

***Boroveciella* gen.n. from South Africa,
with three new species**
(Coleoptera: Curculionidae: Hipporhinini)

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Abstract

A new genus, *Boroveciella* gen.n. (Coleoptera: Curculionidae), and three new species, *B. purpurascens* sp.n., *B. viridescens* sp.n., and *B. jaechi* sp.n. from South Africa (Northern Cape and Western Cape), are described. A key to the species of *Boroveciella* and a map showing their distribution are provided. The new genus is closely related to *Ophryodotus* PASCOE, 1887.

Key words: Coleoptera, Curculionidae, Cyclominae, Hipporhinini, taxonomy, new genus, new species, South Africa.

Introduction

The tribe Hipporhinini was established by LACORDAIRE (1863) as “Hipporhinides” based on short but large lobes laterally delimiting prosternal canal, antennal grooves not directed under the lower margin of the eye, large tarsi, and some other characters. At that time, the tribe comprised three genera, *Hipporhinus* SCHOENHERR, 1826, *Cyclomus* SCHOENHERR, 1823, and *Epicthonius* SCHOENHERR, 1823, all distributed in southern and eastern Africa. The taxonomy of this tribe changed continuously during many years. ALONSO-ZARAZAGA & LYAL (1999) referred to Hipporhinini as to Cyclomini, which represents in fact a different group of the subfamily Cyclominae. First works by OBERPRIELER (1995, 2010) brought a substantial insight into the higher taxonomy of the tribe as well as the whole subfamily Cyclominae, largely based on the morphology of ovipositors. Eventually, Cyclominae, as currently understood, were outlined and summarised by OBERPRIELER (2014).

In 2018, Roman Borovec carried out a field trip to South Africa focusing on terricolous weevils, especially of the subfamily Entiminae. He has done a lot of sifting in arid and semiarid (fynbos) habitats and, on that occasion, obtained very interesting species of the subfamily Cyclominae. He proposed me to revise the genus *Ophryodotus* PASCOE, 1887 and kindly let me study the specimens assumingly belonging to this genus. Some species, however, turned out to belong to a new genus, which is here described. The other taxa from this material will be subject of a forthcoming study.

Material and methods

Measurements, treatment, mounting of terminalia, devices used, photography, and picture processing follow KOŠŤÁL (2018). Intercostal distance is interpreted as the shortest distance between the median margins of the coxae, elytral length as the maximum longitudinal length of the elytra, i.e., not the length at the midline. The terminology follows the online glossary of weevil characters published by the International Weevil Community Website (<http://weevil.info/glossary-weevil-characters>; accessed 28.I.2021) and OBERPRIELER et al. (2014).

The distribution map was downloaded from <https://mapy.cz/zemepisna?x=22.1126598&y=-29.1045691&z=6>.

Abbreviations:

El, Ew	elytral length, elytral width
Pl, Pw	pronotal length, pronotal width
Rl, Rw	rostrum length (from the rostrum base to the apex of the rostrum, mandibles excluded), rostrum width (at widest point)
BMNH	Natural History Museum, London, UK
BO	Collection Roman Borovec, Sloupno, Czechia
KO	Collection Michael Košťál, Šoporňa, Slovakia
NMPC	National Museum, Prague, Praha, Czechia
NMW	Naturhistorisches Museum Wien, Vienna, Austria

***Boroveciella* gen.n.**

TYPE SPECIES: *Boroveciella purpurascens* sp.n., here designated.

DIAGNOSTIC DESCRIPTION: Small to middle-sized Hipporhinini, 2.8–4.1 mm long; rostrum in dorsal view moderately longer than wide (Rl/Rw 1.1–1.3), epifrons convergent from base to apex, at base with striking protuberance above eye, in basal part with shallow longitudinal sulcus, between antennal insertion with transverse sharp narrow carina, completely covered with scales; in lateral view (Fig. 1) of same width from base to antennal insertion, antennal groove deep, directed to and passing above eye; antennal funicle 6-segmented, as long as scape, segment 1 $0.8\text{--}1.0 \times$ as long as segments 2–6 combined, scape enlarged apicad, in apical part as wide as club; pronotum and elytra covered with recumbent, subtriangular to subcircular scales of similar type, often shiny metallic; especially on pronotum, some scales medially impressed; pronotum with irregularly rounded sides and impressions on disc; elytral interstriae often with ridges, tubercles or bulges, striae indistinct; prosternum with broad deep canal open posteriad, without receptaculum; procoxae flattened at anterior side, contiguous, mesocoxae widely separated by conspicuously large mesoventral process of almost same size as mesocoxae, distance of metacoxae at least $2.3 \times$ as long as distance of mesocoxae (Fig. 2); ventrites (Figs. 10–12) densely covered with adpressed subcircular shiny metallic scales, suture between ventrites 1 and 2 in median third connate, strongly arched anteriorly, suture between ventrites 2 and 3 more or less straight; tarsi short, plump, onychium approximately as long as tarsomeres 1–3 combined, of same width or wider than tarsomere 3, less than twice as long as wide.

Body of penis less than $3 \times$ as long as wide, bluntly to moderately sharply tipped, approximately $0.6\text{--}1.0 \times$ as long as temones, manubrium simple, $1.5\text{--}2.5 \times$ as long as diameter of ring of tegmen; genital sclerite present, large (Figs. 7c–d, 9c–d); spiculum gastrale (Fig. 5) long, thin; basal plate butterfly-shaped; 8th hemisternite well developed; spiculum ventrale (Figs. 7e, 9e) cup-shaped, with well developed manubrium; spermatheca (Figs. 7f, 9f) with wide, sharply tipped, relatively massive cornu, distinct ramus and collum; ovipositor (Figs. 6, 13–15) with laterally connate proximal and distal gonocoxites; proximal gonocoxites with long, strongly sclerotized process (“wing”) moderately bent inwards; distal gonocoxites subtriangular, with several setae directed laterad; styli long, strongly sclerotized, sharply pointed, claw-like, without setae.

COMPARATIVE NOTES: According to the overview of genera of Hipporhinini (OBERPRIELER 2010), *Ophryodotus* is the only South African genus, which partly agrees morphologically with *Boroveciella*. PASCOE (1887) characterised this genus by antennal scrobes directed to eyes and reaching above them, by deep and narrow rostral canal, and by conspicuously long first funicular segment. Later, MARSHALL (1955) added another character to the generic definition: head completely concealed in dorsal view when retracted. All three species of the new genus have these characters in common with *Ophryodotus*.

To define the genus *Ophryodotus*, I have studied the holotype of *O. singularis* PASCOE, 1887, the type species by monotypy. The species was described based on a single specimen from “South

Africa". In the BMNH (coll. Pascoe), there is a heavily damaged male (body parts glued together), pinned, 6.8 mm long, labelled "Type [round red outlined label] \ S. Africa [yellow label] \ *Ophryodotus singularis* Type Pasc. \ *Ophryodotus singularis* Pasc \ Pascoe Coll. B. M. 1893-60.". To add clarity, I provided this specimen with a printed red label: "HOLOTYPUS *Ophryodotus singularis* Pascoe Michael Košťál vid. 2021". The holotype, which corresponds to the original description and characters reported by MARSHALL (1955), has a 7-segmented funicle (Fig. 3); shape of rostrum, mesoventral process and mesocoxae as in Figs. 3–4.

