INSECTA MUNDI

A Journal of World Insect Systematics

0176

Notes on nomenclature in *Xylotrupes* Hope (Scarabaeidae: Dynastinae: Dynastini)

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Date of Issue: May 6, 2011

CENTER FOR SYSTEMATIC ENTOMOLOGY, INC., Gainesville, FL

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Insecta Mundi 0176: 1-10

Published in 2011 by
Center for Systematic Entomology, Inc.
P. O. Box 141874
Gainesville, FL 32614-1874 U. S. A.
http://www.centerforsystematicentomology.org/

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Printed copies deposited in libraries (ISSN 0749-6737)
Electronic copies in PDF format (On-Line ISSN 1942-1354, CDROM ISSN 1942-1362)

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Notes on nomenclature in *Xylotrupes* Hope (Scarabaeidae: Dynastinae: Dynastini)

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Abstract. A list of taxa belonging to *Xylotrupes* Hope (Scarabaeidae: Dynastinae: Dynastini) is presented which incorporates several taxonomic actions: *X. australicus darwinia* Rowland **comb. nov.**; *X. damarensis* Rowland **stat. nov.**; *X. lorquini zideki* Rowland **comb. nov.**; *X. macleayi szekessyi* Endrödi **comb. nov.**; *X. pachycera* Rowland **stat. nov.**; *X. philippinensis philippinensis* Endrödi **stat. nov.**; *X. philippinensis peregrinus* Rowland **comb. nov.**; *X. sumatrensis tanahmelayu* Rowland **comb. nov.**; *X. tadoana* Rowland **stat. nov.**; *X. telemachos* Rowland **stat. nov.**; *X. wiltrudae* Silvestre **stat. nov.** Two new taxa are described: *X. carinulus* **sp. nov.** and *X. clinias buru* **ssp. nov.** **Lectotypes** are designated for *X. lamachus* Minck and *X. clinias* Schaufuss. *Xylotrupes lamachus* is found to be a junior subjective synonym of *X. ulysses* (Guérin-Méneville), **new synonymy**.

Key words. Dynastini, *Xylotrupes,* new combination, new status, new species, new subspecies, lectotype, synonymy

Introduction

This report issues from ongoing studies on the mating systems of horned beetles (Rowland 2003, Rowland and Qualls 2005, Rowland et al. 2005, Rowland and Emlen 2009). Investigations by the latter authors and others are presently focused on rhinoceros beetles of the genus *Xylotrupes* Hope (Scarabaeidae: Dynastinae: Dynastini). While these studies are not taxonomic in purpose, they will benefit substantially from a clarification in usage of several species-group names in this historically difficult genus. Moreover, this brief report accords taxonomic actions involving species and subspecies within *Xylotrupes* that are intended to clarify and thus stabilize nomenclature for use in imminent publications that are not themselves designed to address nomenclatural issues.

Materials and Methods

The present and ongoing studies of *Xylotrupes* are based upon examination of about 2900 specimens including all available type material. These were procured from the following institutions, as indicated, and from fresh collections made specifically for this and related studies. The morphological characters and species concepts used to define and discriminate the species groups and species-level taxa in *Xylotrupes* are presented in Rowland (2003).

AMNH – American Museum of Natural History, New York, US
BMNH – The Natural History Museum, London, UK
BPBM – Bernice Pauahi Bishop Museum, Honolulu, Hawaii, US
FSCA – Florida State Collection of Arthropods, Gainesville, Florida, US
HNHM – Hungarian Natural History Museum, Budapest, Hungary
ISNB – Institut Royal des Sciences Naturelles, Brussels, Belgium
JMRC – JM Rowland Collection, University of New Mexico, Albuquerque, US
LSUK – Linnean Society of London, UK
MAGD – Museum and Art Gallery of the Northern Territory, Darwin, Australia
MNHN – Muséum National d'Histoire Naturelle, Paris, France
MSWB – Museum of Southwestern Biology, University of New Mexico, Albuquerque
TAMU – Texas A&M University, College Station, Texas, US
USNM – United States National Museum, Smithsonian Institution, Washington DC
ZMHB – Museum für Naturkunde der Humboldt Universität, Berlin, Germany

