

## New species of *Paracistela* Borchmann from the Oriental Region (Coleoptera: Tenebrionidae: Alleculinae: Alleculini: Gonoderina)

Vladimír NOVÁK

Nepasické náměstí 796, CZ-190 14 Praha 9 - Klánovice, Czech Republic,  
e-mail: alleculinae.vn@centrum.cz

**Taxonomy, new species, descriptions, Coleoptera, Tenebrionidae, Alleculinae, Gonoderina, *Paracistela*, Cambodia, Thailand, Vietnam, Oriental Region**

**Abstract.** New species of the genus *Paracistela* Borchmann, 1941 are described as follows: *Paracistela bokorica* sp. nov. and *Paracistela monoromica* sp. nov. from Cambodia, *Paracistela daknongica* sp. nov. and *Paracistela sapaica* sp. nov. from Vietnam, and *Paracistela nahaeoica* sp. nov. and *Paracistela tenebris* sp. nov. from Thailand. All new species are described, illustrated and compared with the most morphologically similar species. A list of so far known species of the genus *Paracistela* Borchmann, 1941 is added. New distributional data on the species *Paracistela laosensis* (Pic, 1934) (new to Cambodia) and *Paracistela rufithorax* (Pic, 1913) (new to Thailand) are added. Male genitalia of *Paracistela rufithorax* (Pic, 1913) are shown for the first time.

### INTRODUCTION

Borchmann (1941) described the genus *Paracistela* (subtribe Gonoderina Seidlitz, 1896) with the type species *Paracistela variabilis* Borchmann, 1941 from Myanmar. Novák (2011) described ten new species from China, Laos, India and Thailand. Three species were transferred from the genus *Isomira* Mulsant, 1856 and two species from the genus *Pseudocistela* Crotch, 1873 (Novák 2011). In present we know fifteen species of this genus, five of them living in the Palearctic Region (Novák 2020). No species is known from Cambodia and only one species is reported from northern Vietnam.

New species of the genus *Paracistela* Borchmann, 1941 are described as follows: *Paracistela bokorica* sp. nov. and *Paracistela monoromica* sp. nov. from Cambodia, *Paracistela nahaeoica* sp. nov. and *Paracistela tenebris* sp. nov. from Thailand, and *Paracistela daknongica* sp. nov. and *Paracistela sapaica* sp. nov. from Vietnam. All new species are described, illustrated and compared with similar species, a check list of the species of *Paracistela* is added. New distributional data on the species *Paracistela laosensis* (Pic, 1934) (new to Cambodia) and *Paracistela rufithorax* (Pic, 1913) (new to Thailand) are added. Male genitalia of *Paracistela rufithorax* (Pic, 1913) are shown for the first time.

### MATERIAL AND METHODS

Two important morphometric characteristics used for the descriptions of species of the subfamily Alleculinae, the 'ocular index' dorsally (Campbell & Marshall 1964) and 'pronotal index' (Campbell 1965), are used in this paper as well. The ocular index equals  $(100 \times \text{minimum dorsal distance between eyes}) / (\text{maximum width of head across eyes})$ . The

pronotal index is calculated as  $(100 \times \text{length of pronotum along midline}) / (\text{width across basal angles of pronotum})$ . In the list of type or examined material, a slash (/) separates data in separate rows.

The following collection codes is used:

IRSNB Institut Royal des Sciences Naturelles de Belgique, Bruxelles, Belgium;

KMTJ Kimio Masumoto, private collection, Tokio, Japan;

MNFI Museo di Storia Naturale, Firenze, Italy;

NMTJ National Museum, Tokio, Japan;

VNPC private collection of Vladimír Novák, Praha, Czech Republic.

Measurements of body parts and corresponding abbreviations used in the text are as follows: AL - total antennae length, BL - maximum body length, EL - maximum elytral length, EW - maximum elytral width, HL - maximum length of head (visible part), HW - maximum width of head, OI - ocular index dorsally, PI - pronotal index dorsally, PL - maximum pronotal length, PW - pronotal width at base, RLA - ratios of relative lengths of antennomeres 1-11 from base to apex (3=1.00), RL/WA - ratios of length / maximum width of antennomeres 1-11 from base to apex, RLT - ratios of relative lengths of tarsomeres 1-5 respectively 1-4 from base to apex (1=1.00).

Other abbreviations used in the text: bl= beige label; yl= yellow label.

Measurements were made with Olympus SZ 40 stereoscopic microscope with continuous magnification and with Soft Imaging System AnalySIS. Snapshots were taken by using camera Canon EOS 550 D, and Canon Macro Photo Lens MP-E and software Helicon Focus 5.2.

## TAXONOMY

### tribe Alleculini Laporte, 1840

### subtribe Gonoderina Seidlitz, 1896

### genus *Paracistela* Borchmann, 1941

**Type species.** *Paracistela variabilis* Borchmann, 1941: 31.

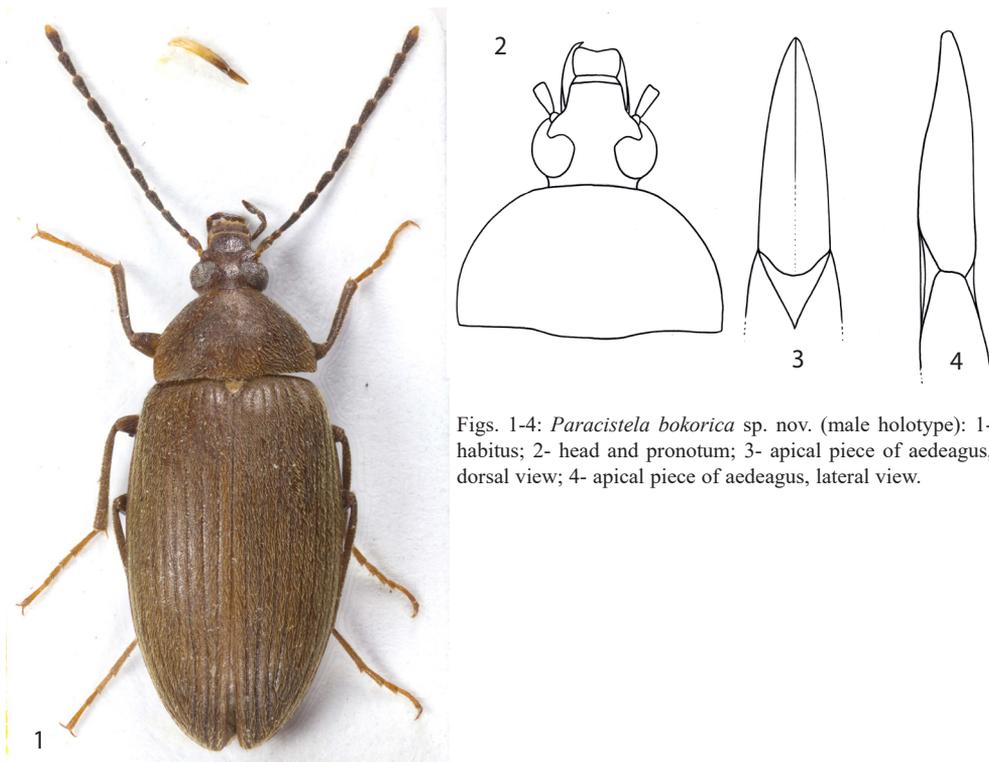
### *Paracistela bokorica* sp. nov.

(Figs. 1-4)

**Type locality.** Cambodia, Bokor National Preserve.

**Type material.** Holotype (♂): yl: Coll. I.R.Sc.N.B. / Cambodia, Bokor N. P. / Hill Station, scrub / 22.iv.2005, light trap / leg. K. Smets et I. Var. (IRSNB). Paratypes: (6 unsexed spec.): same data as holotype, (IRSNB, VNPC). The types are provided with a printed red label: 'Paracistela / bokorica sp. nov. / HOLOTYPUS [or PARATYPUS] / V. Novák det. 2021'.