Hence, *Boroveciella* is undoubtedly most closely related to *Ophryodotus*. There are two important, obviously conservative characters distinguishing the new genus from the latter: very large mesoventral process positioned between mesocoxae, separating them by the distance of about the diameter of the mesocoxa (Fig. 2), while in *Ophryodotus*, the mesoventral process is small, elongate, thin, and the mesocoxae almost contiguous (Fig. 4); the ovipositor (Fig. 6) of *Boroveciella* has a stouter, inwardly curved proximal gonocoxite, while in *Ophryodotus* this gonocoxite is thin and straight. *Boroveciella* differs from *Ophryodotus* in lateral view also in the rostrum, which is equally wide from base to antennal insertion (Fig. 1); in *Ophryodotus* (Fig. 3), the rostrum is strikingly, almost rectilinearly widened from base to antennal insertion, its upper margin is straight or slightly vaulted, ventral margin straight. In *Boroveciella*, there is a transverse thin carina at the apex of the epifrons between the antennal insertions, well visible in dorsal and lateral views. Additionally, the antennal funicle in *Boroveciella* is 6-segmented, in *Ophryodotus* mostly 7-segmented.

DISTRIBUTION: The three species are all distributed in South Africa, in the northern part of the Western Cape and the south-western part of the Northern Cape.

ETYMOLOGY: I name this genus after my friend Roman Borovec, an eminent Czech specialist in several tribes of Entiminae of the Afrotropical and Palearctic regions. He was also the person who collected the whole material for this study. The gender is feminine.

Boroveciella purpurascens sp.n.

Holotype ♂ (NMPC): "RSA Western Cape 485 m Tankwa Karoo Park 3 km S office 32°15.476' S, 20°05.545' E 8.xi.2018 R.Borovec lgt. \ Sifting of litter under *Galenia africana* L.". **Paratypes:** 3 ♂♂, 1 ♀ (BO): same data; 1 ♂, 1 ♀ (KO): same data; 1 ♂, 1 ♀ (BMNH): "RSA Western Cape 480 m Tankwa Karoo Park 3 km S office 32°15.510' S, 20°05.206' E 7.xi.2018 R.Borovec lgt. \ Sifting of litter under *Galenia africana* L. and Chenopodiaceae shrubs"; 7 ♂♂, 2 ♀♀ (BO): same data; 1 ♀ (KO): same data; 1 ♂, 1 ♀ (NMW): same data; 2 ♂♂ (BO) "Western Cape 480 m 3 km S office 32°15.510' S, 20°05.206' E 7.xi.2018 R.Borovec lgt. \ Sifting of litter under *Galenia africana* L. and Chenopodiaceae shrubs"; 1 ♂ (KO): same data; 4 ♂♂, 2 ♀♀ (BO): "RSA Northern Cape 518 m Tankwa Karoo Park Skaapwagterspoos 32°11.864' S, 20°19.056' E 8.xi.2018 R.Borovec lgt. \ Sifting of litter under *Galenia africana* L."; 1 ♂, 1 ♀ (KO): same data; 1 ♂, 1 ♀ (KO): "RSA Western Cape 572 m Tankwa Karoo Park 4 km SE Paulshook 32°14.561' S, 20°8.560' E 7.xi.2018 R.Borovec lgt. \ Sifting of litter under *Galenia africana* L. and Chenopodiaceae shrubs"; 1 ♂ (BO): "RSA Northern Cape 593 m Tankwa Karoo Park Elaandsberg 32°10.453' S, 19°58.340' E 9.xi.2018 R.Borovec lgt. \ Sifting of litter under Chenopodiaceae shrubs"; 1 ♂ (BO): "Western Cape 430 m Tankwa Karoo Park 3 km S office 32°15.510' S, 20°05.206' E 7.xi.2018 R.Borovec lgt. \ Sifting of litter under *Galenia africana* L. and Chenopodiaceae shrubs"; 1 ♂ (KO): "RSA Northern Cape 1250 m Tankwa Karoo Park Northern Gate 32°56.614' S, 20°7.986' E 7.xi.2018 R. Borovec lgt. \ Sifting of litter under *Galenia africana* L."; 1 ♂ (BO): "RSA Northern Cape 451 m Tankwa Karoo Park, Leeuberg 32°11.407' S, 19°50.430' E 8.xi.2018 R.Borovec lgt. \ Sifting of litter under *Galenia africana* L.".

DIAGNOSIS: This species is recognizable by the relatively short elytra (El/Ew < 1.3), completely covered with adpressed, recumbent to subrecumbent shiny scales (many of them of strikingly purple colour), in fresh specimens with darkened humeri, and behind midlength with more or less distinct, dark crescentic impressions, interstria 3 at base conspicuously elevated, forming oblong bulge, in posterior third with two strikingly prominent tubercles, interstria 7 in posterior half with irregular, but strikingly prominent ridge, which terminates in a strongly

prominent protuberance, funicular segment 2 about twice as long as wide; body of penis apically tipped, in lateral view straight.

DESCRIPTION: Holotype: Completely preserved, 3.20 mm long male. Integument blackish-brown, antennae reddish-brown, almost completely covered with subtriangular to irregularly subangular, adpressed to imbricate recumbent shiny gold-coloured and numerous intermixed purple scales, posterior half of pronotum paramedially and laterally, humeri, and crescentic area in posterior half of elytral length with inapparent adpressed black scales (Fig. 7a–b).

Head: Rostrum stout, short (Rl/Rw 1.13 Rl/Pl 0.48); in dorsal view (Fig. 7a) widest at base, then narrowed and again widened to antennal insertion to same width as at base; epifrons covered with scales, conically narrowed anteriorly, at anterior margin delimited by thin sharp, relatively high transverse carina, epistome well developed, scale-free, shagreened, with setae, in lateral view (Fig. 7b) almost straight, of same width from base to antennal insertion, then narrowed to apex, in distal 1/3 on sides and ventral margin with long erect setae oriented anteriorly; transverse carina above antennal insertion strikingly prominent, with erect setae on its anterior side; antennal scrobes deep, almost straight, directed above eye, and broadly open downwards at anterior margin of eye. Head capsule in dorsal view in anterior part with median longitudinal sulcus, above eyes with striking, sharply prominent subtriangular protuberances oriented laterad, in posterior part moderately, evenly vaulted, in lateral view outline of anterior and posterior part abruptly separated by almost upright deep declivity. Eyes small, oval, flat, positioned laterally, in dorsal view not visible. Antennae except club with sparse suberect dark setae, inserted at 0.8 of rostrum length, insertions in dorsal view partially visible, scape $0.9 \times$ as long as funicle, markedly widened apically, funicular segment 1 as long as segments 2–6 combined, segment 2 about twice as long as wide, segment 3 longer than wide, segments 4–6 isodiametric to transverse, club cone-shaped, twice as long as wide.

Pronotum (Fig. 7a–b): Wider than long (Pl/Pw 0.88), widest at 0.6 of its length, in dorsal view with irregularly rounded sides, at 0.4 of its length with deep incision, anterior margin slightly, posterior margin evenly markedly rounded; in median part with large deep impression narrowed anteriorly, in lateral parts with deep pit-like impressions, disc with two unevenly high, longitudinal ridges positioned between medial and lateral impressions convergent anteriorly, in lateral view in basal part with horizontal, moderately irregular outline, in anterior part very strongly elevated; lateral impressions, anterior and anterolateral part, and small area along midline at base covered with densely arranged, recumbent to subrecumbent subtriangular, shiny gold-coloured and purple scales almost completely concealing integument, remaining areas, especially median impression, covered with subcircular to irregularly subangular, black scales completely concealing integument.

