

New or rare Madagascar tiger beetles – 13
***Waltherhornia skrabali* sp. nov., a new species from southwestern**
Madagascar, and remarks to the genus *Waltherhornia*
(Coleoptera: Cicindelidae)

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Abstract. A new species, *Waltherhornia skrabali* sp. nov. is described from southwestern Madagascar as the second species of the genus. The new species is compared to *W. speculifera* (W. Horn, 1934), the type species of the genus *Waltherhornia* Olsoufieff, 1934, of the subtribe Prothymina W. Horn, 1910. Lectotypes of *W. speculifera* and the synonymous *W. s. luctuosa* (Jeannel, 1946) are designated. Colour photographs of the holotype of the new species and illustrations of important diagnostic characters of both species of the genus are given.

Taxonomy, nomenclature, new species, Coleoptera, Cicindelidae, *Waltherhornia*, Madagascar

INTRODUCTION

This paper follows the series of previously published contributions within the revision of Cicindelidae of the Madagascar region. The reason is to publish new taxa and important results to be available before the completion of the third volume of "Tiger Beetles of Madagascar" which is being currently prepared as a thorough revision of 18 remaining genera of the region (two genera were already monographed in first two volumes (see MORAVEC 2002, 2007). Here a new species of the genus *Waltherhornia* Olsoufieff, 1934 is described and compared to the type species of the genus.

The genus *Waltherhornia*, until now a monobasic genus with the type species *W. speculifera* (W. Horn, 1934) based on *Prothyma speculifera* W. Horn, 1934, was originally described as a subgenus of the genus *Prothyma* Hope, 1837. It was later treated by JEANNEL (1946) as a subgenus of *Megalomma* Westwood, 1842, and more recently separated as the independent genus by RIVALIER (1967). The genus is considered a natural member of the subtribe Prothymina W. Horn, 1910 (sensu RIVALIER 1971), of the tribe Cicindelini Sloane, 1906, subfamily Cicindelinae Csiki, 1906, family Cicindelidae Latreille.

Waltherhornia is distinguished from all other Madagascan genera of the subtribe Prothymina by a complex of characters, especially the remarkable elytral surface possessing on discal area of each elytron either two elevated catoptric patches (in the type species), or a row of several irregularly shaped, almost matt humps (in *W. skrabali* sp. nov.). The internal sac of the aedeagus is characteristic by a rather short primitive flagellum associated ventrally with a stiffening rib.

These two species of *Waltherhornia* superficially resemble some species of the Neotropical genus *Pentacomia* Bates, 1872, especially due to the similar elytral surface, but other characters of these two genera (both of the subtribe Prothymina) markedly differ.

Regarding methods, see MORAVEC (2002, 2007) and other papers of this series. Legends under illustrations are with following abbreviations of type status: HT = holotype; AT = allotype; PT = paratype, LT = lectotype; PLT = paralectotype. The abbreviation "spms." = specimens.

The depository of the specimens is using the following acronyms:

BMNH	The Natural History Museum London, U.K;
CCJM	Collection Cicindelidae, Jiří Moravec, Adamov, Czech Republic;
CJVB	Collection Jan Vybíral, Židlochovice, Czech Republic;
CMSV	Collection Miroslav Škrabal, Nový Hrozenkov, Czech Republic;
CPVP	Collection Petr Votruba, Prague, Czech Republic;
DEIC	Deutsches Entomologisches Institut, Müncheberg, Germany;
FCCR	Collection Fabio Cassola, Rome, Italy;
JWCW	Collection Jürgen Wiesner, Wolfsburg, Germany;
MNHN	Muséum national d'Histoire Naturelle, Paris, France;
MNHU	Museum für Naturkunde der Humboldt-Universität, Berlin, Germany;
NHMW	Naturhistorisches Museum Wien, Vienna, Austria;
PBZT	Parc Botanique et Zoologique de Tsimbazaza, Antananarivo, Madagascar.

Waltherhornia skrabali sp. nov.

(Figs. 1-10, 14-16)

Type locality: Southwestern Madagascar, Tulear (= Toliara) province, Ranohira near Isalo.