**Description of holotype.** Habitus as in Fig. 1, body small, wide, oval, finely convex, dorsal surface from brown to dark brown, matte, with punctuation, pale setation and microgranulation, BL 8.62 mm. Widest near middle elytra length; BL/EW 2.54.



Figs. 1-4: *Paracistela bokorica* sp. nov. (male holotype): 1- habitus; 2- head and pronotum; 3- apical piece of aedeagus, dorsal view; 4- apical piece of aedeagus, lateral view.

Head (Fig. 2) dark brown, slightly longer than wide, slightly shiny. Dorsal surface with pale setae, fine microgranulation and dense punctation, punctures very small. Anterior half with shallower punctures and apex distinctly paler than posterior part. Clypeus brown, transverse, rounded apically with apex excised in middle. HW 1.22 mm; HW/PW 0.49; HL (visible part) 1.28 mm. Eyes large, transverse, excised, space between eyes almost as wide as diameter of one eye; wider than length of antennomere 1, narrower than length of antennomere 3; OI equal to 31.73.

Antenna short (reaching half body length, AL 4.41 mm; AL/BL 0.51), antennomeres strong, dorsal surface with short, pale setation, microgranulation and shallow punctures, rather matte. Antennomeres 1 and 2 brown, antennomeres 3-11 blackish brown, ultimate antennomere with pale brown apex. Antennomere 2 shortest, antennomeres 4-11 distinctly longer than antennomere 3. Ultimate antennomere longest, widest before apex.

RLA(1-11): 0.68 : 0.45 : 1.00 : 1.04 : 1.02 : 1.02 : 1.07 : 1.19 : 1.05 : 1.08 : 1.23.

RL/WA(1-11): 1.84 : 1.58 : 3.65 : 3.63 : 2.97 : 2.69 : 2.81 : 2.94 : 2.59 : 2.76 : 3.03.

Maxillary palpus blackish brown, with short, pale setation, fine microgranulation, slightly shiny. Palpomeres 2 and 3 distinctly narrowest at base and widest at apex, ultimate palpomere knife shaped.

Pronotum (Fig. 2) brown, wide, transverse, almost semicircular, rather matte, approximately as wide as elytra at humeri, widest near base. Dorsal surface with dense,

recumbent, pale setation, microgranulation, dense punctuation, punctures very small and shallow, intervals between punctures narrow. PL 1.46 mm; PW 2.50 mm; PI equal to 58.40. Border lines very narrow, but distinct from dorsal view. Posterior angles almost rectangular, anterior angles indistinct, rounded. Lateral margins arcuate, anterior margin slightly arcuate, base finely bisinuate.

Elytra. Brown, finely convex, oval, widest near middle elytra length, matte. EL 5.88 mm; EW 3.39 mm; EL/EW 1.74. Elytral striae with distinct rows of very small punctures. Elytral intervals more flat with dense, recumbent, pale setation, microgranulation and punctures approximately as large as those in elytral striae.

Scutellum. Ochre yellow, widely triangular, with very small punctures and pale setae, shiny.

Elytral epipleura well-developed, brown, with pale setae, widest near base, regularly narrowing from base to apex.

Legs. Dark brown, relatively long and narrow, with short and dense, pale setation, microgranulation and small punctures. Outer edge of tibiae with strong pale setae. Tarsomeres reddish brown, very narrow, penultimate tarsomeres not widened and lobed.

RLT: 1.00 : 0.48 : 0.42 : 0.31 : 1.20 (protarsus), 1.00 : 0.42 : 0.38 : 0.29 : 0.82 (mesotarsus), 1.00 : 0.38 : 0.27 : 0.53 (metatarsus).

Both protarsal claws with 7 visible teeth.

Ventral side of body blackish brown, with small punctures and dense, pale setation. Prothorax and mesoventrite pale brown on sides. Abdomen slightly shiny, blackish brown with dense, pale setation, very fine microgranulation and dense and shallow, very small punctures.

Aedeagus (Figs. 3, 4) slightly shiny. Basal piece ochre yellow with brown apex, very finely rounded laterally, wide, slightly narrowing in dorsal view. Apical piece elongate triangular in dorsal view, beak shaped dorsally and laterally. Ratio of length of apical piece to length of basal piece from dorsal view 1: 2.73.

**Female** without distinct differences.

**Variability.** The type specimens somewhat vary in size; each character is given as its mean value, with full range in parentheses. Specimens (n=7). BL 8.80 mm (8.62-9.25 mm); HL 1.29 mm (1.15-1.35 mm); HW 1.21 mm (1.07-1.27 mm); OI 31.61 (29.63-32.56); PL 1.40 mm (1.31-1.49 mm); PW 2.61 mm (2.48-2.80 mm); PI 53.64 (48.57-58.40); EL 6.10 mm (5.87-6.43 mm); EW 3.41 mm (3.32-3.64 mm).

**Differential diagnosis.** Similar species living in Cambodia are *Paracistela laosensis* (Pic, 1934) and *Paracistela monoromica* sp. nov.

*Paracistela bokorica* sp. nov. clearly differs from the species *P. laosensis* mainly by body narrower and more elongate, by dorsal surface and abdomen brown, by antennomeres 1 and 2 brown, by shape of aedeagus (Figs. 3 and 4); while *P. laosensis* has body wider, dorsal surface and ventrites 1-3 are pale (ochre yellow or pale reddish brown), antennomeres 1 and 2 are pale and shape of aedeagus as in Novák (2011: 365: figs. 27, 28).

*P. bokorica* is distinctly different from the species *P. monoromica* mainly by elytra and pronotum rather matte, by setation of pronotum dense, by antennomeres 3-11, maxillary palpus, tibiae and femora blackish brown (distinctly darker than dorsal surface) and by shape of apical piece of aedeagus as in Figs. 3 and 4; while *P. monoromica* has elytra and pronotum shiny, setation of pronotum is sparse, antennomeres 3-11, maxillary palpus, tibiae and femora are brown (same color as dorsal surface) and shape of apical piece of aedeagus as in Figs. 11 and 12.

**Etymology.** Toponymic, after the type locality - Bokor National Preserve in Cambodia.

**Distribution.** Cambodia.

***Paracistela daknongica* sp. nov.**

(Figs. 5-8)

**Type locality.** Vietnam, Đắk Nông Province, Quan Son, 900 m.

**Type material.** Holotype (♂): bl: Quan Son, 900m / Dak Nong Prov. / VIETNAM / 28. V. 2016 / K. Matsuda leg., (NMTJ). Paratypes: (4 unsexed spec.): same data as holotype, (KMTJ, VNPC); (2 ♂♂, 5 unsexed spec.): same data as holotype, but 27. V. 2016, (KMTJ, VNPC); (1 ♀): same data as holotype, but (LFIT) and 28.-29. V. 2016, (VNPC). The types are provided with a printed red label: 'Paracistela / daknongica sp. nov. / HOLOTYPUS [or PARATYPUS] / V. Novák det. 2021'.

**Description of holotype.** Habitus as in Fig. 5, body small, oval, finely convex, dorsal surface reddish brown, matte with microgranulation, punctuation and pale setation, BL 7.94 mm. Widest near middle elytra length; BL/EW 2.47.

Head (Fig. 6) reddish brown, slightly wider than long, slightly shiny, distinctly narrower than pronotum in base. Dorsal surface with small punctures, microgranulation and pale setae. Posterior part black, anterior half reddish brown with long, pale setae. Clypeus pale reddish brown, half heart shaped with fine microgranulation and pale setae rounded apically with apex excised in middle. HW 1.28 mm; HW/PW 0.56; HL (visible part) 1.14 mm. Eyes large, transverse, excised, space between eyes narrow, slightly narrower than diameter of one eye; approximately as wide as length of antennomere 3; OI equal to 28.30.