***Xylotrupes* taxa**

Xylotrupes Hope 1837: 19; type sp. *Scarabaeus gideon* Linné, by monotypy
Syn. *Endebius* Lansberge 1880: 122; type sp. *X. florensis* Lansberge, by monotypy

X. australicus australicus Thomson 1859: 18; Queensland, Australia; type at MNHN. **Remarks:** This taxon was originally described as *X. australicus* by Thomson (1859), but was subsequently treated as a subspecies of *X. gideon* by Endrödi (1951, 1976, 1985) and of *X. ulysses* by Rowland (2006a,b). It is here restored to species level within the Ulysses Species Group of *Xylotrupes*. For comparative morphology see Description of a new species, and Key to males of the Ulysses Species Group of *Xylotrupes*, below.

X. australicus darwinia Rowland 2006a: 9; **comb. nov.** [ex *X. ulysses darwinia*]; Northern Territory, Australia; type at MAGD. **Remarks:** This taxon was described as a subspecies of *X. ulysses* in Rowland (2006a) and was so treated in Rowland (2006b). It is here treated as a subspecies of *X. australicus* because it shares with the nominate subspecies expression of only the beta male phenotype (see Rowland and Emlen 2009), the right raspular base is more than 30% of the total length of the right raspula and their distributions are disjunct. *Xylotrupes australicus darwinia* has attenuate cephalic horn tines, the right raspular spine is thinner than the left and the maximum body length is about 3.5 cm. However in *X. australicus australicus* the cephalic horn tines are stout and strongly recurved, the right and left raspular spines are of equal thickness and the maximum body length is about 5 cm.

X. beckeri Schaufuss 1885: 17; West Malaysia, Sumatra; type at ZMHB

X. carinulus **sp. nov.** [ex *X. lamachus* of authors, not Minck 1920]; Papua New Guinea, Irian Jaya, Aru Islands; type at USNM. **Remarks:** See Description of a new species, below.

X. clinias clinias Schaufuss 1885: 194; Sulawesi and Maluku, Indonesia; type at ZMHB. **Remarks:** See Remarks under Description of a new subspecies, below.

X. clinias buru **ssp. nov.**; Buru Island, Indonesia; type at ZMHB. **Remarks:** See Remarks under Description of a new subspecies, below.

X. damarensis Rowland 2006a: 22; **stat. nov.** [ex *X. beckeri damarensis*]; Damar Island, Tanimbar Islands, Indonesia; type at ZMHB. **Remarks:** This taxon was described as a subspecies of *X. beckeri* in Rowland (2006a) and so treated in Rowland (2006b). Resolution of the attenuated inflection of horn scaling in alpha males and attenuate cephalic horn tines across population samples promulgates raising this taxon to species level in the Gideon Species Group of *Xylotrupes*, which consists of *X. gideon, X. tadoana, X. sumatrensis, X. pachycera, X. inarmatus* and *X. damarensis*.

X. falcatus Minck 1920: 220; Sanghir Islands, Indonesia; type at ZMHB.

X. florensis florensis Lansberge 1879: 153; Lesser Sunda Islands, Indonesia; type unknown.

X. florensis tanimbar Rowland 2006a: 5; Tanimbar Islands, Indonesia; type at ZMHB

X. gideon (Linné 1767: 541), as *Scarabaeus*; Java; type at LSUK.

X. inarmatus Sternberg 1906: 172; Java; type at ZMHB.

X. lorquini lorquini Schaufuss 1885: 194; Sulawesi; type at ZMHB. **Remarks:** This taxon was originally described as *X. lorquini* by Schaufuss (1885), but was subsequently treated as a subspecies of *X. gideon* by Endrödi (1951, 1976, 1985) and of *X. pubescens* by Rowland (2006a,b). On the basis of raspular morphology this species is placed in the Pubescens Species Group of *Xylotrupes* which consists of *X. pubescens, X. philippinensis, X. pauliani* and *X. lorquini*. The uniquely and strongly inflected horn scaling promulgates restoring *X. lorquini* to species level in this group.

X. lorquini zideki Rowland 2003: 231; **comb. nov.** [ex *X. pubescens zideki*]; Sumatra; type at USNM. **Remarks:** This taxon was described as a subspecies of *X. pubescens* in Rowland (2003) and was so treated in Rowland (2006a,b) but is here treated as a subspecies of *X. lorquini* because it shares with the nominate subspecies similarly inflected horn scaling and attenuated raspular morphology.