Scutellum (Fig. 7a): Small, broadly subtriangular, completely covered with greyish scales.

Elytra (Fig. 7a–b): Longer than wide (El/Ew 1.29), in anterior 1/3 from humeral apex moderately, irregularly narrowed, then subparallel to 3/4 of length, in distal part very broadly irregularly rounded, base broadly, evenly arcuately emarginate, humeri large, bevelled; widest at shoulders; interstriae broad, of uneven width, strikingly irregularly elevated into ridges, with large tubercles; densely covered with both types of scales as on pronotum, adpressed black scales especially on humeri and in posterolateral part, here forming a crescentic macula; interstria 1 with alternating small tubercles, interstria 3 in basal part strikingly elevated, forming an oblong bulge, at beginning of declivity with two large tubercles, interstria 5 in basal part with small tubercles or flat, in posterior part narrowed, almost effaced, interstria 7 strongly elevated, from about midlength to preapical area strongly elevated forming a ridge ending in strongly prominent protuberance; in lateral view, outline from base to apex with moderately elevated protuberances, apart from flat protuberances on disc; border between disc and very steep declivity edge-like.

Venter: Densely covered with subrotund to subtriangular adpressed metallic scales, rostral canal broad, deep, scale-free, delimited by two thin, large lobes connate at base; metaventrite flat, ventrite 1 in entire length, ventrite 2 in anterior part with broad, moderately deep median impression, distance of metacoxae $2.2 \times$ as long as the distance of mesocoxae; ventrite 1 $1.3 \times$ as long as ventrite 2, the latter $2.5 \times$ as long as ventrites 3–4 combined, ventrite 5 $1.8 \times$ as long as ventrites 3–4 combined; ventrite 1 densely irregularly punctate, punctures subcircular to suboval (Fig. 10).

Legs (Fig. 7a): Femora plump, flattened, with shallow preapical constriction; tibiae short plump with black spines on apical edge, feebly mucronate, protibiae in apical part enlarged; onychium $0.8 \times$ as long as tarsomeres 1–3 combined, tarsomeres 2 and 3 transverse, onychium $1.4 \times$ as long as wide, claws simple, thin, free, markedly divergent; femora and tibiae covered with very densely arranged, metallic light and dark brown matt scales, areas covered with different types of scales forming transverse bands, among scales sparse suberect dark setae, onychia covered with very dense, elongate pale scales and subrecumbent setae.

Penis: Body of penis (Fig. 7c) short, from base to $2/3$ parallel, then continuously tapered to relatively bluntly tipped apex; in lateral view (Fig. 7d) almost straight apically.

Female: As in male, except ventrites 1 and 2 flat. Spiculum ventrale (Fig. 7e) at distal margin with few very short setae, at proximal end conspicuously enlarged. Spermatheca (Fig. 7f) with developed ramus and collum, corpus moderately massive, cornu moderately long, wide. Ovipositor (Fig. 13) with distal gonocoxite bearing long setae, styli thin, sharp.

COMPARATIVE NOTES: *Boroveciella purpurascens* is most closely related to *B. viridescens* from which it differs in larger and higher oblong bulges in basal part, and larger tubercles in posterior $1/3$ of the interstria 3, strongly elevated, ridge-like interstria 7 in posterior part of elytra ended by always prominent protuberance, on average more elevated anterior part of the pronotum in lateral view, and more double-rounded pronotal outline in dorsal view, the presence of dark areas on elytra covered with adpressed black scales, funicular segment 2 at least twice as long as wide, longer segment 1 in relation to the rest of the funicle, in lateral view anterior and posterior part of head capsule separated by deep declivity, conspicuous purple scales on pronotum and elytra, and more sharply tipped, straight apex of penis (Fig. 7c–d, 8c–d).

VARIABILITY: Body length: $\sigma\sigma$ 2.82–3.43 mm, $\varphi\varphi$ 3.20–3.62 mm. The type series shows a remarkable variability, evidently due to the abrasion and soiling caused by the terricolous way of life. Relatively many specimens lack dark areas on elytra and pronotum, in some specimens the impressions on pronotum may seem shallower due to the soil filling, purple scales may be substantially reduced due to abrasion (such specimens are brown and greasy), the length of the funicular segments 2 and 3 varies to some extent.

DISTRIBUTION (Fig. 16): South Africa (Northern Cape, Western Cape).

BIONOMICS: Unknown. The type specimens were collected by sifting under *Galenia africana* L. (Aizoaceae) and Chenopodiaceae shrubs.

ETYMOLOGY: The epithet refers to the strikingly shiny purple scales on pronotum and elytra, and partially also on the head and legs. It is an adjective present participle of the Latin verb “purpurasco” (= turning purple).

***Boroveciella viridescens* sp.n.**

Holotype ♂ (NMPC): “RSA Western Cape 572 m Tankwa Karoo Park 4 km SE Paulshook 32°14.561' S, 20°8.560' E 7.xi.2018 R.Borovec lgt. \ Sifting of litter under *Galenia africana* L. and Chenopodiaceae shrubs”. **Paratypes:** 2 ♂♂, 2 ♀♀ (BO): same data; 2 ♂♂, 2 ♀♀ (KO): same data.

DIAGNOSIS: This species is recognizable by the relatively short elytra ($El/Ew < 1.4$) completely covered with adpressed to recumbent shiny scales, many scales of striking vivid green colour, elytral vestiture almost uniform, never with large darkened areas, at most with small dark patches posterolaterally, the interstria 3 at base moderately elevated, sometimes forming low oblong callus or small tubercles, in posterior third with one or two small tubercles, often of same size as those on interstria 1, interstria 7 moderately elevated in posterior half, never forming a ridge, ending at most in not prominent tubercle, funicular segment 2 mostly less than twice as long as wide, apex of body of penis bluntly tapered, in lateral view very slightly bent dorsad.

DESCRIPTION: Holotype: Completely preserved, 3.07 mm long male. Integument as in *B. purpurascens*, completely covered with subtriangular, adpressed to partially imbricate recumbent shiny, mostly vivid green scales, some scales with reddish lustre (Fig. 8a–b).

Head: Rostrum stout, short (Rl/Rw 1.15 Rl/Pl 0.47); in dorsal view (Fig. 8a) moderately narrowed from base to midlength, then again widened to antennal insertion; epifrons covered with scales, moderately conically narrowed anteriorly, at anterior margin delimited by thin, moderately high, transverse carina, epistome as in *B. purpurascens*; in lateral view (Fig. 8b) as in *B. purpurascens* except less prominent transverse carina. Head capsule in dorsal view as in *B. purpurascens* except smaller, less prominent, subtriangular supraocular protuberances oriented laterad, in lateral view outline of anterior and posterior part abruptly separated by bevelled shallow declivity. Eyes as in *B. purpurascens*. Antennal vestiture, insertion, scape length and width as in *B. purpurascens*, funicular segment 1 $0.9 \times$ as long as segments 2–6 combined, segment 2 about $1.5 \times$ as long as wide, segment 3 slightly longer than wide, segments 4–6 and club as in *B. purpurascens*.