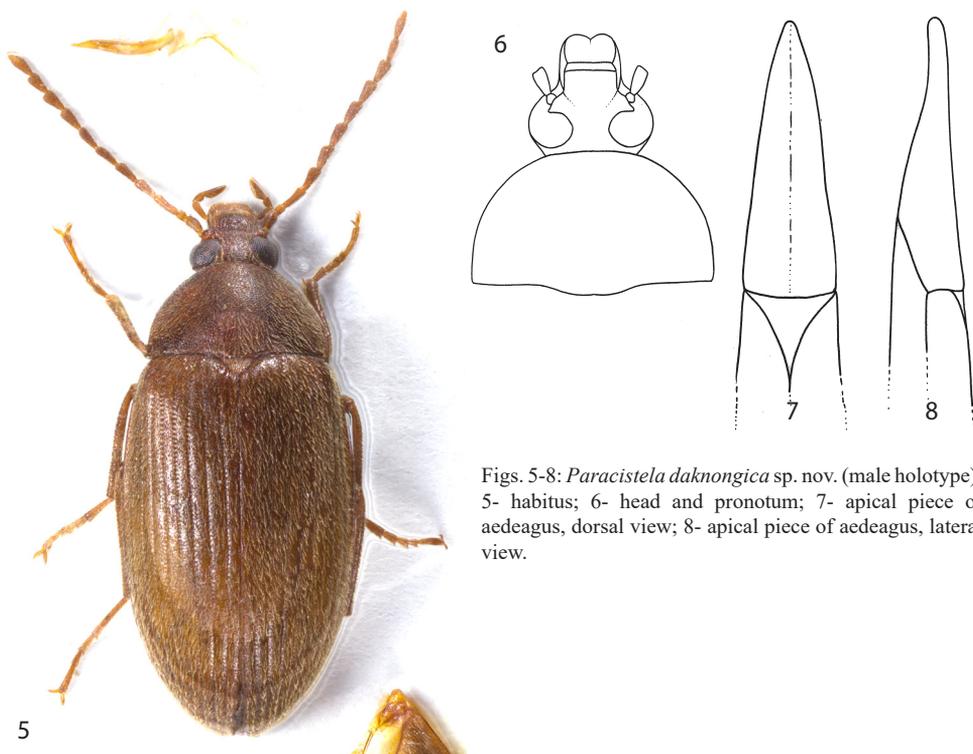
Antenna short, reddish brown (not reaching half body length, AL 3.76 mm; AL/BL 0.47), antennomeres strong, dorsal surface with pale setation, microgranulation and punctuation. Antennomeres 1-3 slightly shiny, antennomeres 4-11 rather matte, antennomere 2 shortest, antennomeres 5-11 slightly shorter than antennomere 3.

RLA(1-11): 0.80 : 0.40 : 1.00 : 1.01 : 0.95 : 0.95 : 0.93 : 0.90 : 0.86 : 0.83 : 0.94.

RL/WA(1-11): 2.13 : 1.38 : 2.96 : 2.71 : 2.65 : 3.30 : 2.90 : 2.13 : 1.91 : 2.20 : 2.94.

Maxillary palpus reddish brown, with pale setation and fine microgranulation, rather matte. Palpomeres 2 and 3 distinctly narrowest at base and widest at apex, ultimate palpomere knife shaped.

Pronotum (Fig. 6) reddish brown, wide, transverse, almost semicircular, slightly convex, matte, widest in base, approximately as wide as elytra at humeri. Dorsal surface with microgranulation, dense, recumbent, pale setation and dense punctuation, punctures very



Figs. 5-8: *Paracistela daknongica* sp. nov. (male holotype): 5- habitus; 6- head and pronotum; 7- apical piece of aedeagus, dorsal view; 8- apical piece of aedeagus, lateral view.

small, intervals between punctures narrow. PL 1.30 mm; PW 2.28 mm; PI equal to 57.01. Border lines very narrow, distinct from dorsal view. Posterior angles rectangular, anterior angles indistinct, rounded. Lateral and anterior margins arcuate, base finely bisinuate.

Elytra. Reddish brown, slightly convex, oval, widest near middle elytra length, matte. EL 5.50 mm; EW 3.22 mm; EL/EW 1.71. Dorsal surface with dense, recumbent, pale setation. Rows of small and coarse punctures in elytral striae distinct, elytral intervals with microgranulation and very small, shallow punctures.

Scutellum. Pale reddish brown, widely triangular, with small punctures, microgranulation and setae, shiny.

Elytral epipleura well-developed, reddish brown with short, pale setae, widest near base, very wide with two rows of punctures in basal half, regularly narrowing to apex.

Legs. Reddish brown, relatively long and narrow, with pale setation, microgranulation and shallow punctures. Outer edge of tibiae with strong pale setae. Tarsomeres narrow, penultimate tarsomeres not widened and lobed.

RLT: 1.00 : 0.19 : 0.53 : 0.57 : 2.20 (protarsus), 1.00 : 0.38 : 0.36 : 0.24 : 0.70 (mesotarsus), 1.00 : 0.42 : 0.26 : 0.58 (metatarsus).

Protarsal claws with 6 and 7 visible teeth.

Ventral side of body reddish brown, with punctures and short, pale setae. Abdomen reddish brown, matte, with dense, recumbent, pale setation and microgranulation, ultimate ventrite slightly darker.

Aedeagus (Figs. 7, 8) ochre yellow, rather matte. Basal piece slightly rounded laterally, wide and finely narrowing in dorsal view. Apical piece elongate triangular in dorsal view, beak shaped dorsally and laterally. Ratio of length of apical piece to length of basal piece in dorsal view 1: 2.93.

**Female** without distinct differences.

**Variability.** The type specimens somewhat vary in size; each character is given as its mean value, with full range in parentheses. Specimens (n=13). BL 8.57 mm (7.94-9.72 mm); HL 1.17 mm (1.09-1.27 mm); HW 1.28 mm (1.18-1.39 mm); OI 33.88 (28.30-36.51); PL 1.43 mm (1.30-1.61 mm); PW 2.62 mm (2.28-3.02 mm); PI 54.58 (53.14-57.01); EL 5.95 mm (5.50-6.84 mm); EW 3.47 mm (3.22-3.83 mm).

**Differential diagnosis.** Similar species living in Vietnam are *Paracistela luteopubens* (Pic, 1913), *Paracistela rufithorax* (Pic, 1913) and *Paracistela sapaica* sp. nov.

*Paracistela daknongica* sp. nov. is clearly different from the species *P. luteopubens* mainly by smaller body (8-10 mm), by antenna shorter than half body length (antennomeres 5-11 distinctly shorter than antennomere 3), by space between eyes approximately as wide as diameter of one eye; while *P. luteopubens* has large body (the largest species of the genus, longer than 10 mm), antenna is longer than half body length (antennomeres 5-11 are distinctly longer than antennomere 3), space between eyes is wider than diameter of one eye. *P. daknongica* distinctly differs from species *P. rufithorax* mainly by brown color of dorsal surface, antenna, legs and maxillary palpus, by shape of aedeagus (as in Figs. 7 and 8); while *P. rufithorax* has elytra, tibiae, femora, antennomeres 4-11 and ultimate maxillary palpomere blackish brown, pronotum is orange, head and antennomeres 1-3 are reddish brown, aedeagus as in Figs. 17 and 18.

*P. daknongica* is clearly different from the species *P. sapaica* mainly by dorsal surface, antenna and legs dark (brown or reddish brown), by each of antennomeres 5-11 shorter than antennomere 3, and by shape of apical piece of aedeagus (Figs. 7 and 8); while *P. sapaica* has dorsal surface, antenna and legs pale (ochre yellow or pale reddish brown), each of antennomeres 5-11 is longer than antennomere 3 and shape of apical piece of aedeagus is as in Figs. 21 and 22.

**Etymology.** Toponymic, after the type locality Dak Nong Province (Vietnam).

**Distribution.** Vietnam (Đắk Nông Province).

### *Paracistela laosensis* (Pic, 1934)

*Isomira laosensis* Pic, 1934: 24.

