A REVISION OF THE AFRICAN GENERA *NASTELLA* KERREMANNS AND *PARADORELLA* OBENBERGER (COLEOPTERA: BUPRESTIDAE: AGRILINAE)

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ABSTRACT

*Nastella* Kerremans is revised and now contains five species: the type-species, *N. fairmairei* Kerremans, and *N. strandi* Obenberger, both of which are proposed as synonyms under *N. chalcodes* (Wiedemann), and four additional species, *N. hessei* (Obenberger) (comb. nov. from *Discoderes*), *N. virgo* Obenberger, *N. uniformis* Obenberger and *N. flammea*, sp. nov. *Paradorella* Obenberger is resurrected from synonymy under *Discoderes* Chevrolat, revised and recognized as containing four species: *P. capensis* (Kerremans) (= *P. capigena* Obenberger, syn. nov.), *P. strandi* Obenberger, *P. subtilis* Obenberger and *P. wiedemanni* (Gory and Laporte). The genera and new species are fully described; previously described species are briefly redescribed. Lectotypes are designated for *Discoderes hessei*, *Coroebus wiedemanni*, *Nastella uniformis* and *Buprestis chalcodes*. The genera are separated in a diagnostic table, keys and illustrations are provided for all species of both genera.

The genus *Nastella* was described by Kerremans (1903) for his new species, *N. fairmairei*. Later, *Buprestis chalcodes* Wiedemann was transferred to *Nastella* by Obenberger (1931b) who also described three new species, *N. strandi*, *N. uniformis* and *N. virgo*.

*Paradorella* was erected by Obenberger (1923) for two new species, *P. capensis* and *P. strandi*. Later (1931a), he synonymized *Paradorella* under *Discoderes* Chevrolat and described *D. subtilis* and *D. hessei* as new. *Coroebus wiedemanni* (Gory and Laporte) was moved to *Discoderes* by Obenberger (1935b). With the homonymy created by the generic synonymy, *Paradorella capensis* Obenberger was replaced by *Discoderes capigena* Obenberger (1935b) due to the preoccupation by *D. capensis* Kerremans in that combination. Further possible confusion is apparent, with the specific epithet *strandi* used in both genera, although neither taxon has ever had its combination changed.

The recognition and resurrection of *Paradorella* is the last step in restricting the definition of *Discoderes* as defined by the species list of Obenberger (1935b). In Bellamy (1986b), I described *Strigulioides* for *Discoderes gabonica* Kerremans. More recently (1988b), I described *Discoderella* for *Discoderes stevensoni* Théry and a new species, *D. dilaticollis*. Thus, with the changes proposed herein, *Discoderes* composition will be reduced to two West African species, the type-species, *D. salzmanni* (Solier) and *D. villiersi* Descarpentries.

The close relationship between *Nastella* and *Paradorella* was not apparent to previous authors, possibly because of the varied placement for members of *Paradorella*. I believe that *Nastella* and *Paradorella* are sister groups, with putative phylogenetic ties to three other regional taxa, *Anadontodora* Obenberger, *Discoderoides* Théry and *Pseudophlocteis* Bellamy.

*Nastella* and *Paradorella* are revised herein as a continuation toward the

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goal of defining all subsaharan African coroebine genera and to eventually postulate on their tribal relationships, both within the regional fauna and to extracontinental clades as well. The genera can be separated from their African relatives in the key presented earlier (Bellamy 1988a). The species of both these genera are restricted in distribution to the vegetational biome of the Cape province of South Africa known as fynbos. Fynbos is equivalent to the chaparral of western North America, but is a much richer flora in numbers of endemic taxa.

Collection abbreviations used in the text are as found in Arnett and Samuelson (1986). Terminology for wing venation follows that of Good (1925) and my more recent comments and definitions (Bellamy 1986a). Some specific synonymies are shortened and the readers are referred to the more complete listings of Obenberger (1935b).

Type material for all species has been examined. For lectotype designations and descriptions, the abbreviations (p) for printed and (h) for handwritten are used with a slash mark (/) used to separate data from individual labels. Brackets are used for additional data, some of which was subsequently derived. Sizes given in descriptions are maximum length vs. width.