Pronotum (Fig. 8a–b): Wider than long (Pl/Pw 0.87), widest at 0.6 of its length, in dorsal view outline and structure similar to those of *B. purpurascens* except much shallower incision at 0.4 of length and less rounded outline in basal part, in lateral view basal part with horizontal, almost straight outline, in anterior part elevated anteriorly; entire pronotal surface including impressions very densely, uniformly covered with adpressed to recumbent shiny scales, some scales of vivid green colour, other scales darker but shiny, almost completely concealing integument.

Scutellum (Fig. 8a): Small, round, completely covered with pale scales.

Elytra (Fig. 8a–b): Longer than wide (El/Ew 1.31), in anterior 1/3 from humeral apex moderately, slightly irregularly narrowed, then moderately narrowed to 2/3 of length, in distal 1/3 moderately tapered, base and humeri as in *B. purpurascens*; widest at shoulders; interstriae broad, of uneven width, irregularly elevated into low ridges and tubercles; densely covered with same type of scales as on pronotum, shortly behind midlength laterally with feebly indicated dark patch formed by intermixed darker scales; interstria 1 slightly unevenly elevated, interstria 3 in basal part moderately elevated, forming oblong flat tubercle, at beginning of declivity with two small tubercles, interstria 5 almost inapparent, interstria 7 from about midlength to preapical area slightly elevated, forming low indistinct ridge ending in oblong flat tubercle; in lateral view almost flat on disc, from edge-like declivity moderately steeply slanting to apex.

Venter: Vestiture, rostral canal, metaventrite, and impression in ventrites 1 and 2 as in *B. purpurascens*, distance of metacoxae $2.9 \times$ as long as that of mesocoxae; ventrite 1 of almost same length as ventrite 2, the latter $1.8 \times$ as long as ventrites 3–4 combined, ventrite 5 $1.2 \times$ as long as ventrites 3–4 combined; ventrite 1 moderately densely, irregularly punctate, punctures subcircular (Fig. 11).

Legs (Fig. 8a): As in *B. purpurascens*.

Penis: Body of penis (Fig. 8c) short, from base to 4/5 subparallel, then tapered to blunt apex; in lateral view (Fig. 8d), apex slightly bent dorsad.

Female: As in male, except ventrites 1 and 2 flat. Spiculum ventrale (Fig. 8e) at distal margin with sparse long setae, at proximal end slightly enlarged. Spermatheca (Fig. 8f) with strongly developed ramus and collum, corpus and cornu as in *B. purpurascens*. Ovipositor (Fig. 14) with distal gonocoxite bearing long setae, styli somewhat thin and sharp.

COMPARATIVE NOTES: *Boroveciella viridescens* is most closely related to *B. purpurascens* from which it differs in oblong flat tubercles in basal part, and two small tubercles in posterior 1/3 of the interstria 3, slightly elevated interstria 7 in posterior part of elytra ended by oblong, not prominent tubercle, on average less elevated anterior part of the pronotum in lateral view, and less rounded pronotal outline, especially in posterior part in dorsal view, the absence of large dark areas on elytra, funicular segment 2 mostly less than $2 \times$ as long as wide, shorter segment 1 in relation to the rest of the funicle, in lateral view anterior and posterior part of head capsule separated by bevelled shallow declivity, conspicuously vivid green scales on pronotum and elytra only rarely intermixed with red scales, and apically blunt, in lateral view slightly dorsally bent apex of penis (Figs. 7c–d, 8c–d).

VARIABILITY: Body length: $\sigma \sigma$ 3.03–3.23 mm, $\varphi \varphi$ 3.57–3.80 mm. Almost all specimens of the type series have some intermixed light red scales, especially on head. The length of funicular segment 2 is variable to some extent. The species is much less variable than *B. purpurascens*, however, its vestiture and texture is also strongly influenced by external factors.

DISTRIBUTION (Fig. 16): South Africa (Western Cape).

BIONOMICS: Unknown. The type series was collected by sifting under *Galenia africana*, and Chenopodiaceae shrubs.

ETYMOLOGY: The name of this species is derived from the strikingly vivid green scales on the elytra, pronotum, head and, to a lesser extent, on legs. It is an adjective present participle of the Latin verb “viridescō” meaning to turn green.

Boroveciella jaechi sp.n.

Holotype σ (NMPC): “RSA Northern Cape 1483 m Calvinia, Hantamsberg 31°20.459' S, 19°48.887' E 10.xi.2018 R.Borovec lgt. \ Sifting of litter under Chenopodiaceae shrubs”. **Paratypes**: 2 $\sigma \sigma$, 3 $\varphi \varphi$ (BO): same data; 1 σ , 1 φ (KO): same data; 1 φ (NMW): same data.

DIAGNOSIS: *Boroveciella jaechi* is easily recognizable by the relatively long elytra (El/Ew 1.4) completely covered by adpressed to recumbent, brownish and scattered, intermixed shiny reddish and/or greenish scales; elytral vestiture uniform, without darkened areas; interstria 3 slightly elevated at base, in posterior third with one small tubercle; interstria 7 moderately elevated, forming blunt edge in posterior half, ending in moderately prominent tubercle connected with the tubercle on interstria 3 by indistinct ridge giving impression of roof-like transverse edge; funicular segment 2 at most twice as long as wide, segment 3 isodiametric; the apex of the body of the penis broadly but distinctly tipped, in lateral view with small but distinct apical enlargement directed dorsad.

DESCRIPTION: Holotype: Completely preserved, 3.57 mm long male. Integument black, antennae blackish-brown, completely covered with small, subtriangular to subcircular, adpressed to slightly imbricate recumbent brown, slightly shiny scales, and intermixed reddish to gold-coloured, rarely greenish scales (Fig. 9a–b).

Head: Rostrum moderately stout, relatively long (Rl/Rw 1.31 Rl/Pl 0.45); outline in dorsal view (Fig. 9a), epifrons and epistome as in *B. purpurascens* except for markedly smaller scales on epifrons and lower transverse carina; in lateral view (Fig. 9b) similar to *B. purpurascens*, except moderately vaulted dorsal outline and less prominent transverse carina. Head capsule in dorsal view as in *B. purpurascens* except less prominent supraocular protuberances, in lateral view transition between anterior and posterior part confluent, shallow. Eyes as in *B. purpurascens*. Antennal vestiture and insertion as in *B. purpurascens*; scape as long as funicle, markedly, unevenly widened apicad, clavate; funicular segment 1 $0.9 \times$ as long as segments 2–6 combined, segment 2 less than twice as long as wide, segments 3–6 isodiametric to transverse; club cone-shaped, twice as long as wide.

Pronotum (Fig. 9a–b): Slightly longer than wide (Pl/Pw 1.02), widest at 2/3 of its length, in dorsal view with irregularly rounded sides, behind anterior margin with sharp indentation, at 0.4 of its length with shallow broad emargination, in posterior part almost parallel-sided, anterior and posterior margins evenly rounded; structure similar to that of *B. purpurascens* except much shallower impressions resulting in less distinct ridges between impressions, in lateral view in posterior part moderately vaulted, in anterior part slightly elevated; entire surface densely covered with subtriangular to subcircular, adpressed to recumbent brown scales with slight metallic lustre and, especially in mediobasal area, with intermixed shiny reddish scales completely concealing integument.

