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## Two new species of *Neolindus* from Peru and Venezuela

### (Coleoptera: Staphylinidae: Paederinae: Cyliandroxytina)

With 20 figures

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#### Summary

Two species of *Neolindus* SCHEERPELTZ, 1933 are described, illustrated, and distinguished from similar and geographically close congeners: *N. luciamans* sp. n. (Peru: Huanuco province) and *N. brachati* sp. n. (Venezuela: Carabobo province). The first record of *N. rudiculus* HERMAN, 1991 since the original description is reported.

#### Key words

Coleoptera, Staphylinidae, Paederinae, Cyliandroxytina, *Neolindus*, Neotropical region, taxonomy, new species.

#### New species

*Neolindus brachati* sp. n., *Neolindus luciamans* sp. n.

#### Zusammenfassung

Zwei Arten der Gattung *Neolindus* SCHEERPELTZ, 1933 werden beschrieben, abgebildet und von ähnlichen bzw. geographisch nahen Arten unterschieden: *N. luciamans* sp. n. (Peru: Provinz Huanuco) und *N. brachati* sp. n. (Venezuela: Provinz Carabobo). *Neolindus rudiculus* HERMAN, 1991 wird erstmals seit der Originalbeschreibung nachgewiesen.

#### Introduction

The subtribe Cyliandroxytina is one of the few Neotropical paederine taxa that have been subject to modern revisions. According to HERMAN (1991), it comprises two genera and 47 species, *Cyliandroxytus* BIERIG, 1943 (14 species) and *Neolindus* SCHEERPELTZ, 1933 (33 species). Four additional species of *Neolindus* were described recently by ASENJO (2011) and IRMLER (2011).

Both *Cyliandroxytus* and *Neolindus* have been collected remarkably rarely and in small numbers; numerous species are represented only by single specimens. The revision by HERMAN (1991) is based on a total of merely 37 (*Cyliandroxytus*) and 79 specimens (*Neolindus*), respectively. Most of them were found in leaf litter and at lower elevations, but the reproduction habitat is essentially unknown.

In material of Staphylinidae collected by Volker Brachat (Geretsried) in Venezuela in 2005 and 2007 and by Günter Riedel (München) in Peru in October 2010, five specimens of *Neolindus*

were discovered, a female of unknown identity (probably undescribed), a female of *N. rudiculus* HERMAN, 1991, and three specimens (two males and one female) belonging to two undescribed species from Peru and Venezuela.

## Material and methods

The material treated in this study is deposited in the author's collection.

The morphological studies were conducted using a Stemi SV 11 microscope (Zeiss Germany) and a Jenalab compound microscope (Carl Zeiss Jena). A digital camera (Nikon Coolpix 995) was used for the photographs.

Head length was measured from the anterior margin of the frons to the posterior margin of the head, elytral length at the suture from the apex of the scutellum to the posterior margin of the elytra, total length from the anterior margin of the mandibles to the apex of the abdomen, the length of the forebody from the anterior margin of the mandibles to the posterior margin of the elytra, aedeagal length from the apex of the internal structures or from the apex of the dorsal plate (whichever is the longest) to the base of the capsule. The parameral side of the aedeagus (i.e., the side where the sperm duct enters) is referred to as the ventral, the opposite side as the dorsal aspect.

## Descriptions and additional records of *Neolindus* species

### *Neolindus luciamans* sp. n. (Figs 1-10)

#### Type material:

Holotype ♂: "Peru - Huanuco Prov., Panguana Station at Rio Lullapichis, 9°37'S, 74°56'W, 260 m, at light, 1.-23.X.2010, G. Riedel / Holotypus ♂ *Neolindus luciamans* sp. n., det. V. Assing 2012".