**Nastella Kerremans**


**Type-Species.** *Nastella fairmairei* Kerremans [= *Buprestis chalcodes* Wiedemann], by monotypy.

**Description.** Length less than 10.0 mm; elongate, flattened above; surface somber iridescent color; covered with squamiform setae arranged in either vittae or fasciae dorsally and evenly spaced moderately to densely ventrally.

*Head* (Fig. 3) with frontovertex slightly produced between widely separated eyes, shallowly longitudinally depressed; supra-antennal grooves narrow, deep, not extending laterally above each antennal cavity; median portion of frontoclypeal base depressed; frontoclypeus with inverted "V"-shaped disc, triangularly emarginate distally; gena with rounded, broadly obtuse lobe beneath eye. *Antenna* (Fig. 5) with antennomere 2 swollen, slightly longer than either 3 or 4, which are narrower than 2 and subequal in length; 5–10 serrate; 11 subappendiculate, subequal to 10.

*Pronotum* wider than long, widest at or near middle; anterior margin convex medially; basal margin strongly bisinuate, with subtruncate median lobe; lateral margins gradually widening past rounded obtuse laterobasal angles to about middle, then either straight before becoming arcuate or completely arcuate to apical margin; disc flattened with slight circular or transversely elliptical depression in middle; slightly depressed laterobasally on either side; prelateral carinae bisinuate, often extending from base to before apex. *Scutellum* triangular.

*Metathoracic wing* (Figs. 8, 9) with 1stA1 vaguely indicated; 1stA2 and 2dA1 connected basally; *N. uniformis* with radial cell vaguely bisected (Fig. 9).

*Elytra* with width subequal to pronotal width, widest at level opposite humeri; lateral margins more or less straight past humeral angle, narrowing to before middle, then gradually widening to about apical ⅓, before narrowing attenuately to separately rounded apices; epipleura separated from disc by carina as in Figure 1; disc flattened, depressed basally between suture and humeri; lateroapical margin serrulate.

*Thoracic sternites* with prosternum with bilobed mentonnaire; process parallel-sided between procoxae, attenuate apically. Mesepimeron slightly visible from above.

*Legs* with femora slightly fusiform; tibiae straight; metatibia without setal comb on external margin; tarsomere 1 slightly longer than 2; 2 longer than 3; 4 very short; 5 longer than 2 + 3; 1–3 each with small ventral pulvillus, 4 with pulvillus elongate, wide; 5 with claws appendiculate basally.
**Abdomen** with pygidium slightly emargnate on either side of medioapical spine, partially visible from above; sternites expanded with lateral portions partially visible from above; suture between sternites 1 and 2 only vaguely indicated; sutures between 2, 3, 4 and 5 broadly, shallowly arcuate; 5 narrowly explanate lateroapically, apical margin subtruncate, slightly concave medially.

*Genitalia* of males as in Figures 19–21. *Ovipositor* with ventral opposing setose brushes.

**Remarks.** The squamose setal covering and loss of the metatibial setal comb are both presumed autapomorphic characters, along with the subappendiculate 11th antennomere. Judging by Kerremans' (1903) placement of *Nastella* between *Epimacha* Kerremans, from the Andaman Islands, and the African *Planidia* Kerremans, he was unsure of its relationships. Obenberger (1935b) placed *Nastella* between the African *Strigulia* Kerremans and the Madagascan *Paranastella* Obenberger, although *Paranastella* seems closer to *Maroansetra* Théry and *Strigulia*.

*Nastella* can be contrasted to *Paradorella* as follows:

**Nastella** Kerremans

- Antennae serrate from antennomere 5.
- Dorsal surface with only squamose setae as fasciae or vittae.
- Underside densely squamose.
- Prosternal process swollen, attenuate.
- Metatibiae without setal comb on external margin.

**Paradorella** Obenberger

- Antennomere 4 sub serrate, 5–10 subequally serrate.
- Dorsal surface with either simple setae or squamae as fasciae.
- Underside sparsely setose.
- Prosternal process flattened, acuminated.
- Metatibiae with setal comb on external margin.