Scutellum (Fig. 9a): Very small, completely hidden by whitish scales.

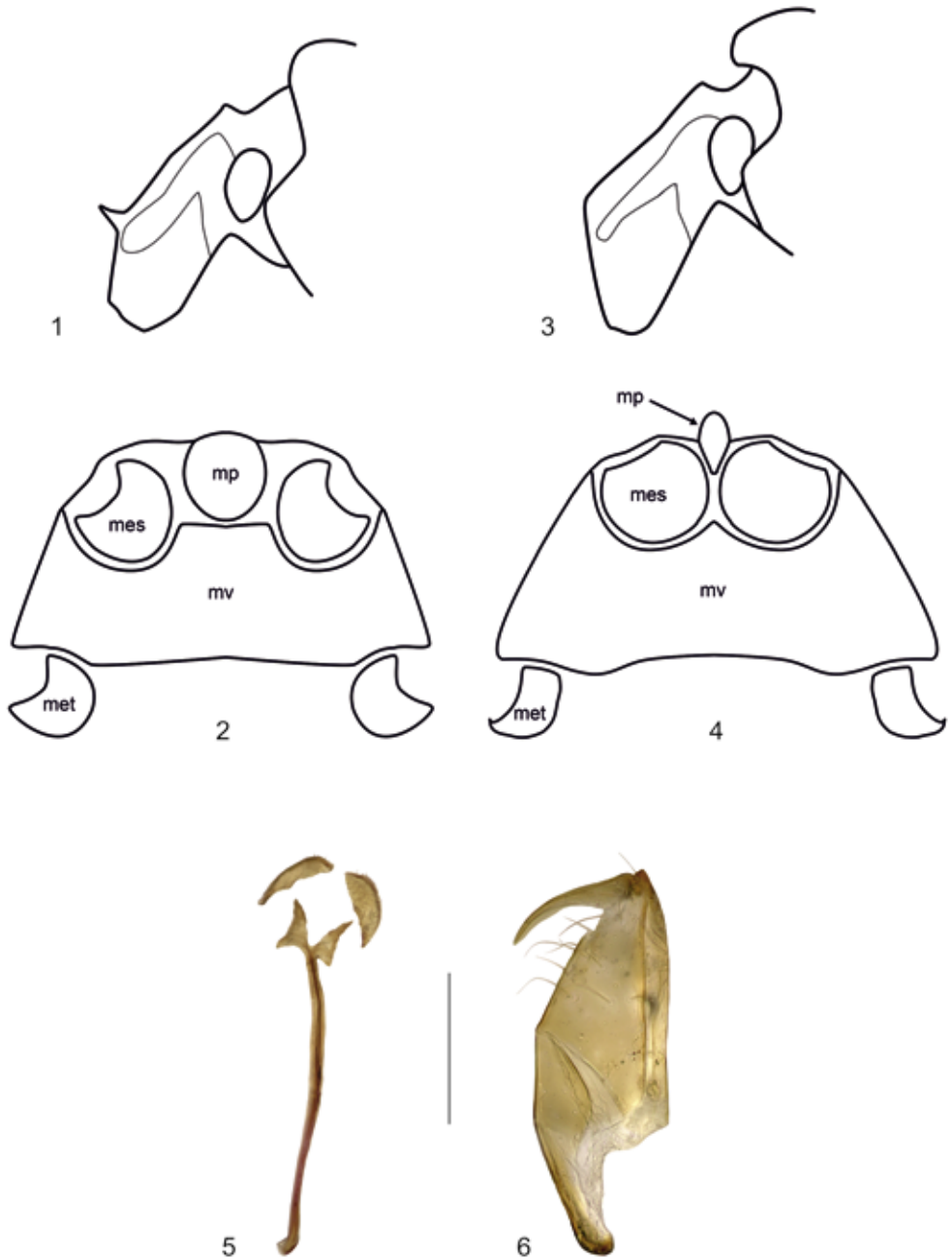
Elytra (Fig. 9a–b): Longer than wide (El/Ew 1.40), in anterior third from humeral apex moderately evenly narrowed, then subparallel to 3/4 of length, in distal part, behind roof-like transverse edge, almost rectilinearly tapered to narrowly rounded apex, outline of base and humeri as in *B. purpurascens*; widest at shoulders; interstriae broad, of uneven width, almost flat with various kinds of elevations; densely covered with same type of scales as on pronotum, without patches or maculae, along base with flange formed by dense scales of same type as on scutellum; interstria 1 almost flat, moderately vaulted at beginning of elytral declivity, interstria 3 in basal part moderately elevated, forming flat oblong tubercle, at beginning of declivity with small tubercle, interstria 5 almost flat, indistinct, interstria 7 moderately elevated from about midlength to elytral declivity, where it is forming a prominent tubercle; in lateral view almost flat on disc, from edge-like declivity slanting to apex.

Venter: Densely covered with subtriangular and irregularly angular, adpressed scales with slight metallic lustre; rostral canal as in *B. purpurascens* but longer; metaventricle flat; ventrite 1 in entire length, ventrite 2 in anterior part with broad, relatively deep median impression; distance of metacoxae $2.8 \times$ as long as distance of mesocoxae; ventrite 1 $1.1 \times$ as long as ventrite 2, the latter $1.8 \times$ as long as ventrites 3–4 combined; ventrite 5 $1.3 \times$ as long as ventrites 3–4 combined; ventrite 1 very densely irregularly punctate, punctures small, irregularly shaped (Fig. 12).

Legs (Fig. 9a): As in *B. purpurascens* except profemora without transverse bands, longer protibiae with less enlarged apical part.

Penis: Body of penis (Fig. 9c) short, from base to 0.7 of length subparallel, then broadly but distinctly, somewhat sinuately tapered to apex, in lateral view (Fig. 9d) with small apical enlargement directed dorsad.

Female: As in male, except ventrites 1 and 2 flat. Spiculum ventrale (Fig. 9e) cup-shaped, distal margin with sparse long setae, at proximal end moderately enlarged. Spermatheca (Fig. 9f) with well developed ramus and collum, corpus elongate, cornu moderately long, wide. Ovipositor (Fig. 15) with distal gonocoxite bearing sparse long setae, styli thin, distinctly bent, sharp.



Figs. 1–4: 1–2) *Boroveciella purpurascens* (holotype), 3–4) *Ophryodotus* sp.; 1, 3) head, lateral view, 2, 4) mesoventral process (mp), metaventrite (mv), meso- (mes) and metacoxae (met). Not to scale.

Figs. 5–6: 5) *Boroveciella jaechi*, spiculum gastrale (9th sternite), 8th hemisternite (holotype); 6) *B. viridescens*, ovipositor. Scale bar: 0.50 mm (5), 0.17 mm (6).