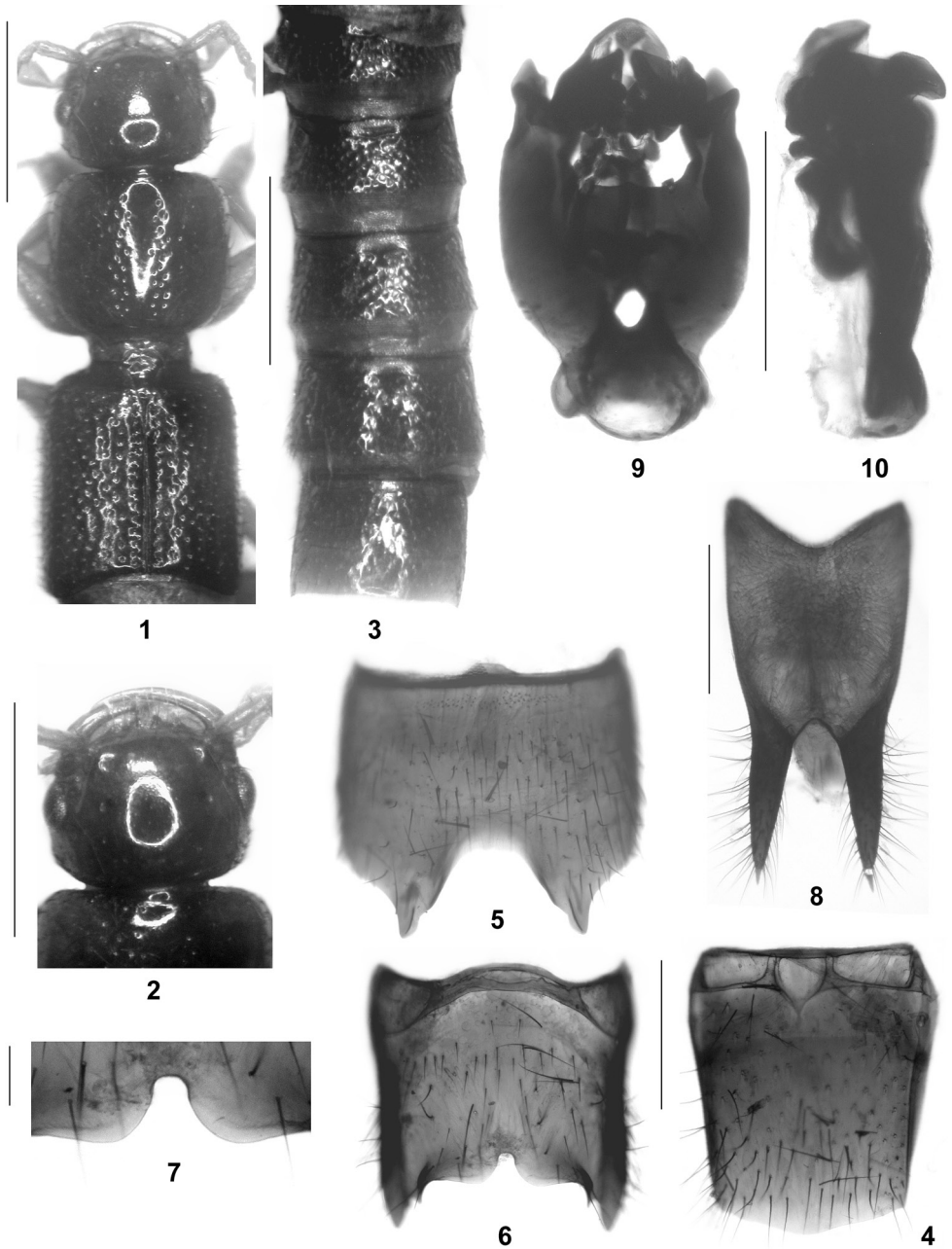
#### Etymology:

The specific epithet is composed of the Latin noun lux (light) and the present participle of the Latin verb amare (to love). It refers to the fact that the holotype was attracted to a light source.

#### Description:

Body length 7 mm; length of forebody 3 mm. Coloration: head and pronotum reddish; elytra reddish-brown; abdomen brown with reddish apex; legs and antennae pale-reddish.

Head (Fig. 2) strongly transverse, 1.35 times as broad as long, widest across eyes; posterior angles moderately marked; dorsal surface only laterally with few setiferous macropunctures, median portion extensively without macropunctures, but with relatively dense micropunctuation; microsculpture absent; on either side with only one trichobothrium (for illustrations of this structure see HERMAN 1991) near antero-dorsal margin of eye. Eyes strongly convex and moderately large, approximately twice as long as postgenae and distinctly shorter than distance between posterior margin of eye and neck. Antenna with antennomeres II and III distinctly elongate and of subequal length; IV with dense pubescence, distinctly shorter than III, and weakly oblong; V-VII approximately as broad as long; X weakly transverse; XI little longer than X.