**Type locality.** Laos, Pou Lan.

**Material examined.** (1 ♂, 10 unsexed spec.): E Cambodia 5.-13.V.2019 / Sen Monorom (light trap) / P. Viktora lgt., (VNPC).

**Remarks.** Species was transferred from the genus *Isomira* Musant, 1856 to the genus *Paracistela* Borchmann, 1941 by Novák (2011). Redescription (Novák 2011: 364-365; figs. p. 365: 25- habitus; 26- head and pronotum; 27- apical piece of aedeagus, dorsal view; 28- apical piece of aedeagus, lateral view).

**Distribution.** Laos, Thailand, new for Cambodia.

*Paracistela monoromica* sp. nov.

(Figs. 9-12)

**Type locality.** East Cambodia, 25 km Southeast of Sen Monorom, N 12°21.23093', E 107°17. 59453', 840 m.

**Type material.** Holotype (♂): E Cambodia 5.-13.V.2019 / Sen Monorom (light trap) / P. Viktora lgt., (VNPC). Paratypes: (4 unsexed spec.): same data as holotype, (VNPC); (1 ♂, 4 unsexed spec.): E Cambodia / 25 km SE of Sen Monorom / N 12°21.23093', E 107°17. 59453' / 840 m, 7. - 8. V. 2019 / P. Viktora lgt., (VNPC). (10 unsexed spec.): same data as penultimate, but 19.-21.V.2019, (VNPC). The types are provided with a printed red label: *Paracistela / monoromica* sp. nov. / HOLOTYPUS [or PARATYPUS] / V. Novák det. 2021'.

**Description of holotype.** Habitus as in Fig. 9, body small, slightly convex, oval, dorsal surface brown, partly matte, partly slightly shiny, with punctuation, microgranulation and pale setation, BL 7.97 mm. Widest near middle elytra length; BL/EW 2.45.

Head (Fig. 10) brown, slightly wider than long, shiny, distinctly narrower than pronotum in base. Dorsal surface with pale setae, microgranulation and dense punctuation, punctures small, interspaces between punctures narrow. Clypeus wide, transverse, pale reddish brown with fine microgranulation and pale setae, distinctly excised in middle of apex. HW 1.26 mm; HW/PW 0.55; HL (visible part) 1.05 mm. Eyes large, transverse, excised, space between eyes narrow, slightly wider than diameter of one eye; wider than length of antennomere 3; OI equal to 35.56.

Antenna short, (not reaching half body length, AL 3.83 mm; AL/BL 0.48), antennomeres strong, with dense setation, microgranulation and punctures. Antennomeres 1-3 pale brown, antennomeres 4-11 brown, antennomere 2 shortest, antennomeres 4-10 widened anteriorly, antennomeres 5-11 distinctly shorter than antennomere 3.

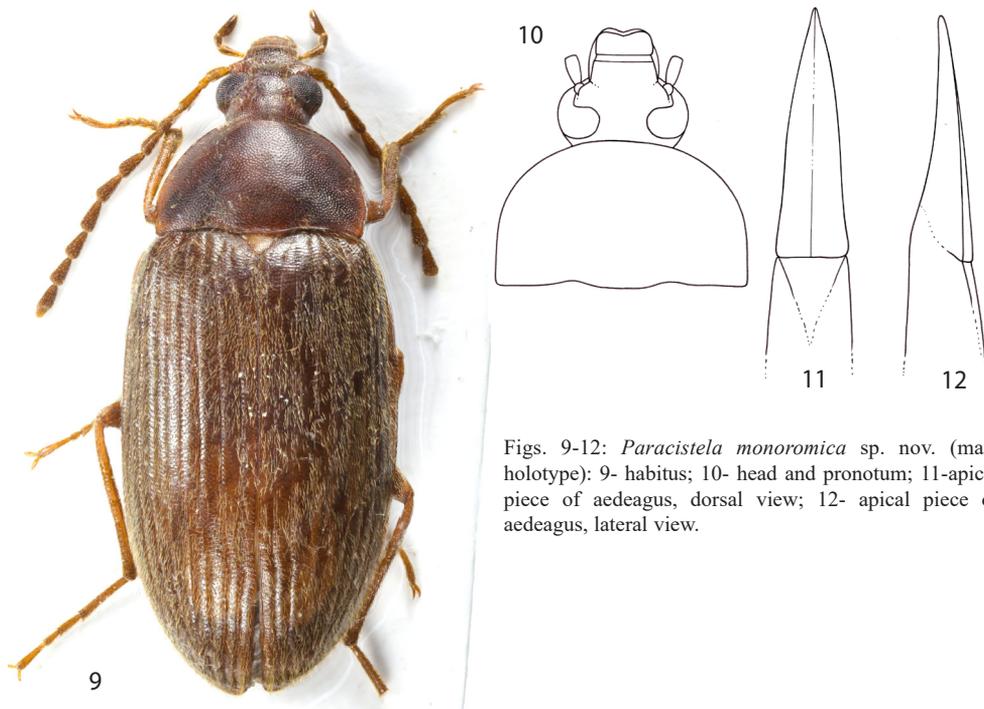
RLA(1-11): 0.84 : 0.34 : 1.00 : 1.05 : 0.92 : 0.93 : 0.93 : 0.91 : 0.85 : 0.85 : 0.92.

RL/WA(1-11): 2.30 : 1.21 : 3.37 : 2.60 : 2.64 : 2.48 : 2.38 : 2.33 : 2.12 : 2.52 : 3.07.

Maxillary palpus brown, with pale setation and microgranulation, slightly shiny. Palpomeres 2 and 3 distinctly narrowest at base and widest at apex, ultimate palpomere knife shaped.

Pronotum (Fig. 10) dark reddish brown, wide, transverse, almost semicircular, matte, approximately as wide as elytra at humeri, widest before posterior angles. Dorsal surface with a few pale setae, microgranulation, dense punctuation, punctures small, intervals between punctures narrow. PL 1.36 mm; PW 2.30 mm; PI equal to 56.67. Border lines very narrow, not clearly distinct in the middle of anterior part and base. Posterior angles almost rectangular, anterior angles indistinct, rounded. Lateral margins straight and parallel in basal part, arcuate in apical half, base finely bisinuate.

Elytra. Brown, slightly convex, oval, widest near middle elytra length, shiny. EL 5.56



Figs. 9-12: *Paracistela monoromica* sp. nov. (male holotype): 9- habitus; 10- head and pronotum; 11- apical piece of aedeagus, dorsal view; 12- apical piece of aedeagus, lateral view.

mm; EW 3.26 mm; EL/EW 1.71. Dorsal surface with dense, recumbent, pale setation. Rows of small punctures in elytral striae distinct, interspaces between punctures very narrow. Elytral intervals slightly convex with microgranulation and small punctures shallower than those in striae.

Scutellum. Ochre yellow with sides brown, widely triangular, with punctures and microgranulation, slightly shiny.

Elytral epipleura well-developed, brown, relatively wide in basal part, with pale setation, widest near base, regularly narrowing to apex.

Legs. Brown, relatively long and narrow, with short and dense, pale setation, microgranulation and small punctures. Outer edge of tibiae with strong pale setae. Tarsomeres narrow, penultimate tarsomeres not widened and lobed.

RLT: 1.00 : 0.53 : 0.46 : 0.53 : 1.69 (protarsus), 1.00 : 0.42 : 0.26 : 0.60 (metatarsus).

Protarsal claws with 6 and 7 visible teeth.

Ventral side of body brown, with punctures and short, pale setae. Abdomen blackish brown, base of ventrites 1 and 2 reddish brown, surface with dense, long, recumbent, pale setation, fine microgranulation and dense, very small punctures.

Aedeagus (Figs. 11, 12) ochre yellow, shiny. Basal piece rounded laterally and slightly narrowing in dorsal view. Apical piece elongate triangular in dorsal view, beak shaped dorsally and laterally. Ratio of length of apical piece to length of basal piece from dorsal view 1: 2.98.