Type specimens. Holotype ♂ in NHMW, labelled: "Madagascar, Ranohira, Isalo, 9-13.I.1999, leg. Ing. Miroslav Škrabal" [printed]. Allotype. 1 ♀ in CCJM with same label as holotype. Paratypes. 3 ♂♂, 3 ♀♀ in CCJM, 7 ♂♂, 15 ♀♀ in CJVB, 1 ♂, 1 ♀ in CMSV with same labels. 1 ♀ in NHMW, 3 ♂♂, 3 ♀♀ in CCJM, 1 ♀ in CPVP, 1 ♂, 3 ♀♀ in FCCR, 1 ♂, 1 ♀ in JWCW: "Madagascar S, Ranohira-Isalo, 8-11.2.1995, leg. Jiří Moravec" [printed]. 1 ♂ in CCJM: "S Madagascar, P.N. Isalo Mts., 1050 m, NW of Ranohira, 19.I.1996, Bednařík leg." [printed]. 1 ♀ in MNHN: "Madagascar Ouest, réserve spéciale du Zombitsy, East de Sakaraha matsabory, 640 m, 7/10.II.1974, P. Viette et A. Peyrieras" [printed]; "Muséum Paris" [bluish, printed]. All type specimens labelled: "Holotype (Allotype or Paratype respectively), *Waltherhornia skrabali* sp. nov., Jiří Moravec det. 2008" [red, printed].

Other specimens examined. 2 ♂♂, 1 ♀ in CCJM, 1 ♂ in FCCR: "Madagascar Ouest, St. Augustin pr. Tulear, 13-17.II.1995, leg. Jiří Moravec".

Differential diagnosis. Distinguished from *Waltherhornia speculifera* by the elytral surface with much coarser and much more commonly anastomosing punctures, and with a row of several irregularly shaped, connected or disconnected, usually matt humps which are accompanied by a row of 6-8 iridescent green, blue or golden-cupreous foveae running together with the humps longitudinally along the middle of the elytral disc. The body is generally larger and black, very rarely dark copper, the head and pronotal surface more irregularly and coarsely rugulose, the pronotum as long as wide, the pronotal anterior lobe usually markedly wider than the posterior one, the mandibles nearly symmetrical, and the metepisterna with an area adjacent to the impressed metepimeron deeply impressed and not separated from metepimeron by a suture laterally.

Description. Body (Fig. 1) very small to small, length 5.80-8.00 (HT 5.90, AT 7.50) mm, width 1.75-2.50 (HT 1.80, AT 2.35) mm, usually metallic-black with golden-cupreous or bronze or green patches on head and sometimes similarly iridescent stripes on pronotum, rarely dark cupreous.

Head with large eyes, but markedly narrower than body, width 1.65-2.00 mm, all portions glabrous.

Frons steeply declined towards clypeus, flat or slightly convex near well marked frontoclypeal suture, wavy-rugulose in middle, longitudinally striate- wavy rugose laterally,

rugae passing over bluntly convex frons-vertex fold to vertex; supraantennal plates elongate-triangular, metallic-cupreous or green, smooth and shiny, or wrinkled.

Vertex with two (anterior and postero-median) white, juxtaorbital sensory setae (on each side), moderately impressed in anterior area, coarsely longitudinal-wavy or irregularly wavy rugulose on whole surface including lateral and juxtaorbital areas except for middle where rugae form circinate or more or less coiled regular or irregular helix-like ornament, rugae on lateral areas parallel-longitudinal, irregularly wavy, those adjacent to eyes parallel-striate, passing onto genae; occipital area irregularly wavy rugulose.

Genae on anterior and juxtaorbital area metallic-green with bronze or blue iridescence and striate-wrinkled, while ventral area is smooth and polished, dark metallic blue, often with purple iridescence.

Clypeus separated from frons by thin suture, concolorous with other body portions and usually with green iridescence, finely irregularly wrinkled.

Labrum 4-setose, in both sexes yellow to ochre-testaceous; male labrum (Figs. 3, 14-15) 0.55-0.70 mm long, 0.85-1.00 mm wide, lateral margins arcuate, lateral indentation missing or very indistinct, lateral teeth prominent but rounded, separated from median lobe (which is only slightly higher) by deep notches, median lobe either subtruncate or with indistinctly indicated, rarely more distinct three blunt anterior teeth (rarely median tooth higher); female labrum (Fig. 16) nearly as long as wide, length 0.85-0.90 mm, width 1.00-1.10 mm, similarly shaped but with prolonged median lobe and projecting median tooth

Palpi. Both maxillary and labial palpi rather variably coloured, in both sexes pale ochre-testaceous with black terminal palpomeres, but in some females almost entirely black with mahogany tinge; penultimate (longest) palpomere of labial palpi markedly enlarged, 0.15-0.20 mm).