**Figs 1-10:** *Neolindus luciamans*: forebody (1); head (2); abdominal tergites III-VII (3); male tergite VIII (4); male sternite VII (5); male sternite VIII (6); median posterior portion of male sternite VIII (7); male tergites IX-X (8); aedeagus in ventral and in lateral view (9-10). Scale bars: 1-3: 1.0 mm; 4-6, 8-10: 0.5 mm; 7: 0.1 mm.

Pronotum (Fig. 1) 1.1 times as broad as long and 1.12 times as wide as head; posterior angles weakly marked, broadly rounded; punctation moderately coarse and moderately dense; on either side of the broadly impunctate midline without distinct dorsal series of punctures (i.e., dorsal series not separated from lateral punctures); interstices without microsculpture.

Elytra (Fig. 1) slightly (1.05 x) longer and distinctly (1.15 x) broader than pronotum; humeral angles marked; punctation coarser than that of pronotum, defined, randomly distributed (except for sutural series), and moderately dense; interstices in central portion approximately as broad as diameter of punctures and without microsculpture. Hind wings fully developed. Metatarsomere I distinctly longer than II.

Abdomen slightly narrower than elytra; punctation coarse and dense on anterior, much finer and sparser on posterior tergites (Fig. 3); posterior margin of tergite VII with palisade fringe.

♂: posterior margin of tergite VIII weakly and obtusely produced in the middle (Fig. 4); sternite VII strongly transverse, posteriorly with pronounced emargination, on either side of this emargination with distinct process (Fig. 5); sternite VIII (Figs 6-7) approximately as long as broad, posteriorly with conspicuous modifications: in the middle with small excision, laterally with pronounced process, and with acute tooth-like process between lateral process and median excision; tergite IX (Fig. 8) with anterior portion in the middle much longer than posterior processes and than tergite X, anterior portion without median suture; aedeagus (Figs 9-10) approximately 0.9 mm long, strongly sclerotised, and of distinctive shape.

♀: unknown.

#### Comparative notes:

The similarly modified male secondary sexual characters, the similar general morphology of the aedeagus, and similar external characters suggest that *N. luciamans* is closely related to *N. dichymus* HERMAN, 1991, whose description is based on a single male from Ecuador. It is distinguished from this species by slightly larger body size, the posteriorly produced male tergite VIII, the much broader posterior excavation of the male sternite VII, the differently shaped posterior modifications of the male sternite VIII, as well as by the basally constricted aedeagus with differently shaped apical structures. For illustrations of *N. dichymus* see figures 213-217 in HERMAN (1991).

#### Distribution and natural history:

The type locality is situated in Huanuco province, central Peru, near the junction of the Llullapichis and Pachitea rivers. The holotype was collected with a light trap at an altitude of 260 m in October.