**Key to the species of Nastella**

1. Frontoclypeal emargination shallow, broad and subtruncate medially; elytra with squamose setae as small, widely spaced patches on basal ½ ............................................. *N. hessei*
   - Frontoclypeal emargination deep, narrow and either semicircular or triangular; elytra with squamose setae as parallel vittae on at least basal ½ ................................................ 2

2. Elytra with squamose vittae straight, extending past middle, with vittae either becoming obscure or with one or two preapical fasciae
   - Elytra with squamose vittae diverging laterally to oblique fasciae just past middle, apically with one or two fasciae ................................................................. 3

3. Aeneous to viridiaeneous; squamose vittae becoming obscure past middle ........................................................................................................... *N. uniformis*
   - Cupreous; squamose vittae continuing past middle, apical portion with one or two fasciae .......................................................................................... *N. chalcodes*

4. Dark cupreous to purplish cupreous; two partially oblique squamose fasciae on apical ½ of elytra .................................................. *N. virgo*
   - Bright orange cupreous; one oblique squamose fascia on apical ½ of elytra ........................................................................................................... *N. flammaea, sp. nov.*

The species of *Nastella* are diagnostically treated below, except for the full description of the single new species, *N. flammaea*.
Nastella chalcodes (Wiedemann)  
(Fig. 10)

_Buprestis chalcodes_ Wiedemann 1821:122.  
_Nastella fairmairei_ Kerremans 1903:250; Obenberger 1935b:808.  
_Syn. nov._  
_Syn. nov._

**Diagnosis.** Size, 7.3–8.2 × 2.2–2.5 mm; elongate, flattened; head and pronotum striolate, elytra rugose; surface cupreous with squamose setal pattern vittate, as in Figure 10; pronotum nearly 1.4 × wider than long; males unknown.

**Material Examined.** Lectotype of _chalcodes_ [here designated], female [ZMUC]: [white] Mus. Westerm. (p)/ [red] Type (p)/ [white] Cap b. sp., Oct. 1817, chalcodes, Wied. (h)/ [red] LECTOTYPE (p) Buprestis chalcodes Wied., det (h) C. L. Bellamy (p). Two female paralectotypes [ZMUC]: 1 with labels 1 and 2 same; 2 with labels 2 and 3 same; both with label 4 same except PARA-LECTOTYPE; holotype of _fairmairei_, female [BMNH] [missing antennae, 1 hind leg and abdomen]: Cap. B. Sp., Fairmaire; holotype of _strandi_, female [NMPC 23637]: Hex River, Cape Colony; 1 female [CLBC]: Cape, Swellendam.

**Remarks.** By monotypy, _N. fairmairei_ became the type-species when Kerremans (1903) erected _Nastella_. He had apparently not seen Wiedemann's species, since he listed it under _Discoderes_ in that same work. Obenberger (1931b) transferred _D. chalcodes_ to _Nastella_, again probably without having seen it. He immediately followed this transfer with the description of _N. strandi_, which was not compared to any other species. I have been able to compare type material of all these taxa and find that they differ only slightly in size and the squamose setal pattern on the elytra.

_Nastella chalcodes_ is quite similar to _N. virgo_, differing by being slightly more robust and by differences in the elytral setal pattern. If males were available, they might show that these two species are the same.

_Nastella virgo_ Obenberger  
(Figs. 1, 3, 5, 8, 11, 19)


**Diagnosis.** Size, 6.1–7.1 × 1.9–2.4 mm; elongate, flattened; head and pronotum striolate, elytra rugose; surface cupreous with slight purple reflections; pronotum slightly less than 1.5 × wider than long; elytral setal pattern vittate, as in Figure 11; male genitalia as in Figure 19.

**Material Examined.** Holotype, female [NMPC 23638]: Witzenburg, S. W. Cape; 6 ex. [BMNH, CLBC]: Cape Prov., Katberg, 4,000 ft, 1–15.I.1933; 1 ex. [SAMC]: Upper Sources Olifants, Ceres, C. P.; 1 ex. [TMSA]: Swartberge, Blesberg E, 2,000 m, 33.25S–22.41E, 7.3.1981.

**Remarks.** _Nastella virgo_ is most similar to _N. chalcodes_ as mentioned previously under that species; _N. virgo_ is slightly more elongate in proportion and has the squamose setal pattern of the elytra more expansive on the apical ¼.