**Female** without distinct differences.

**Variability.** The type specimens somewhat vary in size; each character is given as its mean value, with full range in parentheses. Specimens (n=20). BL 8.30 mm (7.66-8.98 mm); HL 1.10 mm (1.01-1.19 mm); HW 1.25 mm (1.13-1.35 mm); OI 35.74 (34.07-38.53); PL 1.38 mm (1.23-1.55 mm); PW 2.55 mm (2.23-2.78 mm); PI 54.12 (47.59-57.85); EL 5.82 mm (5.36-6.39 mm); EW 3.42 mm (3.23-3.67 mm).

**Differential diagnosis.** Similar species living in Cambodia are *Paracistela bokorica* sp. nov. and *Paracistela laosensis* (Pic, 1934).

*Paracistela monoromica* sp. nov. clearly differs from the species *P. laosensis* mainly by dorsal surface and abdomen brown, by ultimate maxillary palpomere approximately as long as palpomere 2 and by shape of apical piece of aedeagus (Figs. 11 and 12); while *P. laosensis* has dorsal surface and ventrites 1-3 pale (ochre yellow or pale reddish brown), ultimate maxillary palpomere is distinctly longer than palpomere 2 and shape of apical piece of aedeagus is as in Novák (2011: 365: figs. 27, 28).

*P. monoromica* is distinctly different from the species *P. bokorica* mainly by elytra and pronotum shiny, by setation of pronotum sparse, antennomeres 3-11, maxillary palpus, tibiae and femora brown (same color as dorsal surface) and by shape of apical piece of aedeagus (Figs. 11 and 12); while *P. bokorica* has elytra and pronotum rather matte, setation of pronotum is dense, antennomeres 3-11, maxillary palpus, tibiae and femora are blackish brown (distinctly darker than dorsal surface) and shape of apical piece of aedeagus is as in Figs. 3 and 4.

**Etymology.** Toponymic, after the second part of the name of type locality Sen Monorom (Cambodia).

**Distribution.** Cambodia.

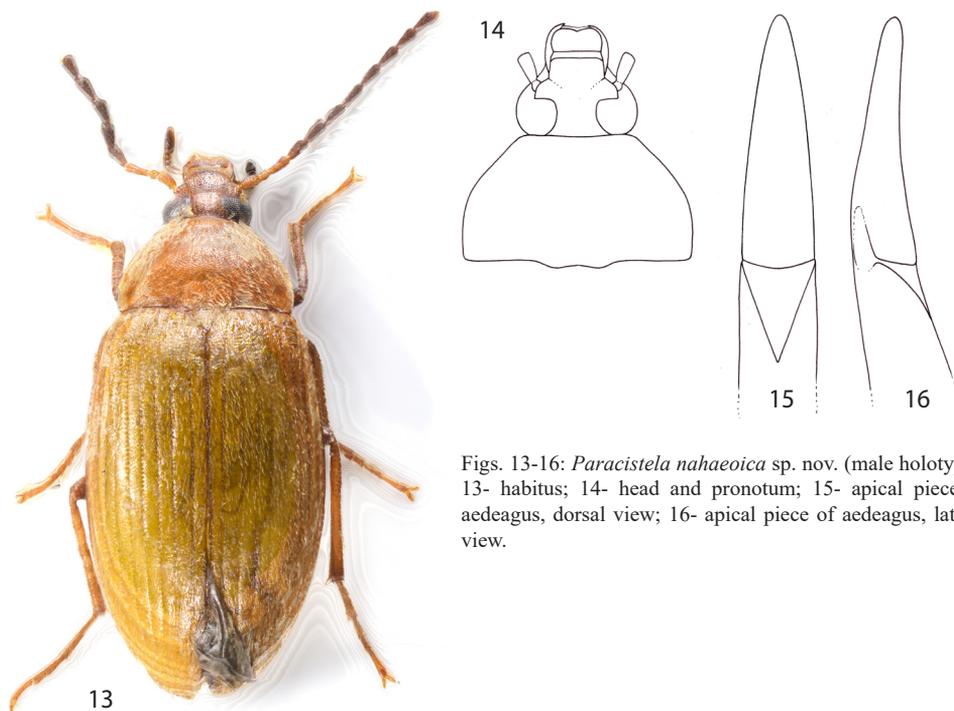
***Paracistela nahaeoica* sp. nov.**

(Figs. 13-16)

**Type locality.** Thailand, Loei Province, Na Hao.

**Type material.** Holotype (♂): yl: Coll. I.R.Sc.N.B. / Thailande (Loei) / Na Hao (bio station) / 05-12.V.2001 Light trap / Leg. Constant & Grootaert, (IRSNB). Paratypes: (1 unsexed spec.): same data as holotype, (VNPC); (5 unsexed spec.): yl: Coll. I.R.Sc.N.B. / THAILAND (loei) / Na-Hao (field res stat) / 15-19.V.2003 Light trap / Leg. J. Constant / K.Smets & P.Grootaert, (IRSNB, VNPC); (1 unsexed spec.): yl: Coll. I.R.Sc.N.B. / THAILAND (Loei) / Na-Hao (edge pond) / Light trap 17.V.2003 / Leg. J. Constant & / K. Smets, (IRSNB); (1 unsexed spec.): yl: Coll. I.R.Sc.N.B. / THAILAND (Loei) / Na-Hao (field res stat) / 15-18.V.2003 banana / trap Leg. J.Constant & K. Smets, (IRSNB). The types are provided with a printed red label: *Paracistela* / *nahaeoica* sp. nov. / HOLOTYPUS [or PARATYPUS] / V. Novák det. 2021<sup>†</sup>.

**Description of holotype.** Habitus as in Fig. 13, body relatively small, slightly convex, oval, dorsal surface from ochre yellow to pale reddish brown, semimatte, with punctuation,



Figs. 13-16: *Paracistela nahaeoica* sp. nov. (male holotype): 13- habitus; 14- head and pronotum; 15- apical piece of aedeagus, dorsal view; 16- apical piece of aedeagus, lateral view.

microgranulation and pale setation, BL 7.50 mm. Widest near middle elytra length; BL/EW 2.35.

Head (Fig. 14) pale reddish brown, slightly wider than long, shiny, distinctly narrower than pronotum in base, slightly wider than anterior margin of pronotum. Dorsal surface with pale setae, microgranulation and dense punctuation. Clypeus wide, transverse, pale reddish brown with fine microgranulation, shallow punctures and a few pale setae, distinctly excised in middle of apex. HW 1.18 mm; HW/PW 0.52; HL (visible part) 1.09 mm. Eyes large, transverse, excised, space between eyes narrow, as wide as diameter of one eye; wider than length of antennomere 1; OI equal to 33.34.

Antenna short (not reaching half body length, AL 3.55 mm; AL/BL 0.47), antennomeres with dense, pale setation, microgranulation and punctures. Antennomeres 1-3 slightly shiny, pale reddish brown, antennomeres 4-11 matte, dark brown. Antennomere 2 shortest, antennomeres 4-10 widened anteriorly, longer than or as long as antennomere 3, ultimate antennomere longest, widest before apex.

RLA(1-11): 0.77 : 0.39 : 1.00 : 1.06 : 1.05 : 1.06 : 1.09 : 1.08 : 1.02 : 0.99 : 1.29.

RL/WA(1-11): 1.76 : 1.24 : 3.00 : 2.41 : 2.46 : 2.92 : 3.13 : 2.54 : 2.39 : 2.32 : 3.40.

Maxillary palpus pale reddish brown, with pale setation, slightly shiny. Palpomeres 2 and 3 distinctly narrowest at base and widest at apex, ultimate palpomere darker than penultimate, widest in one third from base to apex, semi drop shaped.

Pronotum (Fig. 14) orange, wide, transverse, almost semicircular, convex, matte, approximately as wide as elytra at humeri, widest in basal third. Dorsal surface with pale setation, microgranulation and dense, shallow punctuation, punctures small. PL 1.29 mm; PW 2.27 mm; PI equal to 56.84. Border lines very narrow, distinct. Posterior angles almost rectangular, anterior angles distinct, obtuse. Lateral margins arcuate near middle, straight in apical part. Anterior margin almost straight, base finely bisinuate.