Antennae rather short, in male not surpassing level of elytral discal impression, those of females even shorter, reaching only humeral elytral area; coloration very variable, in male usually with scape, pedicel and basal two thirds of antennomeres 3-4 metallic black-brown, while apical area of antennomeres 3-4 and sometimes also whole scape are ochre-testaceous, or antennomeres 1-4 are entirely ochre-testaceous, antennomeres 5-11 smoky darkened towards terminal one; female antennae almost unicolor-brownish, rarely with more or less markedly testaceous subapical areas of antennomeres 3-4.

Mandibles (Fig. 3) with arcuate lateral margins and with only three teeth and basal molar, nearly symmetrical, second tooth in both mandibles larger than third one, teeth black-brown (usually with green lustre), basal area more or less markedly brownish-testaceous (more often as such in male).

Thorax. All thoracic portions glabrous. Pronotum (Fig. 2) concolorous with other body portions, usually with one or two longitudinal, sublateral, or also median, iridescent stripes, as long as wide, length/width 1.15-1.50 mm, anterior lobe usually markedly wider than posterior one, sulci rather well pronounced, surface of anterior and posterior lobe coarsely and irregularly wavy-rugulose; disc indistinctly cordiform, lateral margins usually only moderately convex, attenuated towards posterior sulcus; medial line deep on posterior half of disc while in anterior area merges with surface sculpture; discal surface sculptured by coarse, transverse-wavy rugae which in posterior area radially converge towards the median line, rugae on central-anterior area irregularly directed and wavy, rugae on sublateral areas

not surpassing notopleural sutures which are only slightly elevated and indistinctly obvious in dorsal view as merging with coarse sculpture of pronotal margin; in lateral view these sutures are in their anterior parts bordered by deep purple stripe; prosternum, mesosternum and metasternum deep metallic-black or blue with greenish or bronze reflections, smooth; proepisterna large, metallic-black, deep purple, or dark copper with purple, blue and green reflections, smooth except for shallowly wrinkled dorsal area; mesepisterna concolorous with proepisterna, usually partly wrinkled, mesepisternal female coupling sulcus in form of deep pit placed near dorsal rim which separate mesepisternum from humeral portion of elytral epipleuron; metepisterna of same colour, irregularly finely wrinkled, each metepisternum connected with metepimeron and elytral epipleuron by obliquely elongated, in middle dilated and elevated, deep-blue rim, the area adjacent to impressed metepimeron is also deeply double-impressed and laterally not separated from metepimeron by a suture.

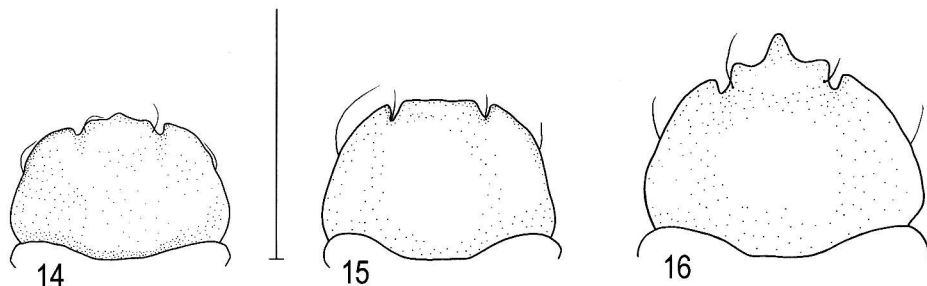
Elytra (Figs. 8-10) elongate, length 3.50-4.85 mm, with well marked, rounded to subquadrate humeri, lateral margins in both sexes rather markedly dilated in middle, anteapical angles arcuate, dorsally only indistinctly bulged, in male margins obliquely arcuate-declined towards short but distinct apical sutural spine (with only indistinct emargination), so the apex is acute, apex in female usually widely rounded in middle and emarginated towards distinct, short, sutural spine; microserulation fine; elytral surface distinctly convex especially on disc, anterior discal impression and basodiscal convexity moderate, humeral impressions rather deep, anteapical and apical impressions usually distinct, each elytron with a row of several irregularly shaped, connected or disconnected, usually matt humps which are accompanied with a row of 6-8 iridescent-green, blue or golden foveae running together with the humps longitudinally along the middle of elytral disc; whole elytral surface sculptured by deep, coarse punctures which are mostly anastomosing in chains on basodiscal convexity and on elytral disc; elytral setal vestiture consists of only several white hair-like setae scattered on the basal area towards elytral disc, and few juxtaepipleural setae in anterior area; elytral maculation ivory-yellow, consisting of sublateral-median macula which is mesad dilated in middle, and mostly (in whole type series from Isalo) separated from anteapical lunule.