_Nastella uniformis_ Obenberger  
(Figs. 9, 12, 20)


**Diagnosis.** Size, 5.6–6.8 × 1.6–2.1 mm; elongate, flattened; head and pronotum striolate, elytra rugose; surface cupreous to viridiaeneous; setal pattern reduced to
Figs. 1–24. Diagnostic characters, *Nastella* and *Paradorella*. 1, 2, lateral habitus. 3, 4, head, frontal view. 5, 6, antennae, dorsal view. 7–9, wing venation, dorsal view. 10–18, left dorsal view. 19–24, male genitalia, dorsal view. Scale bars = 1 mm and are the same for Figs. 1, 10–18 and 5, 6, 19–24.

Figs. 1, 3, 5, 8, 11, 19, *N. virgo* Obenberger. Figs. 2, 4, 6, 17, 23, *P. subtilis* Obenberger. Figs. 7, 18, 24, *P. strandi* Obenberger. Figs. 9, 12, 20, *N. uniformis* Obenberger. Fig. 10, *N. chalodes* (Wiedemann). Fig. 13, *N. flammea*, sp. nov. Figs. 14, 21, *N. hessei* (Obenberger). Figs. 15, 22, *P. capensis* (Kerremans). Fig. 16, *P. wiedemanni* (Gory and Laporte).
longitudinal vittae on elytra, as in Figure 12; pronotum 1.4× wider than long; male genitalia as in Figure 20.


REMARKS. Nastella uniformis differs from the other congeners by its coloration and reduced dorsal setation.

Nastella flammea Bellamy, sp. nov. (Fig. 13)

Holotype Female. Size, 5.5-5.9 × 1.8-2.0 mm; elongate, flattened; surface reddish cupreous; head and pronotum striolate, elytra rugose; squamose setae on pronotum in round patch on basolateral ⅓'s, each elytron with patch in basal depression sparsely extending posteriad as one longitudinal vitta parallel to suture from basal ⅓ to just past middle, before diverging obliquely laterad, almost reaching margin at apical ⅓, one slightly oblique “zig-zag” fascia in apical ¼; underside moderately densely covered with squamose setae.

Head with broad shallow depression on vertex, narrowing to longitudinal depression on wide frontovertex; eyes widely separated, inner margins diverging; one small deep arcuate groove above each antennal cavity; antennal cavities separated by distance greater than individual width; frontoclypeus with distal, inverted “V”-shaped plate, triangularly emarginate.

Pronotum nearly 1.4× wider than long, widest past middle; anterior margin with angularly convex median lobe; basal margin bisinuate, with median lobe truncate; basolateral angles rounded, obtuse; lateral margins shallowly arcuate; one oblique prelateral carina on either side from base to past apical ⅓; disc with median transverse depression on apical ⅔, basolateral depression at basal ⅓ on either side of middle. Scutellum triangular; width subequal to length; disc with transverse depression.

Elytra with lateral margins carinate, separating small epipleuron from disc basally; sides straight basally to a point just past opposite humeri, then gradually narrowing to middle, then widening to apical ⅓ before narrowing to separately rounded apices; latero-apical margin finely serrate.

Pygidium apically emarginate around median tooth.

Underside and legs as in generic description.

Male unknown.

MATERIAL EXAMINED. Holotype, female [BMNH]: S. AFRICA, Cape, Mosselbaay 1939, R. E. Turner, B. M. 1939-98; female paratype [BMNH]: Table Mt., Cape of Good Hope, W. Bevins, 1906-167.

REMARKS. This species is named for its fiery orange color, from the Latin flammea for flame. Nastella flammea is similar to N. uniformis but differs in coloration and the squamose setal pattern of the elytra.

Nastella hessei (Obenberger), comb. nov. (Figs. 14, 21)

Discoderes hessei Obenberger 1931a:190; 1935b:800.