X. macleayi macleayi Montrouzier 1855: 19; Milne Bay Province of PNG, Vanuatu; type at ISNB. **Remarks:** This taxon was originally described as *X. macleayi* by Montrouzier (1855), but subsequently treated as a subspecies of *X. gideon* by Endrödi (1976, 1985) and as a taxon of unknown affinity by Rowland (2003). The type is an indeterminate beta male lacking genitalia, but new material indicates that it is a member of the Ulysses Species Group and specifically distinct from other members of that

group as described under Description of a new species, and Key to males of the Ulysses Species Group of *Xylotrupes*, below.

X. macleayi szekessyi Endrödi 1951: 244; **comb. nov.** [ex *X. gideon szekessyi*]; Solomon Islands; type at HNHM. **Remarks:** This taxon was originally described as *X. gideon szekessyi* by Endrödi (1951) and was so treated in Endrödi (1976, 1985). It is here treated as a subspecies of *X. macleayi* on the basis of the characters indicated under Description of a new species, and Key to males of the Ulysses Species Group of *Xylotrupes*, below.

X. meridionalis meridionalis Prell 1914: 216; India; type at ZMHB.

X. meridionalis taprobanes Prell 1914: 217; Sri Lanka; type at ZMHB.

X. mniszechi Thomson 1859: 18; Himalaya; type at MNHN.

X. pachycera Rowland 2006b: 22; **stat. nov.** [ex *X. gideon pachycera*]; Borneo; type at AMNH. **Remarks:** This taxon was described as a subspecies of *X. gideon* in Rowland (2006a). Lack of facultative expression of beta male phenotypes in population samples of this taxon and the greatly shortened and thickened cephalic and pronotal horns in large males promulgates elevation of this taxon to species level in the Gideon Species Group of *Xylotrupes*, which consists of *X. gideon, X. tadoana, X. sumatrensis, X. pachycera, X. inarmatus* and *X. damarensis*.

X. pauliani Silvestre 1997: 130; Sumatra; type at MNHN

X. philippinensis philippinensis Endrödi 1957: 65; **stat. nov.** [ex *X. gideon philippinensis*]; Philippine Islands; type unknown. **Remarks:** This taxon was originally described as *X. gideon philippinensis* by Endrödi (1957) and was so treated in Endrödi (1976, 1985). It is here placed in the Pubescens Species Group of *Xylotrupes* with *X. pubescens, X. lorquini* and *X. pauliani* on the basis of raspular morphology. Alpha males of *X. philippinensis* are much smaller than those of *X. lorquini*. The beta males of *X. philippinensis* are much larger than those of *X. pauliani* and *X. philippinensis* lacks the heavy pronotal punctation of the latter. *Xylotrupes philippinensis* lacks the pubescent elytra and pronotum in the males of *X. pubescens* and has attenuate cephalic horn tines rather than the robust tines of *X. pubescens*.

X. philippinensis peregrinus Rowland 2006b: 13; **comb. nov.** [ex *X. pubescens peregrinus*]; Taiwan islands; type at MSWB. **Remarks:** This taxon was described as a subspecies of *X. pubescens* in Rowland (2006b) but is here treated as a subspecies of *X. philippinensis* because it shares a similarly inflected horn scaling and similar, though reduced raspular morphology and alpha male horn scaling compared to the nominate subspecies.

X. pubescens Waterhouse1841: 539; Philippines; type at BMNH.

X. siamensis Minck 1920: 217; Southeast Asia; type at ZMHB.

X. sumatrensis sumatrensis Minck 1920: 218; Sumatra; type at ZMHB. **Remarks:** This taxon was originally described as *X. sumatrensis* by Minck (1920), but was subsequently treated as a subspecies of *X. gideon* by Endrödi (1951, 1976, 1985) and Silvestre (1997). It is here restored to species level within the Gideon Species Group of *Xylotrupes*, which consists of *X. gideon, X. tadoana, X. sumatrensis, X. pachycera, X. inarmatus,* and *X. damarensis*. *Xylotrupes sumatrensis* has distinctive raspular morphology relative to *X. gideon* which also occurs in southwestern Sumatra, and much greater development of the cephalic and pronotal horns compared to the other taxa of this species group.

