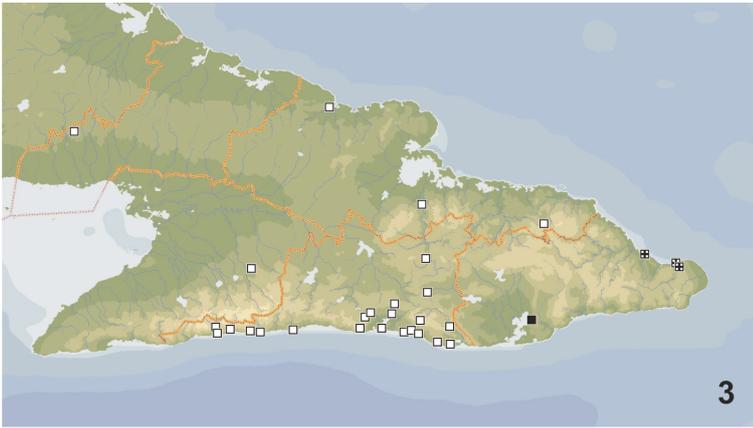


2b



2e

**Fig. 1.** Adult male holotype of *Pseudocellus aridus* n.sp., habitus: dorsal (left) and ventral. **Fig. 2.** Adult male holotype of *Pseudocellus aridus* n.sp., morphological details: **a)** cucullus and carapace; **b)** abdomen, dorsal view; **c)** tibia and basitarsus of leg II, dorsal view; **d)** tibia and basitarsus of leg II, ventral view; **e)** copulatory organ of leg III, ventral view.



**Fig. 3.** Updated geographical distribution of the three species of ricinulids from eastern Cuba: *Pseudocellus aridus* n.sp. (black square), *Pseudocellus pachysoma* (white squares with black cross), *Pseudocellus paradoxus* (white squares).



**Fig. 4.** Two views of type-locality of *Pseudocellus aridus* n.sp.: **a)** general view of the area, the black arrow points to Loma El Mayal; **b)** close-up of the habitat and micro-habitat, the black arrow points the exact rock where the holotype was found.



week of intensive sampling all around Guantanamo Bay. Moreover, the southern coast of Guantanamo is more or less well sampled arachnologically, but no other ricinulids have ever been found there (fig. 3).

**REMARKS.** The present addition increases to four the number of ricinulid species officially recorded from Cuba. This is also the second species known to occur in Guantanamo province, both being widely allopatric (fig. 3). This figure also shows

that the present finding partially fills an important but yet unexplained gap in the distribution map of eastern Cuban ricinulids, as no records existed previously from the vast region south of the Sagua-Baracoa Mountains despite the existence of many places with suitable conditions. The discovery of *P. aridus* n.sp. reinforces the suspicion that such a gap is an artifact of the combination of two main factors: poor or inadequate sampling, plus scarcity or extreme localization of the species potentially present.

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