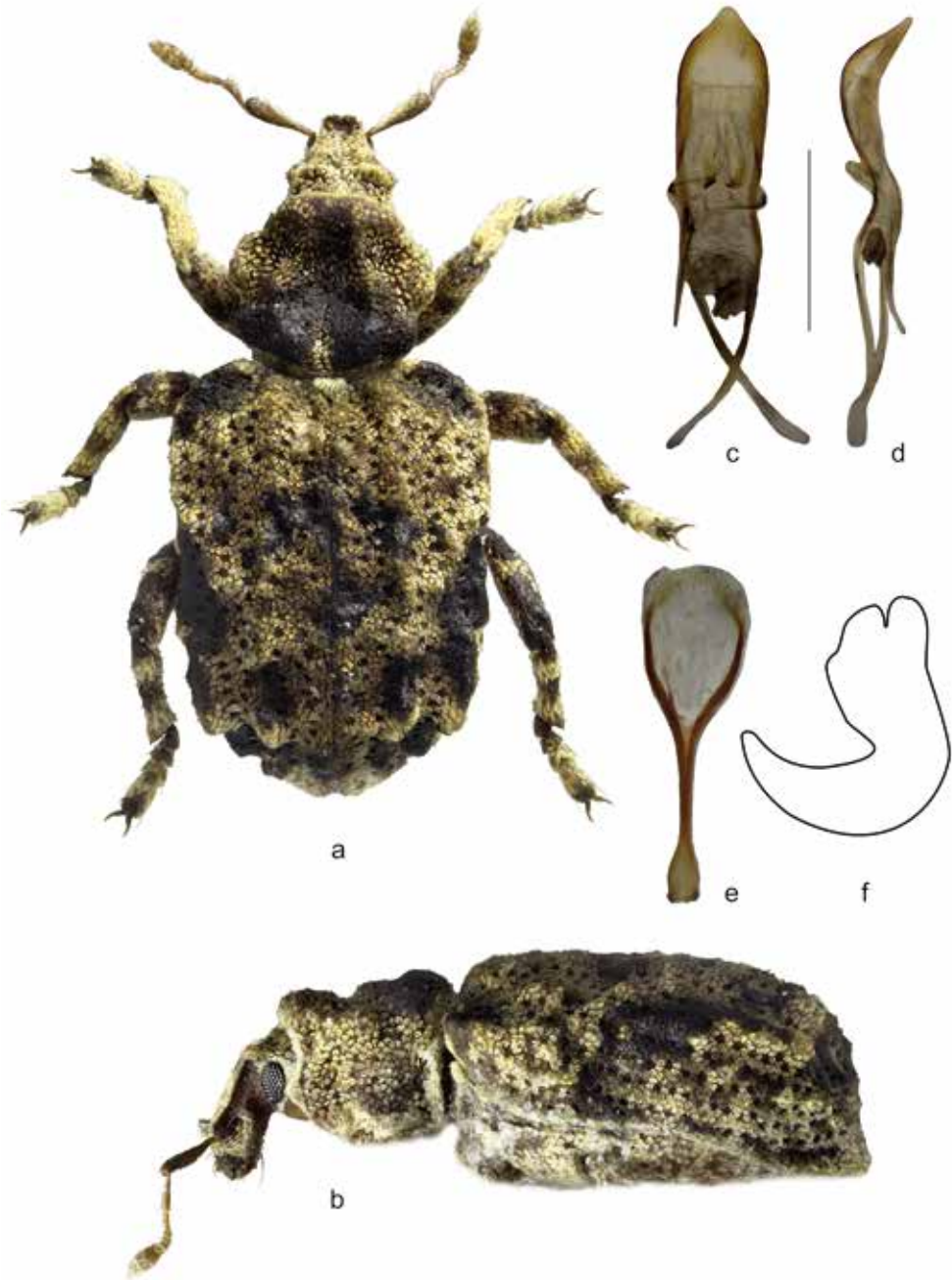


Fig. 7: *Boroveciella purpurascens*, a) habitus (holotype), dorsal view, b) habitus (holotype), lateral view, c) penis, ventral view, d) penis, lateral view, e) spiculum ventrale (8th sternite), f) spermatheca. Scale bar: 0.5 mm. Fig. 7a–b, f not to scale.

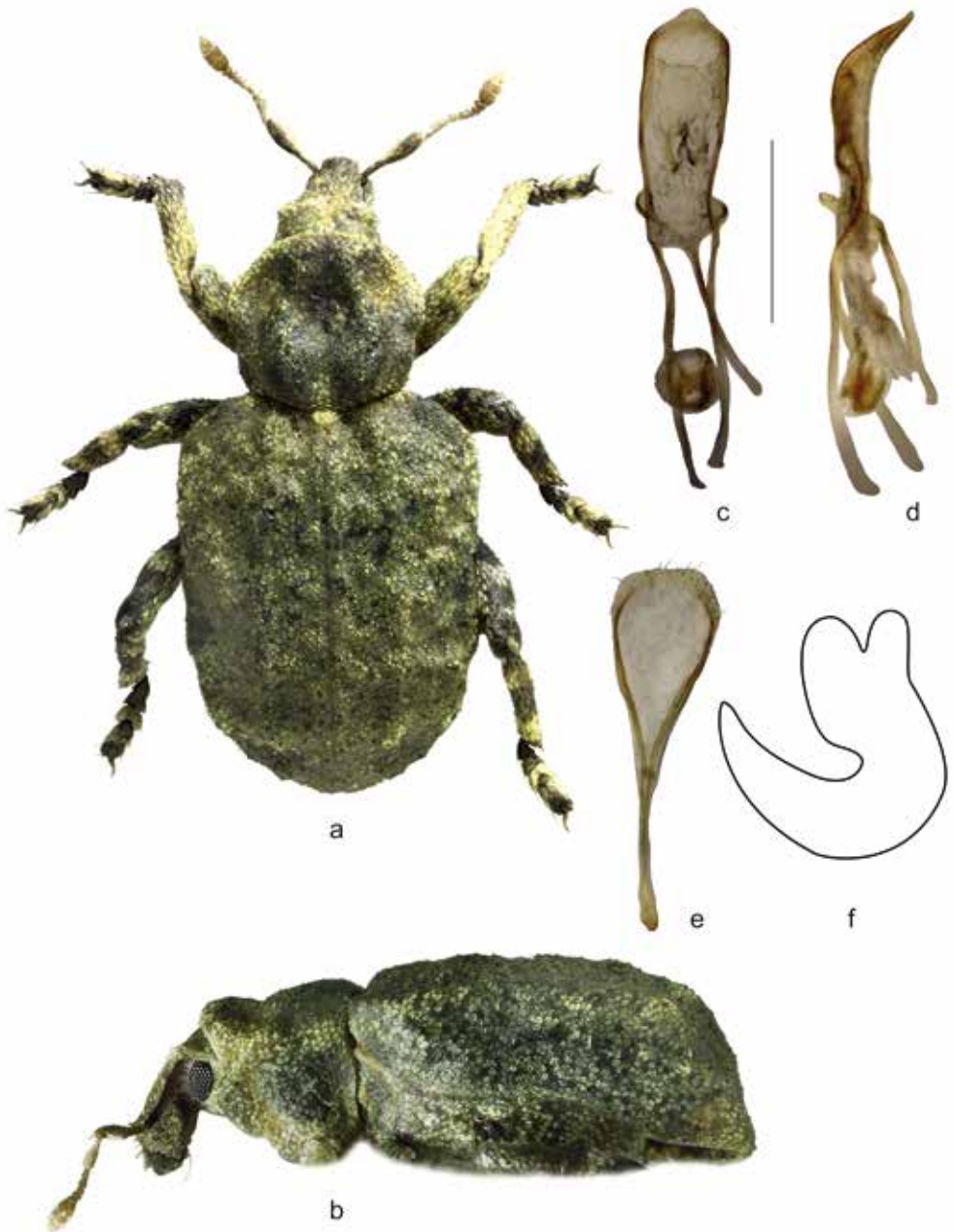


Fig. 8: *Boroveciella viridescens*, a) habitus (holotype), dorsal view, b) habitus (holotype), lateral view, c) penis, ventral view, d) penis, lateral view, e) spiculum ventrale (8th sternite), f) spermatheca. Scale bar: 0.5 mm. Fig. 8a–b, f not to scale.