Abdomen. Ventrites metallic black, or black-blue with purple lustre, glabrous except for one sublateral sensory seta on both sides of each ventrite, ventrite 8 in male and ventrite 7 and 8 in female with more setae at posterior margin.

Legs variably coloured. Procoxae metallic and brown coloured with green and bronze reflections, with few white anterior setae, mesocoxae metallic-green or blue with several anterior and posterior setae, metacoxae deep metallic blue with green reflections, glabrous; trochanters ochre to brownish-testaceous (usually darker in female), protrochanters with one apical seta, mesotrochanters with one posterior seta (setae easily broken and abraded) metatrochanters glabrous; femora rather variably coloured independently of sex, either ochre to brownish-testaceous, or mahogany-brown, or almost entirely metallic-black, pro- and mesofemora fringed with rows of rather dense white setae, metafemora with only few and short setae on apical third; tibiae and tarsi either ochre to brownish with metallic black-brown or black apices, or dark mahogany-brown with black apices, or almost metallic black, protibiae setose only on ventral side, mesotibiae entirely covered with short, white sparse stiff setae which are on apical ventral area mixed with dense and feebler setae, while only sparse, stiff, short setae are present on metatibiae, tibial apices with black thorn-like setae.



Figs 1-13. Figs. 1-10 – *Waltherhornia skrabali* sp. nov.: 1 – habitus of male, HT; 2 – pronotum, HT; 3 – labrum and mandibles, male, PT; 4 – aedeagus, PT; 5-8 cleared aedeagi showing internal sac, PT: 5 – left lateral view; 6 – ventral view; 7 – right lateral view; 8-10 – elytron: 8 – male, HT; 9 – female, AT; 10 – male, PT (all PT and AT from Ranohira-Isalo, CCJM). 11-13: *W. speculifera* (W. Horn), elytra: 11 – male, LT; 12 – male, LT of “var. *luctuosum*”; 13 – female, PLT, MNHN. Scale bars: 1 mm.



Figs. 14-16. *Waltherhornia skrabali* sp. nov., labrum: 14 – male, HT; 15 – male, PT, CCJM; 16 – female, AT. (all from Ranohira-Isalo). Scale bar: 1 mm.

Aedeagus (Figs. 4-7) short, similar in shape to that of *W. speculifera* (but somewhat longer), 1.85-1.90 mm long, 0.30-0.35 mm wide, rather voluminous in middle, basal portion moderately arcuate-bent, apical portion dorsally emarginate towards apex forming thus more or less distinct dorsal indentation (depending on state of membrane of dorsoapical orifice and better obvious in right lateral view) giving the apex beak-like shape; internal sac (Figs. 5-7) similar to that of *W. speculifera*, containing centrally placed primitive flagellum, which is rather short and moderately arched, associated ventrally with stiffening rib of a stick-like shape; other sclerites are irregularly stellate basodorsal piece, rather thin arciform piece, large, strongly sclerotized ventral-median piece of triangular shape, and feebly sclerotized ventral-apical tooth.

Variability. Variable coloration of body and appendages, stressed in the description. Adults from the St. Augustin differ from the type specimens in having whitish elytral markings connected by a thin lateral stripe.

Biology and distribution. *Waltherhornia skrabali* sp. nov. is known only from the Tulear (= Toliara) province of southwestern Madagascar. The type specimens come from bare sandy sites, usually sandy paths in steppe areas of the Isalo National Park and neighbouring areas of the Ranohira village, and nearby Zombitsy Natural Reserve east of Sakaraha. Several (non-type) specimens come from sandy tracks through southern scrubland of Euphorbiaceae east of St. Augustin (north of Tulear). Adults are good flyers. Larvae have tunnels in sandy, but solid soil, and it was impossible to dig out them for examination.