Diagnosis. Size, 5.6-6.6 × 1.8-2.1 mm; elongate, flattened; surface dark subnitid black with purplish reflections; pronotum 1.4× wider than long; elytral setal pattern fasciate as in Figure 14; male genitalia as in Figure 21.
MATERIAL EXAMINED. Lectotype [here designated], male [SAMC] [white] Tradouw Pass, Swellendam Dis. (h) [red] TYPUS (p) [white] Discoderes hessei m. Type (h) det. Dr. Obenberger (p) [green] SAM Type Acc. No. (p) 1413 (h) [red] LECTOTYPE (p) Discoderes hessei Obenb. det. (h) C. L. Bel-lamy (p). One paralecotype with same data except label 4: [orange] Mus. Nat. Pragae Inv. (p) 23609 (h) and labelled PARALECTOTYPE; 1 ex. [TMSA]: Cape, Du Toit’s Kloof Pass; 1 ex. [SAMC]: Hope T., Purcell, 1896.

REMARKS. This species differs from all congeners by its resemblance to some species of Paradorella in dorsal vestiture. However, the number of serrate antennomeres, lack of metatibial “comb” and configuration of the frontoclypeus clearly places it in Nastella. It is immediately separable from other Nastella by the transverse fasciate setal pattern.

**PARADORELLA OBENBERGER**

*Paradorella* Obenberger 1923:26.

**TYPE-SPECIES.** *Paradorella capensis* Obenberger [= Discoderes capensis Kerremans] by original designation.

**DESCRIPTION.** Length less than 10.0 mm; elongate, flattened above; both surfaces more or less iridescent cupreous, variously covered by setal fasciae and patches.

*Head* (Fig. 4) with frontovertebra slightly produced between widely separated eyes, slightly longitudinally depressed; eyes with inner margins diverging except from just before dorsal-most point, where margins slightly converge; supra-antenna groove more or less straight above antennal cavities, shallowly confluent with depressed medial portion of frontoclypeus; lateral margins of frontoclypeus more or less straight to distal margin; gena with broadly rounded obtuse lobe beneath eye; area laterad to antennal cavity depressed to beneath eye for reception of basal antennomeres in repose.

*Antenna* (Fig. 6) with antennomere 2 globose; 3 narrower, length subequal to 2; 4-10 serrate; 11 swollen apically.

*Pronotum* wider than long, widest at or near middle; anterior margin arcuate medially; basal margin strongly bisinuate with median lobe subtruncated; lateral margins widening slightly past obtuse laterobasal angles, more or less straight on median 1/2, then arcuate or slightly emarginate to apical margin; disc flattened with transverse depression just past middle, then slightly depressed on each side laterobasally between center and pre-lateral carinae; prelateral carinae bisinuate. *Scutellum* triangular, longer than wide.

*Metathoracic wing* (Fig. 7) with feebly indicated 1stA1; 1stA2 and 2dA1 unconnected; slight anal lobe on posterior margin.

*Elytra* with width subequal to pronotal width, widest between points opposite humeri; lateral margins more or less straight past humeral angle, narrowing to before middle; then gradually widening to about apical 1/6 before tapering to separately rounded apices; epipleuron separated from disc by carina as in Figure 35; disc flattened, depresses basal on betwee suture and humeri; lateroapical margin serrulate.

*Thoracic sternites* with prosternum without or with very feebly, widely bilobed mentaliere; process with lateral margins parallel between procoxae, apex attenuate; mes-epimeron slightly swollen laterad, slightly visible from above; metacoxal plate as in Figure 2.

*Legs* with femora with sides more or less parallel; tibiae narrow, more or less straight; metatibia with sparse setal comb on external margin; tarsomeres 1–3 subequal in length, 4 shorter than 3, 5 subequal to 3+4, 1–4 with ventral pulvilli, each becoming broader proportionally and slightly bilobed distally, 5 with claws broadly appendiculate.

*Abdomen* with pygidium slightly emarginate on either side of medioapical spine, partially visible from above; sternites expanded with lateral portion partially visible from above; suture between sternites 1 and 2 only vaguely indicated; sutures between 2, 3, 4, and 5 broadly shallowly arcuate; 5 narrowly explanate lateroapically, apical margin subtruncate, slightly concave medially.
Genitalia of males as in Figures 22–24. Ovipositor short, with two dense opposing ventral setal brushes.

Remarks. Even though some species of both Paradorella and Nastella superficially resemble one another, mainly because of the presence of either bristle-like or squamiform setae within the congeners, these two genera are most readily separated by the difference in number of serrate antennomeres and the presence or absence of the metatibial setal comb.