Elytra. Ochre yellow, slightly convex, oval, widest near middle elytra length, semimatte. EL 4.12 mm; EW 3.19 mm; EL/EW 1.61. Dorsal surface with dense, recumbent, pale setation. Rows of small punctures in elytral striae distinct, intervals between punctures very narrow. Elytral interspaces slightly convex with small, shallow punctures and microgranulation.

Scutellum. Ochre yellow, triangular, with fine microgranulation and long, pale setae.

Elytral epipleura well-developed, ochre yellow, with pale setae, narrowing to metaventrite, then leads parallel in apical part.

Legs. Pale reddish brown, relatively long and narrow, with dense, pale setation and microgranulation. Outer edge of tibiae with strong pale setae. Tarsomeres narrow, penultimate tarsomeres not widened and lobed.

RLT: 1.00 : 0.65 : 0.56 : 0.47 : 2.02 (protarsus); 1.00 : 0.47 : 0.42 : 0.33 : 1.19 (mesotarsus); 1.00 : 0.45 : 0.32 : 0.63 (metatarsus).

Anterior tarsal claws with 6 and 7 visible teeth.

Ventral side of body pale reddish brown, with punctures and short, pale setae. Abdomen dark reddish brown, base of ventrites 1-3 paler, surface with dense, recumbent, pale setation, fine microgranulation and dense, very small punctures. Ultimate and penultimate ventrites distinctly darker.

Aedeagus (Figs. 15, 16) ochre yellow, matte. Basal piece slightly rounded laterally and slightly narrowing in dorsal view. Apical piece elongate triangular in dorsal view, knife shaped dorsally and laterally. Ratio of length of apical piece to length of basal piece in dorsal view 1: 2.33.

**Female** without distinct differences.

**Variability.** The type specimens somewhat vary in size; each character is given as its mean value, with full range in parentheses. Specimens (n=9). BL 7.56 mm (7.23-7.76 mm); HL 1.11 mm (1.02-1.17 mm); HW 1.21 mm (1.11-1.27 mm); OI 34.00 (32.50-35.55); PL 1.26 mm (1.17-1.36 mm); PW 2.31 mm (2.14-2.51 mm); PI 55.23 (51.00-59.91); EL 5.19 mm (4.92-5.32 mm); EW 3.10 mm (2.91-3.34 mm).

**Differential diagnosis.** Similar species with pale dorsal surface living in Thailand are *Paracistela laosensis* (Pic, 1934) and *Paracistela namuangica* Novák, 2011.

*Paracistela nahaеоica* sp. nov. clearly differs from the species *P. laosensis* and *P. namuangica* mainly by shape of ultimate maxillary palpomere (rounded in inner part and widest in one third from base to apex) and by shape of aedeagus (Figs. 15, 16); while *P. laosensis* and *P. namuangica* have ultimate maxillary palpomere angled and widest near base

and apical pieces of aedeagus are in Novák (2011: 365: figs. 27, 28 for *P. laosensis* and 368: figs. 35, 36 for *P. namuangica*).

**Etymology.** Toponymic, after the name of the type locality Na Haeo (Thailand, Loei Province).

**Distribution.** Thailand (Loei Province).

***Paracistela rufithorax* (Pic, 1913)**

(Figs. 17, 18)

*Pseudocistela rufithorax* Pic, 1913: 19.

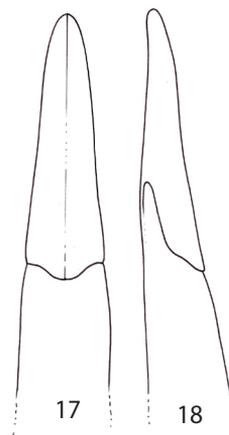
**Type locality.** Tonkin, Hoa Binh.

**Material examined.** (1 ♂, 7 unsexed spec.): yl: Coll. I.R.Sc.N.B. / THAILAND (loei) / Na-Haeo (field res stat) / 15-19.V.2003 Light trap / Leg. J. Constant / K.Smets and P.Grootaert, (IRSNB, VNPC).

**Remarks.** Species was transferred from the genus *Pseudocistela* Crotch, 1873 to the genus *Paracistela* Borchmann, 1941 by Novák (2011). Redescription (Novák 2011: 369-370; figs. p. 370: 37- habitus; 38- head and pronotum). Aedeagus as in Figs. 17 and 18.

**Distribution.** Vietnam, new for Thailand.

Figs. 17, 18: *Paracistela rufithorax* (Pic, 1913): 17- apical piece of aedeagus, dorsal view; 18- apical piece of aedeagus, lateral view.



***Paracistela sapaica* sp. nov.**

(Figs. 19-22)

**Type locality.** Vietnam, Lao Cai Province, Sa Pa, 22°20'N 103°50'E.

**Type material.** Holotype (♂): Vietnam N, 25.5.-10.6. / 22°20'N 103°50'E / SAPA (Lao Cai) 1991 / E. Jendek lgt., (VNPC). Paratypes: (2 unsexed spec.): same data as holotype, (VNPC); (1 ♂, 2 unsexed spec.): SaPa 11-18.6 / N. VIETNAM / A. Olexa 1990, (VNPC); (1 unsexed spec.): N. VIETNAM, SaPa / 11 - 19 . VI . 1990 / Brantlová lgt., (VNPC); (1 ♂, 3 unsexed spec.): N VIETNAM – Lao Cai / province, Van Ban district: Van Ban Nature Reserve (at light) / (~1000 m) – 23-26.V.2011, // L. Bartolozzi, S. Bambi / F. Fabiano, E. Orbach leg. / (Num. Magazzino 2909), (MNFI, VNPC). The types are provided with a printed red label: *Paracistela* / *sapaica* sp. nov. / HOLOTYPUS [or PARATYPUS] / V. Novák det. 2021'.

**Description of holotype.** Habitus as in Fig. 19, body larger, convex, elongate oval, dorsal surface from ochre yellow to reddish brown, matte, dorsal surface with punctuation, microgranulation and pale setation, BL 9.08 mm. Widest near middle elytra length; BL/EW 2.40.

Head (Fig. 20) slightly wider than long, shiny, distinctly narrower than pronotum in base, wider than anterior margin of pronotum. Dorsal surface with pale setae and relatively dense punctuation. Posterior part reddish brown with coarser punctures than those in pale reddish brown anterior half. Clypeus transverse, ochre yellow with fine microgranulation, shallow punctures and long, pale setae, distinctly excised in middle of apex. Mandibles glabrous, shiny, ochre yellow with lateral margins and apex darker. HW 1.29 mm; HW/PW 0.46; HL (visible part) 1.17 mm. Eyes large, transverse, excised, space between eyes narrow, approximately as wide as diameter of one eye; wider than length of antennomere 1; OI equal to 35.67.

Antenna ochre yellow, short (slightly exceeding half body length, AL 4.70 mm; AL/BL 0.52), antennomeres rather matte, with dense, pale setation, microgranulation and punctures. Antennomere 2 shortest, antennomeres 4-10 widened anteriorly, antennomeres 5-11 distinctly longer than antennomere 3. Ultimate antennomere longest, widest before apex. RLA(1-11): 0.56 : 0.32 : 1.00 : 0.96 : 1.02 : 1.02 : 1.00 : 1.11 : 1.07 : 1.03 : 1.26. RL/WA(1-11): 1.93 : 1.38 : 3.91 : 3.19 : 3.83 : 4.00 : 3.60 : 3.13 : 3.20 : 3.31 : 3.65.

Maxillary palpus ochre yellow, with small punctures, pale setation and microgranulation, slightly shiny. Palpomeres 2 and 3 distinctly narrowest at base and widest at apex, ultimate palpomere long, knife shaped.