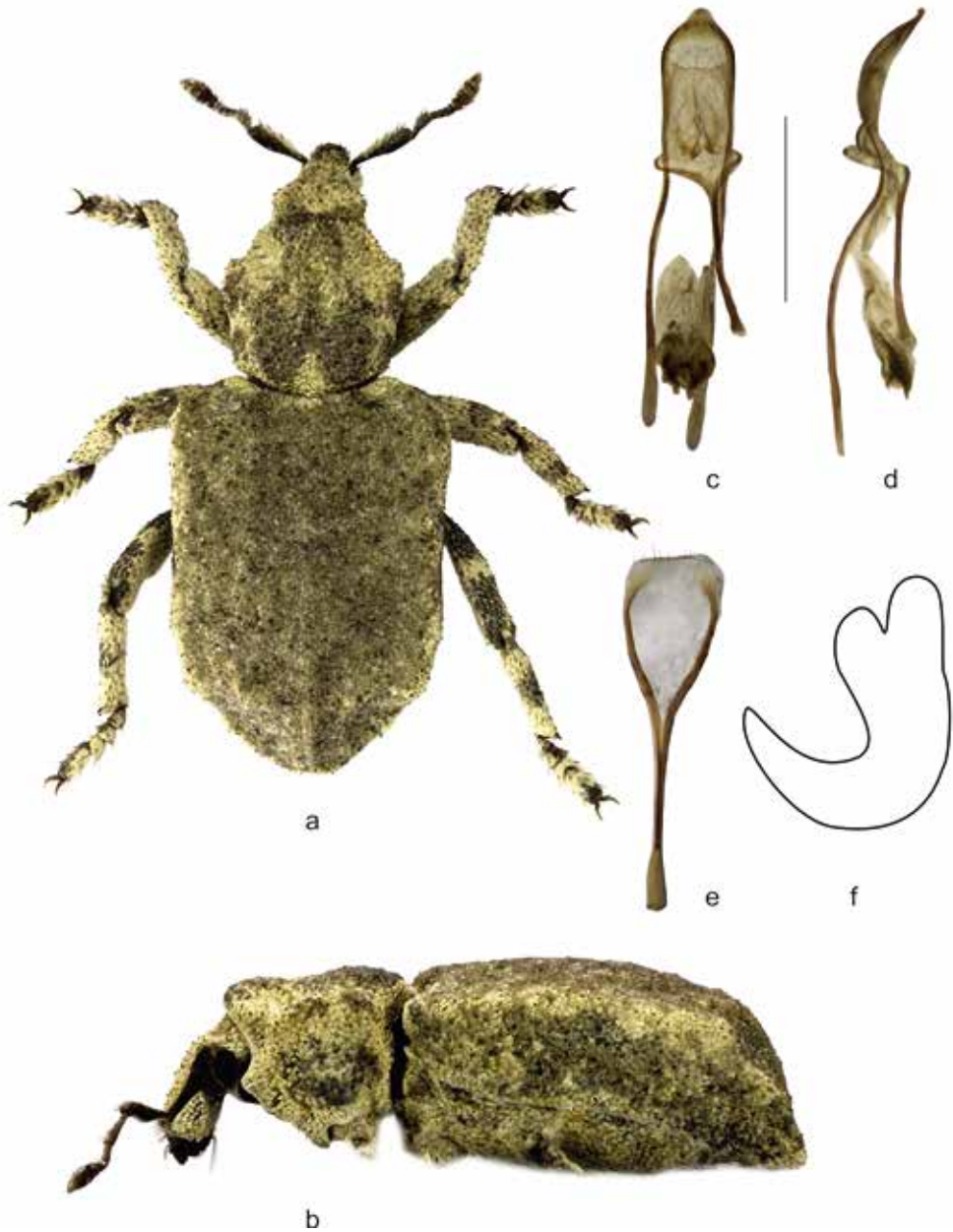
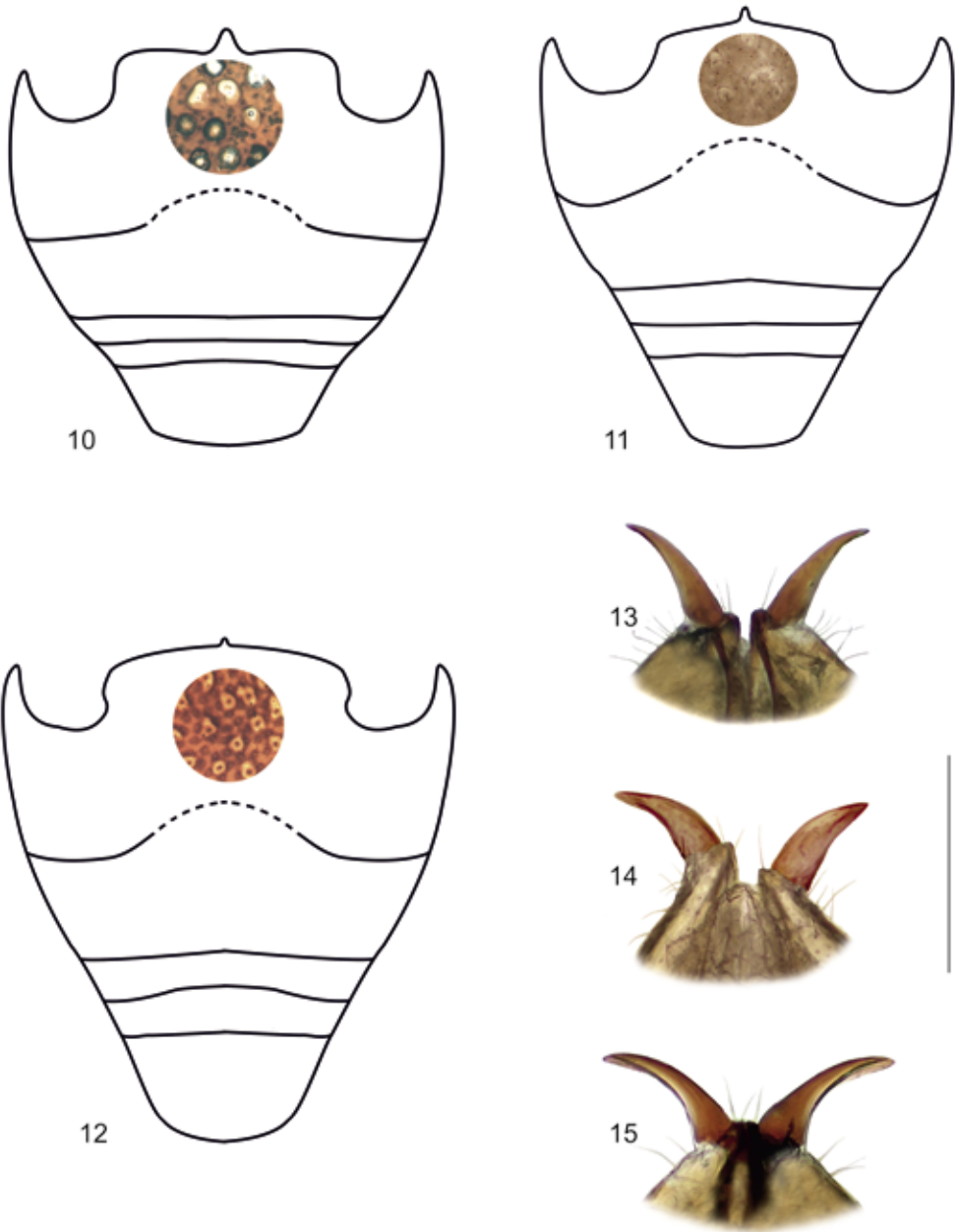