X. sumatrensis tanahmelayu Rowland 2006a: 1; **comb. nov.** [ex *X. gideon tanahmelayu*]; West Malaysia; type at USNM. **Remarks:** This taxon was described as a subspecies of *X. gideon* in Rowland (2006a) and was so treated in Rowland (2006b). It is here treated as a subspecies of *X. sumatrensis* because it shares with the nominate subspecies similar raspular morphology and a similarly inflected horn scaling pattern but *X. sumatrensis tanahmelayu* has a distinctly lower trajectory. Additionally, the integument of the male pronotum is glossier in *X. sumatrensis tanahmelayu*.

X. tadoana Rowland 2006a: 22 **stat. nov.** [ex *X. beckeri tadoana*]; Flores Island, Indonesia; type at USNM. **Remarks:** This taxon was described as a subspecies of *X. beckeri* in Rowland (2006a) and so treated in Rowland (2006b). Subsequent resolution of the symmetry of the aedeagal orifice and distinctive raspular morphology promulgates raising this taxon to species level in the Gideon Species Group of *Xylotrupes*, which consists of *X. gideon, X. tadoana, X. sumatrensis, X. pachycera, X. inarmatus* and *X. damarensis*.

X. telemachos Rowland 2003: 226 **stat. nov.** [ex *X. ulysses telemachos*]; Maluku, Indonesia; type at USNM. **Remarks:** This taxon was described as a subspecies of *X. ulysses* in Rowland (2003). It is a

member of the Ulysses Species Group of *Xylotrupes* and specifically distinct from other members of this group in expressing only the beta male phenotype and the right raspular base is less the 20% of the total length of the right raspula. See Description of a new species, and Key to males of the Ulysses Species Group of *Xylotrupes*, below.

X. ulysses (Guérin-Méneville 1830: 80), as *Scarabaeus*; Bismarck Archipelago; type unknown.

X. wiltrudae Silvestre 1997: 128; **stat. nov.** [ex *X. beckeri wiltrudae*]; Borneo; type at MNHN. **Remarks:** This taxon was described as a subspecies of *X. beckeri* in Silvestre (1997) and so treated in Rowland (2003). It expresses both alpha and beta male phenotypes whereas *X. beckeri* expresses only the beta male phenotype. This promulgates raising *X. wiltrudae* to species level.

Description of a new species

Xylotrupes lamachus Minck (1920) has been the name most commonly used for *Xylotrupes* of the Papua New Guinea mainland. Minck's original description of *X. lamachus* referred to two males from "Neu-Pommern" (=New Britain), one male and two females from "Dtsch.-N.-Guinea" (=northeastern Papua New Guinea, Bismarck Archipelago, Solomon Islands, etc.) and one female from "Fr.-Wilhelmshafen N.-Guinea" (=Madang). Present in the ZMHB are the two males labeled "Neu-Pommern", one male but only one female labeled "Dtsch. N.-Guinea" and no specimens labeled "Fr.-Wilhelmshafen N.-Guinea". The above three males and one female each have "Typus" labels. However, all three male syntypes are clearly identifiable as *X. ulysses* (Guérin-Méneville 1830), which is known only from the Bismarck Archipelago. The male syntypes of *X. lamachus* and males of *X. ulysses* from New Britain and New Ireland share the following unique combination of morphological attributes: The pronotal carinae are strongly produced in large specimens such that in lateral view they extend well beyond the anterior midline of the pronotum; the right raspular basal process is distinctly produced and acuminate; the left raspular base is oval; the elytra are glossy because the sculpturing is almost obsolete. Conversely, all known males from the Papua New Guinea mainland and Irian Jaya have distinctively weakly produced pronotal carinae in large males such that in lateral view they do not extend beyond the anterior midline of the pronotum; the right raspular basal process is only vaguely if at all produced and acuminate; the left raspular base is triangular; and the elytra are matte because the sculpturing is relatively strong.