Pronotum (Fig. 20) pale reddish brown, wide, transverse, almost semicircular, matte, approximately as wide as elytra at humeri, widest in base. Dorsal surface with dense, recumbent, pale setation, microgranulation and dense punctuation, punctures small and shallow. PL 1.48 mm; PW 2.81 mm; PI equal to 52.67. Border lines very narrow, distinct. Posterior angles almost rectangular, anterior angles indistinct. Lateral margins arcuate, anterior margin straight, base finely bisinuate.

Elytra. Ochre yellow, suture very finely darker, convex, elongate oval, widest near middle elytra length, matte. EL 6.43 mm; EW 3.79 mm; EL/EW 1.70. Dorsal surface with dense, recumbent, pale setation. Rows of small punctures in elytral striae distinct, intervals between punctures narrow. Elytral intervals slightly convex with microgranulation and small punctures, smaller and shallower than those in striae.

Scutellum. Ochre yellow with sides darker, widely triangular, with punctures, microgranulation and long, pale setae.

Elytral epipleura well-developed, pale reddish brown, with pale setation, widest near base, regularly narrowing to ventrite 1, then leads parallel.

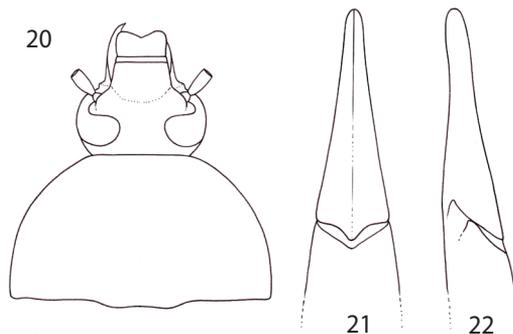
Legs. Ochre yellow, long and narrow, with pale setation and small punctures. Outer part of tibiae with short and strong pale setae. Tarsomeres narrow, penultimate tarsomeres not widened and lobed.

RLT: 1.00 : 0.56 : 0.53 : 0.48 : 1.82 (protarsus); 1.00 : 0.41 : 0.37 : 0.34 : 1.22 (mesotarsus); 1.00 : 0.44 : 0.30 : 0.64 (metatarsus).

Protarsal claws with 7 and 8 visible teeth.

Ventral side of body pale reddish brown, with pale setation. Abdomen brown, matte, surface with recumbent, pale setation and fine microgranulation.

Aedeagus (Figs. 21, 22) ochre yellow, slightly shiny. Basal piece finely rounded laterally and slightly narrowing in dorsal view. Apical piece elongate triangular in dorsal view, beak



Figs. 19-22: *Paracistela sapaica* sp. nov. (male holotype): 19- habitus; 20- head and pronotum; 21- apical piece of aedeagus, dorsal view; 22- apical piece of aedeagus, lateral view.

shaped dorsally and laterally. Ratio of length of apical piece to length of basal piece in dorsal view 1: 3.06.

**Female** without distinct differences.

**Variability.** The type specimens somewhat vary in size; each character is given as its mean value, with full range in parentheses. Specimens (n=11). BL 8.94 mm (8.76-9.08 mm); HL 1.17 mm (1.16-1.17 mm); HW 1.29 mm (1.27-1.29 mm); OI 34.13 (32.69-35.67); PL 1.42 mm (1.30-1.52 mm); PW 2.73 mm (2.67-2.81 mm); PI 57.03 (51.49-56.93); EL 6.36 mm (6.30-6.43mm); EW 3.63 mm (3.58-3.79 mm).

**Differential diagnosis.** Similar species living in Vietnam are large *Paracistela luteopubens* (Pic, 1913), *Paracistela rufithorax* (Pic, 1913) with bicolor dorsal surface and *Paracistela daknongica* sp. nov. from south Vietnam.

*Paracistela sapaica* sp. nov. clearly differs from similar species *P. luteopubens*, *P. rufithorax* and *P. daknongica* mainly by almost pale dorsal surface and by shape of apical piece of aedeagus (Figs. 21, 22); while *P. luteopubens*, *P. rufithorax* and *P. daknongica* have dorsal surface darker (brown) and apical pieces of aedeagus are in Novák (2011: 366: figs. 31, 32 for *P. luteopubens*), and as in Figs. 17, 18 for *P. rufithorax* and Figs. 7, 8 for *P. daknongica*.

**Etymology.** Toponymic, after the type locality Sa Pa (Vietnam, Lao Cai Province).

**Distribution.** Vietnam (Lao Cai Province).

***Paracistela tenebris* sp. nov.**

(Figs. 23-26)

**Type locality.** Thailand, Loei Province, Na Haeo.

**Type material.** Holotype (♂): y1: Coll. I.R.Sc.N.B. / THAILAND (loei) / Na-Haeo (field res stat) / 15-19.V.2003 Light trap / Leg. J. Constant / K.Smets & P.Grootaert, (IRSNB). Paratypes: (1 unsexed spec.): same data as holotype, (VNPC); (2 unsexed spec.): y1: Coll. I.R.Sc.N.B. / THAILAND (Loei Prov) / Na-Haeo 17-V-2003 / Edge of Pond / Light trap / Leg Constant&K.Smets, (IRSNB, VNPC); (1 unsexed spec.): y1: Coll. I.R.Sc.N.B. / Thailande (Loei) / Na-Haeo (Bio Station) / 07-14.V.2003 / Malaise trap / Leg Constant & Grootaert, (IRSNB). The types are provided with a printed red label: *Paracistela / tenebris* sp. nov. / HOLOTYPUS [or PARATYPUS] / V. Novák det. 2021'.

**Description of holotype.** Habitus as in Fig. 23, body larger, slightly convex, elongate oval, dorsal surface brown, partly shiny, with punctuation, microgranulation and pale setation, BL 8.43 mm. Widest near middle elytra length; BL/EW 2.53.

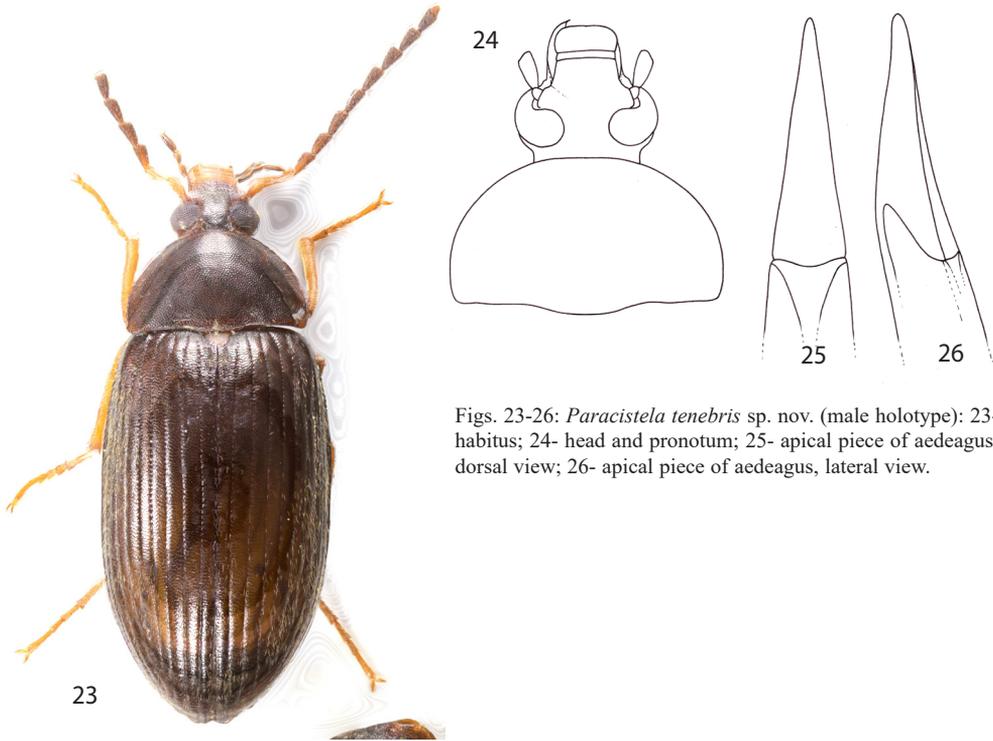
Head (Fig. 24) brown, slightly wider than long, shiny, distinctly narrower than pronotum in base. Dorsal surface with pale setae and punctuation, punctures small, interspaces between punctures narrow. Apex of anterior part and clypeus ochre yellow, clypeus transverse with fine microgranulation and pale setae, apex straight. Mandibles pale reddish brown, glabrous, shiny. HW 1.31 mm; HW/PW 0.52; HL (visible part) 1.23 mm. Eyes large, transverse, excised, space between eyes narrow, approximately as wide as diameter of one eye; wider than length of antennomere 1; OI equal to 33.18.