Fig. 9: *Boroveciella jaechi*, a) habitus (holotype), dorsal view, b) habitus (holotype), lateral view, c) penis, ventral view, d) penis, lateral view, e) spiculum ventrale (8th sternite), f) spermatheca. Scale bar: 0.5 mm. Figs. 9a–b, f not to scale.



Figs. 10–12: Sutures and outlines of ventrites 1–5, texture of ventrite 1: 10) *Boroveciella purpurascens*; 11) *B. viridescens*; 12) *B. jaechi*.

Figs. 13–15: Distal gonocoxite and styli: 13) *Boroveciella purpurascens*; 14) *B. viridescens*; 15) *B. jaechi*. Scale bar: 0.25 mm.

COMPARATIVE NOTES: *Boroveciella jaechi* is most closely related to *B. viridescens* from which it differs in the more elongate elytra (El/Ew 1.4 vs. 1.3) with almost no prominent tubercles on disc, the presence of roof-like transverse edge at elytral declivity, longer pronotum (Pl/Pw 1.0 vs. 0.9) with sharp indentation shortly behind anterior margin in dorsal view, blackish brown antennae, longer rostrum (Rl/Rw 1.31 vs. 1.15), and tapered apex of penis, in lateral view with small apical enlargement (Figs. 8c–d, 9c–d).

VARIABILITY: Body length: ♂♂ 3.29–3.52 mm, ♀♀ 3.59–4.06 mm. The type series varies in coloration of scales; some specimens have more reddish or greenish shiny scales. Otherwise, except extrinsic variances, the variability is minimal.

DISTRIBUTION (Fig. 16): South Africa (Northern Cape).

BIONOMICS: Unknown. The type series was sifted from litter under Chenopodiaceae shrubs.

ETYMOLOGY: I devote this species to Manfred A. Jäch (NMW), curator of Coleoptera and eminent specialist of water beetles, who is always willing to unselfishly help his colleagues.

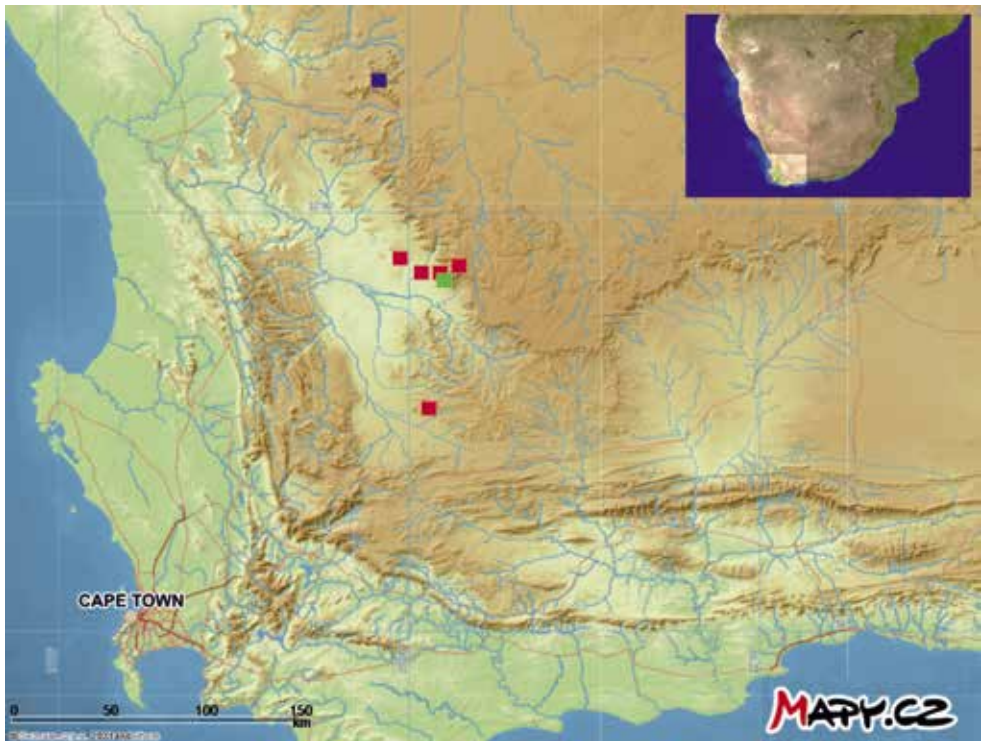


Fig. 16: Distribution map of the genus *Boroveciella*: *B. purpurascens* (red squares); *B. viridescens* (green square); *B. jaechi* (blue square).

Key to the species of *Boroveciella*

- 1 Elytra stouter (El/Ew < 1.35), pronotum wider than long (Pl/Pw < 0.9), rostrum short (Rl/Rw < 1.20), sides of pronotum in dorsal view in medial third irregularly rounded, without sharp indentation behind anterior margin, antennal funicle and club reddish-brown (Figs. 7a, 8a). Apex of body of penis in lateral view not enlarged (Figs. 7b, 8b) 2
- Elytra slender (El/Ew > 1.35), pronotum slightly longer than wide (Pl/Pw > 1.0), rostrum longer (Rl/Rw > 1.30), sides of pronotum in dorsal view in medial third subparallel, with sharp indentation behind anterior margin, antennal funicle and club blackish-brown (Fig. 9a). Apex of body of penis in lateral view with small enlargement directed dorsad (Fig. 9d)..... *jaechi* sp.n.
- 2 Elytral interstria 3 at base markedly elevated, forming oblong bulge, in posterior third with two large tubercles, interstria 7 from about midlength to preapical area forming edge-like ridge ending by strongly prominent protuberance. Elytral declivity very steep (Fig. 7b). Posterior part of pronotum (Fig. 7a), especially ridges, dark, covered with black adpressed scales. Funicular segment 2 twice as long as wide. Apex of body of penis in lateral view (Fig. 7d) straight..... *purpurascens* sp.n.
- Elytral interstria 3 at base moderately elevated, forming flat tubercle, in posterior third with two small tubercles, interstria 7 from about midlength to preapical area forming low indistinct ridge ending in oblong flat tubercle. Elytral declivity less steep (Fig. 8b). Posterior part of pronotum (Fig. 8a) without dark areas. Funicular segment 2 less than twice as long as wide. Apex of body of penis in lateral view (Fig. 8d) moderately bent dorsad *viridescens* sp.n.

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