Etymology. Named after the Moravian entomologists Miroslav Škrabal, Nový Hrozenkov, Czech Republic, the collector of the holotype and most other specimens.

Remarks. The examination of the type and other specimens of *W. speculifera*, confirmed the differences emphasized in the differential diagnosis of *W. skrabali* sp. nov.

As the detailed description and illustrations of *W. speculifera* is intended to be published in the third volume of “Tiger beetles of Madagascar”, only the following catalogue of synonyms, differential diagnosis, distribution and some remarks are treated and illustrated in the present paper.

***Waltherhornia speculifera* (W. Horn, 1934)**
(Figs. 11-13)

Prothyma speculifera W. Horn, 1934: 27.

Type locality: South-central Madagascar, Ampandandra near Bekily.

Prothyma (Waltherhornia) speculifera: OLSOUFIEFF 1934: 56.

Megalomma (Waltherhornia) speculiferum: JEANNEL 1946: 205 (incorrect subsequent spelling of the generic name).

Megalomma (Waltherhornia) speculiferum var. *luctuosum* Jeannel, 1946: 205 (synonymy by LORENZ 1998a, 1998b).

Type locality: South-central Madagascar, Bekily.

Waltherhornia speculifera: RIVALIER 1967: 262.

Waltherhornia speculiferum: WIESNER 1992: 74 (incorrect subsequent spelling of the generic and incorrect form of the species name as neuter).

Waltherhornia speculiferum luctuosum: WIESNER 1992: 74 (incorrect subsequent spelling of the generic name and incorrect form of the species-group names as neuter).

Type specimens. Type specimens of *Prothyma speculifera*. Lectotype (designated here for better stability of the taxon, see "Remarks") ♂ in DEIC labelled: "Ampandandra, Seyrig: S. Madag." [printed]; "Type, W. Horn" [printed]; "Syntype" [red, printed]; "Coll. W. Horn, DEI Eberswalde" [printed]; "speculifera m." [blue, handwritten]; "Lectotype, *Prothyma speculifera* W. Horn, 1934, design. Jiří Moravec 2007" [red, printed]. Paralectotypes. 31 specimens in DEIC, 2 ♂♂, 2 ♀♀ in MNHU with same locality and type labels, but the label "speculifera m." in one ♀ only. 1 ♀ in MNHN with same locality label and: "Type" [red, printed]; "Dr. W. Horn det. 1933, Types!, *Prothyma speculifera* W. H. n. sp." [printed/handwritten]. 1 ♀ in BMNH: "Co-type" [round with yellow frame, printed]; "Ampandrandava, Seyrig: S. Madag." [printed]; "Type W. Horn" [printed]. 1 ♀ in BMNH with same first two labels and: "Types!, *Prothyma speculifera* W. H., Dr. W. Horn det. 1934" [printed/handwritten]. 1 ♀ in BMNH with same labels and: "Pres by Imp. Inst. Ent., B. M. 1935 - 362" [printed]. All paralectotypes labelled: "Revision Jiří Moravec 2007: Paralectotype, *Prothyma speculifera* W. Horn, 1934" [red, printed]; "*Waltherhornia speculifera* (W. Horn, 1934)", det. Jiří Moravec 2007" [printed].

Type specimen of synonymous *Waltherhornia speculiferum luctuosum*. Lectotype (designated here) ♂ in MNHN, labelled: "Madagascar, Bekily, reg. Sud de l'Ile" [printed]; "Museum Paris, A. Seyrig" [greenish, printed]; "luctuosa, n. var." [handwritten]; "*Waltherhornia speculifera* (W. Horn, 1934), det. Jiří Moravec 2007" [printed].

Other specimens examined. 37 spms. in MNHN, 1 ♂ in PBZT: "Ampandandra, Seyrig: S. Madag.". 8 spms. in MNHN: "Bekily". 1 ♂, 1 ♀ in MNHN: "Madagascar". 1 ♀ in DEIC, 1 ♀ in CCJM: "Bekily". 1 ♀ in DEIC: "Bekily 1, (Seyrig 1934)". 1 ♀ in DEIC: "Kalambatitra, Seyrig, I.33". 1 ♂ in DEIC: "Bekily, 1933.1., S. Mad. Seyrig". 1 ♂, 1 ♀ in CCJM: "E. Madagascar, 1-8 km E of Betroka, 800-850 m, 11.XII.1996, J. Janák lgt.".