Antenna short (reaching half body length, AL 3.98 mm; AL/BL 0.51), surface of antennomeres with short, recumbent setation (pale - antennomeres 1-4, dark - antennomeres 5-11), microgranulation and punctures. Antennomeres 1-3 pale reddish brown, slightly shiny, antennomere 4 reddish brown, rather matte, antennomeres 5-11 dark brown, matte. Antennomere 2 shortest, antennomeres 4-10 widened anteriorly, antennomeres 6-11 distinctly longer than antennomere 3. Ultimate antennomere longest, widest before apex. RLA(1-11): 0.57 : 0.33 : 1.00 : 0.96 : 0.97 : 1.09 : 1.03 : 1.17 : 1.01 : 1.03 : 1.32. RL/WA(1-11): 1.54 : 1.11 : 2.89 : 2.40 : 2.36 : 2.73 : 2.27 : 2.67 : 2.11 : 2.27 : 2.68.

Maxillary palpus brown, with pale setae, fine microgranulation and very small punctures. Palpomeres 2 and 3 distinctly narrowest at base and widest at paler apex, ultimate palpomere knife shaped with rounded apex.

Pronotum (Fig. 24) dark brown, wide, transverse, almost semicircular, rather matte, approximately as wide as elytra at humeri, widest in one third from base to apex. Dorsal surface with microgranulation, very sparse pale setae and dense punctuation, punctures small, intervals between punctures narrow. PL 1.46 mm; PW 2.57 mm; PI equal to 56.81. Border lines very narrow, distinct. Posterior angles obtuse, anterior angles indistinct, rounded. Lateral and anterior margins arcuate, base finely bisinuate.

Elytra. Brown, slightly convex, elongate oval, widest near middle elytra length, shiny. EL 5.47 mm; EW 3.33 mm; EL/EW 1.72. Dorsal surface with sparse, short, recumbent, pale



Figs. 23-26: *Paracistela tenebris* sp. nov. (male holotype): 23- habitus; 24- head and pronotum; 25- apical piece of aedeagus, dorsal view; 26- apical piece of aedeagus, lateral view.

setation, a little denser near lateral margins and in apex. Rows of small punctures in elytral striae distinct, interspaces between punctures very narrow. Elytral intervals slightly convex with rugosities near base, microgranulation and very small and dense punctures shallower than those in striae.

Scutellum. Pale reddish brown with sides darker, widely triangular, with shallow punctures and microgranulation, slightly shiny.

Elytral epipleura well-developed, dark brown with pale setation, regularly narrowing to abdominal part.

Legs. Pale reddish brown, long and narrow, with dense, pale setation, microgranulation and small punctures. Outer part of tibiae with short and strong, pale setae. Tarsomeres narrow, penultimate tarsomeres not widened and lobed.

RLT: 1.00 : 0.59 : 0.44 : 0.46 : 1.93 (protarsus); 1.00 : 0.36 : 0.28 : 0.29 : 1.15 (mesotarsus); 1.00 : 0.42 : 0.27 : 0.67 (metatarsus).

Protarsal claws with 6 and 7 visible teeth.

Ventral side of body dark brown, with punctures and recumbent, pale setae. Abdomen dark brown with dense and long, recumbent, pale setation, fine microgranulation and very small punctures.

Aedeagus (Figs. 25, 26) ochre yellow, rather matte. Basal piece rounded laterally and narrowing in dorsal view. Apical piece elongate triangular in dorsal view, beak shaped dorsally and laterally. Ratio of length of apical piece to length of basal piece in dorsal view 1: 3.19.

**Female** without distinct differences.

**Variability.** The type specimens somewhat vary in size; each character is given as its mean value, with full range in parentheses. Specimens (n=5). BL 9.12 mm (8.43-9.59 mm); HL 1.28 mm (1.23-1.33 mm); HW 1.35 mm (1.31-1.41 mm); OI 34.96 (31.40-36.46); PL 1.50 mm (1.46-1.59 mm); PW 2.80 mm (2.57-2.93 mm); PI 53.53 (51.54-56.81); EL 6.34 mm (5.74-6.74 mm); EW 3.64 mm (3.32-3.81 mm).

**Differential diagnosis.** Similar species living in Thailand (Loei Province) is *Paracistela zahradni* Novák, 2011.

*Paracistela tenebris* sp. nov. clearly differs from the species *P. zahradni* mainly by dorsal surface shiny with sparse setation, by pronotum with coarser punctures and by shape of apical piece of aedeagus (Figs. 25, 26); while *P. zahradni* has dorsal surface rather matte with denser setation, pronotum has shallower punctures and apical piece of aedeagus is as in Novák (2011: 379: figs. 55, 56).

**Etymology.** Named after the dark dorsal surface, from Latin *tenebris* (dark).

**Distribution.** Thailand (Loei Province).

#### LIST OF *PARACISTELA* BORCHMANN SPECIES

**genus *Paracistela* Borchmann, 1941: 30** type species *Paracistela variabilis* Borchmann, 1941

<i>alesi</i> Novák, 2011	Laos
<i>bengali</i> Novák, 2011	India (Sikkim and Darjeeling)
<i>bokorica</i> sp. nov.	Cambodia
<i>brunneosuturalis</i> Pic, 1917	India: Khasia Hills, Meghalaya
<i>daknongica</i> sp. nov.	Vietnam
<i>hawai</i> Novák, 2011	Laos
<i>houaphanica</i> Novák, 2011	Laos
<i>krali</i> Novák, 2011	Laos
<i>laosensis</i> (Pic, 1934)	Cambodia, Laos, Thailand
<i>luteopubens</i> (Pic, 1913)	Laos, Myanmar, Vietnam
<i>variabilis variabilis</i> Borchmann, 1941 (syn. by Novák 2011)	
<i>variabilis obscuripes</i> Borchmann, 1941	
<i>variabilis palida</i> Borchmann, 1941	
<i>variabilis pallidipes</i> Borchmann, 1941	
<i>variabilis picta</i> Borchmann, 1941	
<i>monoromica</i> sp. nov.	Cambodia
<i>nahaeoica</i> sp. nov.	Thailand
<i>namuangica</i> Novák, 2011	Thailand
<i>rufithorax</i> (Pic, 1913)	Thailand, Vietnam

<i>sapaica</i> sp. nov.	Vietnam
<i>sinensis</i> (Pic, 1934)	China (CE)
<i>soppongica</i> Novák, 2011	Thailand
<i>smetanai</i> Novák, 2011	China (Jiangxi)
<i>tenebris</i> sp. nov.	Thailand
<i>weigeli</i> Novák, 2011	China (Yunnan)
<i>zahravniki</i> Novák, 2011	Thailand

ACKNOWLEDGEMENTS. Sincere thanks are due to Jerome Constant (IRSNB) for loaning me a new material under his care, to Kimio Masumoto (KMTJ) and Petr Viktora (Kutná Hora, Czech Republic) for bringing me a new material. Special thanks are due to Zuzana Čadová (Liberec, Czech Republic) for excellent drawings and David Král (Charles University, Praha, Czech Republic) for valuable and critical comments in compilation of manuscript.

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Received: 7.6.2022  
 Accepted: 20.6.2022  
 Printed: 5.10.2022