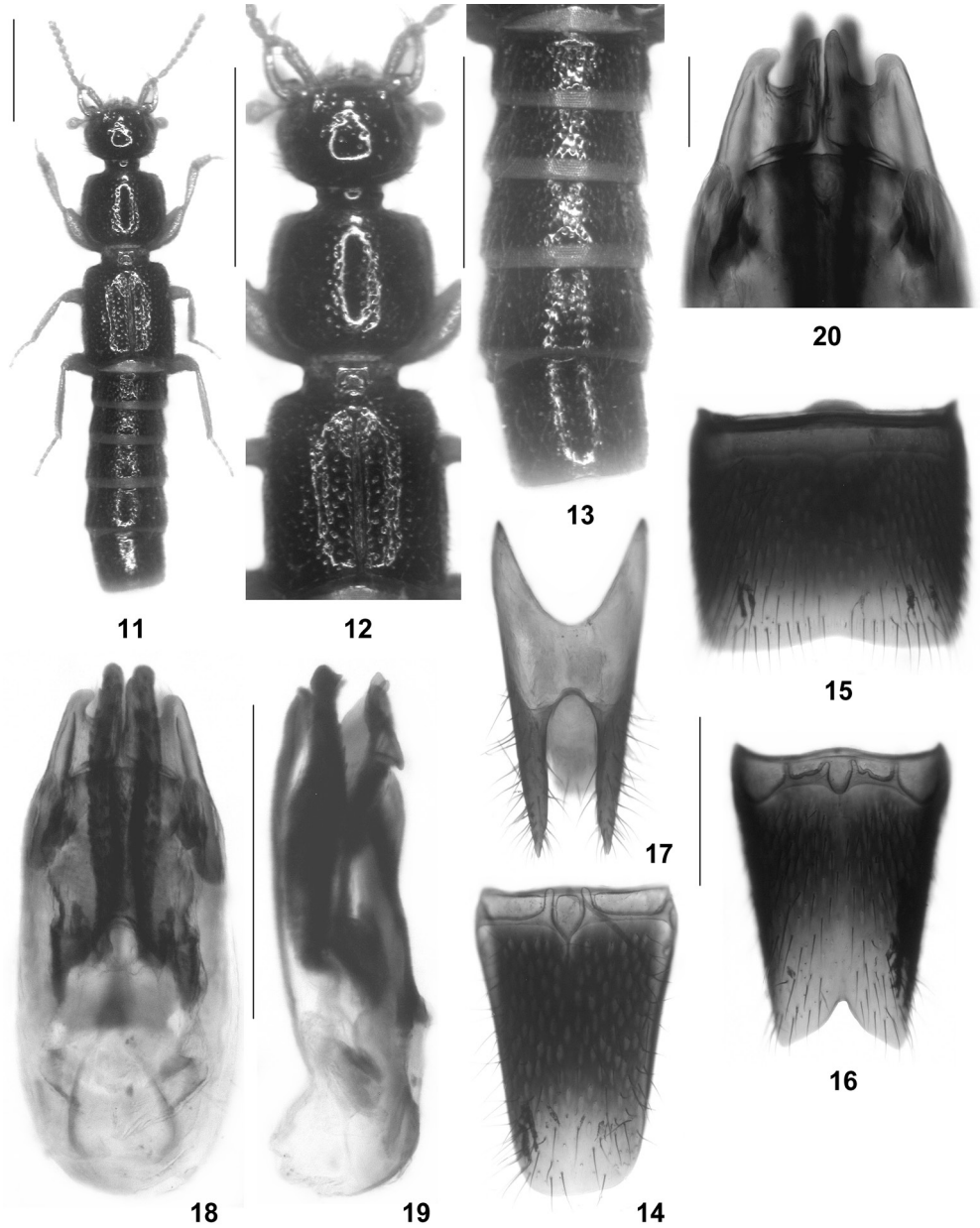
#### *Neolindus brachati* sp. n. (Figs 11-20)

#### Type material:

Holotype ♂: "Venezuela, Carabobo. Mun. Bejuma, Via Palmichal, 750-850 m, XI.2005, leg. Brachat / Holotypus ♂ *Neolindus brachati* sp. n., det. V. Assing 2012". Paratype ♀: same data as holotype.

#### Etymology:

This species is dedicated to Volker Brachat, specialist of Pselaphinae, to whom I owe all the *Neolindus* specimens treated in this paper, including the type material of both newly described species.



Figs 11-20: *Neolindus brachati*: habitus (11); forebody (12); abdominal tergites III-VII (13); male tergite VIII (14); male sternite VII (15); male sternite VIII (16); male tergites IX-X (17); aedeagus in ventral and in lateral view (18-19); ventral process of aedeagus in ventral view (20). Scale bars: 11-13: 1.0 mm; 14-19: 0.5 mm; 20: 0.1 mm.

**Description:**

Body length 5.0-5.3 mm; length of forebody 2.5-2.6 mm. Habitus as in Fig. 11. Coloration: body blackish; legs, antennae, and mouthparts reddish.

Head (Fig. 12) strongly transverse, approximately 1.4 times as broad as long, widest across eyes; posterior angles weakly marked; dorsal surface with sparse macro- and micropunctuation; microsculpture absent; on either side with only one trichobothrium near antero-dorsal margin of eye. Eyes moderately convex and large, approximately three times as long as postocular region and approximately as long as distance between posterior margin of eye and neck, or even slightly larger. Antenna with antennomeres II and III elongate and of subequal length; IV with dense pubescence, distinctly shorter than III, and weakly transverse; V-X of gradually and slightly increasing width and increasingly transverse; X almost 1.5 times as broad as long; XI little longer than X.