Differential diagnosis. Distinguished from all other Madagascan species of the subtribe Prothymina and also from *Waltherhornia skrabali* sp. nov. by the presence of only two prominent and well delimited polished-catoptric, more or less elevated patches on the elytral disc of each elytron (Figs. 11-13); elytral punctures mostly isolated, only sparsely anastomosing in chains on elytral disc, lateral margins of elytra of male subparallel, elytral ivory-yellow sublateral-median band mesad dilated and connected with antepical lunule, pronotum slightly longer than wide with more subcordiform disc, anterior and posterior pronotal lobe nearly of the same width, the pronotal surface with finer sculpture, and the mandibles more asymmetrical. Aedeagus slightly shorter, shape and internal sac similar to those of *W. skrabali* sp. nov.

Biology and distribution. The type species of the genus occurs in south-central Madagascar. The type locality Ampandandra (lat 24.22, long. 45.30) lies some 45 km north-east of Bekily (Bekily subprefecture of the Fort Dauphin (= Taolagnaro) prefecture, Toliara (= Tuléar) province). One female (DEIC) comes from the Kalambatitra massif (1600 m a.s.l.), some 40 km south-east of Betroka. JEANNEL (1946) mentioned that *W. speculifera* occurs also in Ambovombé (Androy), but I did not find a specimen from that southernmost locality in collections.

Remarks. JEANNEL (1946) mentioned MNHN as the type depository of *W. speculifera*. However, it was an error caused by the fact that Jeannel did not see the labels attached to all other numerous syntypes in DEIC and other collections. HORN (1934) clearly mentioned in his description the whole type series collected by Seyrig in Ampandandrava and deposited in both MNHN and his collection (now DEIC). Only one female (with prevailing green coloration) labelled by him as type is in MNHN, while all other specimens which bear the printed label “Type” and some of them also the printed/handwritten labels with “Types” by Horn are deposited in DEIC and BMNH. Therefore, as no type specimen was explicitly designated as type by Horn or later by Jeannel, I designate as the lectotype the male from DEIC which is coloured as most of the other syntypes and has a well preserved aedeagus. As JEANNEL (1946) did not mention a number of specimens of his “var. *luctuosum*”, the only one male in MNHN labelled as type is designated here as lectotype.

Regarding the different classification in the history of the genus *Waltherhornia* as obvious from the catalogue under the type species above, I would like to note that in the classification by RIVALIER (1971) and maintained here, the genus *Megalomma* Westwood, 1942, which is endemic to the Mascarene Islands, is very different from all genera of the subtribe Prothymina by a number of important diagnostic characters. These are: the six-setose labrum (versus the four-setose labrum in Prothymina) and the presence of setae on the lateral thoracic portions (in contrast to all glabrous thoracic portions in Prothymina). Therefore the classification by JEANNEL (1946), who treated *Waltherhornia* as a subgenus of *Megalomma*, was in contradiction with the present classification.

Megalomma (W.) speculiferum var. *luctuosum* was originally described as a black “variety” and JEANNEL (1946) mentioned its sympatric occurrence with the normally cupreous-green adults of *W. speculifera*. This taxon was later listed as a subspecies by WIESNER (1992) (the explanation of the nomenclature will be published separately), but recently listed as a synonym of *W. speculifera* by LORENZ (1998a, 1998b) (only epithet *luctuosa* without any explanation). My examination confirmed the synonymy as it proved that the lectotype of “var. *luctuosum*” in MNHN and all other black coloured specimens from the type locality and the Bekily and Betroka area possess the same diagnostic characters, including the presence of only two catoptric patches on each elytron, as the type and other normally coloured specimens of *W. speculifera*.

With regard to the different name spelling of the genus-group name *Waltherhornia* by some recent authors, JEANNEL (1946) spelled the name in error as “*Walterhornia*” which is obviously an incorrect subsequent spelling. WIESNER (1992), following the same error, incorrectly kept both the species and “subspecies” names in the neuter form as “*speculiferum*” and “*luctuosum*” (as if under *Megalomma* which is neuter) despite the fact the genus-group name *Waltherhornia* is feminine.

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