Paradorella has the pronotum more strongly explanate laterally, i.e., the lateral portion of the dorsal surface and the hypomera are more flattened than in Nastella, which has the pronotum more swollen laterally. At the time Paradorella was described, Obenberger (1923) compared it to Paradora Kerremans. The synonymy of Paradorella under Discoderes by Obenberger (1931a) is not readily understood since he appeared to have a fairly uniform concept for genera of Coroebini (e.g., 1923, 1924). Later (1935a), he reversed his earlier work and combined several distinct groups of species, including Paradora, under Phlocteis Kerremans (see Bellamy 1986a).

The species recognized in Paradorella can be separated in the following key and are treated diagnostically below.

Key to the Species of Paradorella

1. Elytra with three “zig-zag” setose fasciae (Figs. 16, 17)
   - Elytra with only two “zig-zag” fasciae (Figs. 18, 21)

2. Dorsal coloration bright, with cupreous reflection on head and pronotum, purplish reflection on elytra; abdominal sternites with large patches of setae
   - Dorsal coloration dark, with obscure viridiaeneous reflections; underside with setal covering reduced

3. Preapical elytral setal fasciae followed by small apical patch (Fig. 15); medial pronotal depression transverse
   - Elytral fasciae apical (Fig. 18); medial pronotal depression circular

Paradorella capensis (Kerremans), comb. nov.

(Figs. 15, 22)

Discoderes capensis Kerremans 1903:223; Obenberger 1935b:800.
Discoderes capigena Obenberger 1935b:800 (nom. nov. for P. capensis Obenberger).

Diagnosis. Size, 6.2–6.7 × 2.0–2.1 mm; elongate, flattened; dark cupreous with faint purple reflections; pronotum and basal ½ of elytra with small patches of squamose setae, apical ½ of elytra with “zig-zag” transverse fasciae as in Figure 15; pronotum 1.4 x wider than long, with medial depression more or less transverse; male genitalia as in Figure 22.


Remarks. This species is most similar to P. wiedemanni, but differs by being slightly more elongate.
Paradorella wiedemanni (Gory and Laporte), **comb. nov.**
(Fig. 16)

*Coroebus wiedemanni* Gory and Laporte 1839:5.


**Diagnosis.** Size, 6.2–7.1 × 2.0–2.3 mm; elongate, flattened; head and pronotum roseocupreous, elytra subnitid black with blue and purple reflections; head punctate, pronotum striolate, elytra rugose; setal pattern trifasciate as in Figure 16; pronotum 1.4 × wider than long, medial depression more or less transverse.


**Remarks.** This species is most similar to *P. subtilis*, but differs in dorsal coloration and setal pattern, especially on the elytra; *P. wiedemanni* is also more robust.

*Paradorella subtilis* (Obenberger), **comb. nov.**
(Figs. 2, 4, 6, 17, 23)

*Discoderes subtilis* Obenberger 1931a:189; 1935b:800.

**Diagnosis.** Size, 4.9–6.0 × 1.6–1.8 mm; elongate, flattened; coloration generally subnitid black, head and pronotum with cupreous reflections medially, purplish reflections laterally, elytra with grey-green reflection mainly on basal ½ of disc; head punctate, pronotum striolate, elytra rugose; elytral setal pattern trifasciate as in Figure 17; pronotum 1.4 × wider than long, medial depression more or less transverse; male genitalia as in Figure 23.


**Remarks.** *Paradorella subtilis* differs from *P. wiedemanni* by having sparser ventral setal covering, by being more elongate and by its generally darker coloration.

*Paradorella strandi* Obenberger
(Figs. 7, 18, 24)

*Discoderes strandi*, Obenberger 1931a:189; 1935b:800.

**Diagnosis.** Size, 4.9–6.4 × 1.6–2.0 mm; elongate, flattened; head and pronotum dark cupreous, elytra dark with faint purple reflections on disc, lateral perimeter with cupreous reflections; head punctate, pronotum striolate, elytra rugose; pronotum slightly more than 1.3 × wider than long, medial depression more or less round; male genitalia as in Figure 24.


**Remarks.** *Paradorella strandi* is similar to *P. subtilis*, differing by having...
the pronotum slightly more elongate, with the medial depression round rather than transverse, by the different setal patterns and by differences in the male genitalia.

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