Pronotum (Fig. 12) 1.15-1.20 times as broad as long and approximately 1.15 times as broad as head; posterior angles weakly marked, broadly rounded; punctuation moderately coarse and moderately dense; on either side of the broadly impunctate midline without distinct dorsal series of punctures (i.e., dorsal series not separated from lateral punctures); interstices without microsculpture.

Elytra (Fig. 12) nearly 1.1 times as long and 1.1 times as broad as pronotum; humeral angles marked; punctuation coarser than that of pronotum, defined, except for sutural series not arranged in distinct series, and moderately dense; interstices in central portion on average broader than diameter of punctures and without microsculpture. Hind wings probably fully developed. Metatarsomere I slightly to distinctly longer than II.

Abdomen (Fig. 13) approximately 0.9 times as broad as elytra; punctuation coarse and dense on anterior, much finer and sparser on posterior tergites; posterior margin of tergite VII with palisade fringe; posterior margin of tergite VIII in both sexes weakly convex, almost truncate in the middle (Fig. 14).

♂: sternite VII moderately transverse, posterior margin weakly concave in the middle (Fig. 15); sternite VIII oblong and with broad, moderately deep, and basally acute posterior excision (Fig. 16); tergite IX with anterior portion in the middle undivided, much shorter than posterior processes, and shorter than tergite X (Fig. 17); aedeagus (Figs 18-20) 0.85 mm long, with ventral process of distinctive shape and with two long sclerotised internal structures.

♀: posterior margin of sternite VIII truncate.

**Comparative notes:**

*Neolindus brachati* is distinguished from all its congeners by the male sexual characters. It is additionally separated from the three species previously recorded from Venezuela as follows:

from *N. plectrus* HERMAN, 1991 by the darker coloration (*N. plectrus*: head and pronotum reddish-brown), the presence of macropunctuation in the median dorsal portion of the head, the presence of only one pair of cephalic trichobothria, the transverse pronotum, and the longer elytra (*N. plectrus*: shorter than pronotum);

from *N. brachiatus* HERMAN, 1991 by the darker coloration (*N. brachiatus*: head and pronotum reddish-brown), the presence of macropunctuation in the median dorsal portion of the head, the presence of only one pair of cephalic trichobothria, the transverse pronotum, and the longer and broader elytra (*N. brachiatus*: elytra shorter and narrower than pronotum);

from *N. rudiculus* HERMAN, 1991 by the darker coloration (*N. rudiculus*: body reddish-brown), the presence of macropunctuation in the median dorsal portion of the head, the presence of only one pair of cephalic trichobothria, much larger eyes, the transverse pronotum, and the longer and broader elytra (*N. rudiculus*: elytra shorter and narrower than pronotum).



**Distribution and natural history:**

The type locality is situated near Bejuma, Carabobo province, northern Venezuela. The type specimens were sifted from leaf litter in a secondary forest at an altitude of 750-850 m (BRACHAT pers. comm.).

***Neolindus rudiculus* HERMAN, 1991****Material examined:**

Venezuela: 1 ♀, Carabobo prov., Bejuma, Carro de Paja, 10°16'N, 68°14'W, 1500 m, 12.I.2007, leg. Brachat.

**Comment:**

The original description is based on a single male from “Venezuela: Aragua: Rancho Grande, 15 km north Maracay, 1500 m” collected in February (HERMAN 1991). The above female was identified using the key based on external characters (without secondary sexual characters) in HERMAN (1991), where it keys out as either *N. rudiculus* or *N. brachiatus* HERMAN, 1991 at couplet 22. According to HERMAN (1991), *N. brachiatus* has the elytra and abdomen darker than the head reddish-brown, whereas the body of *N. rudiculus* is of uniformly reddish-brown coloration. In this respect and in other external characters, the above female agrees with the original description of *N. rudiculus*.

The above specimen was sifted from leaf litter in a cloud forest (BRACHAT pers. comm.).

**Acknowledgements**

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