All three male syntypes of *X. lamachus* are thus unequivocally identifiable as *X. ulysses* and the above female syntype is non-diagnostic and not determinable as any particular species of *Xylotrupes*. Thus, in accordance with ICZN (1999) Article 74.7 and Recommendations 74B, C and F, I am here designating a **lectotype** for *Xylotrupes lamachus* in order to fix usage of the name *Xylotrupes lamachus* Minck and to establish its synonymy with *Xylotrupes ulysses* (Guérin-Méneville). The male lectotype of *Xylotrupes lamachus* is deposited at ZMHB and bears a purple label "Typus", a white label "Neu-Pommern", a red label "lamachus" and a red label "Lectotype *Xylotrupes lamachus* Minck 1920, designator: J.M. Rowland". The lectotype is the syntype that Minck dissected and illustrated as figures 20a, 20m, 20o in the original description (Minck 1920). One mandible, one maxilla, the labrum and endophallus of the lectotype were glued to points and cards by Minck and I have glued the raspulae of the lectotype to a card and these are mounted on the pin with the other labels. Lectotype measurements in mm: total length 55, body length 46, cephalic horn length 12.7, pronotal horn length 19.1, pronotal width 19.2, elytral length 29.2, elytral width 24.7, abdominal height 16.2. By designation of the lectotype the other males in the syntype series become paralectotypes. One paralectotype bears a purple label "Typus", a white label "Neu Pommern"and a red label "Paralectotype *Xylotrupes lamachus* Minck 1920, designator: J.M. Rowland". The other paralectotype bears a purple label "Typus", a white label "Dtsch. Neu Guinea" and a red label "Paralectotype *Xylotrupes lamachus* Minck 1920, designator: J.M. Rowland". The raspulae of the latter specimen is glued to a card which is mounted on the pin with the other labels. With designation of the above syntype of *X. lamachus* as lectotype I declare *X. lamachus* to be a junior subjective synonym of *X. ulysses*, **new synonymy**.

This action leaves the *Xylotrupes* populations of mainland Papua New Guinea and Irian Jaya without a species name. Therefore, the following new species is here described.

***Xylotrupes carinulus* sp. nov.**
Fig. 1-2, 5

Types. Male holotype labeled "Wau Valley, Morobe Province, PNG, elevation 1200 m, 31 May 2000, Michael Hudson" and "Holotype/ *Xylotrupes carinulus* Rowland 2011" deposited at USNM.

Paratypes: 199 males, Wau Valley, Morobe Province, PNG, elevation 1200 m (ZMHB, AMNH, BMNH, USNM, BPBM, MSWB, JMRC, FSCA); 19 males, Paglum, Mt. Hagen, Nov. 1953, Erik N. Kjellesvig-Waering (FSCA); "W. Irian" 1 male (JMRC); Kar Kar Island 1 male (BPBM); Fak-Fak, Irian Jaya; 13 males (JMRC); Manakaeri, Irian Jaya 6 males (TAMU), 1 male (JMRC); Aru Islands, 2 males, (ZMHB).

Etymology. The name *carinulus* combines the Latin word roots *carin* (a keel) and *ulus* (small) and refers to the characteristically reduced size of the pronotal carinae in the males of this species.

Description. Measures of male holotype and paratypes in mm (range of 12 paratypes): Total length 66 (37-66), body length 50 (35-50), cephalic horn length 18.8 (6.2-20.3), pronotal horn length 33.4 (10.3-34.2), pronotal width 20.7 (14.0-20.1), elytral length 32.1 (23.6-32.3), elytral width 27.9 (19.3-27.9), abdominal height 17.6 (12.0-16.5). Head: Cephalic horn denticle absent; mandible with two denticles. Thorax: Pronotal horn expression dimorphic and allometric shape sigmoidal; pronotal carinae weak in males, in lateral view not extending to anterior midline of pronotum; pronotal punctation strong in small males and moderate in large males; male elytra matte, sculpturing almost rugose, stronger in small males. Genitalia: Parameres essentially symmetric; paramere blades angled toward orifice; right raspular spine sharply curved, basal process weak or absent; left raspular spine similar in size to right raspular spine, though more strongly curved; left raspular base triangular; basal raspular piece shorter than right raspula. Color: Males dark reddish brown, slightly bicolored.

Comparisons. *Xylotrupes carinulus* is morphologically most similar to *X. macleayi, X. ulysses, X. clinias*, and *X. falcatus* in lacking a cephalic horn denticle in alpha males, having similar sized left and right raspular spines, and having triangular left raspular bases. *Xylotrupes carinulus* differs from *X. macleayi*, *X. ulysses*, and *X. clinias* in having greatly reduce pronotal carinae and shares this feature with *X. falcatus*. The latter species differs from *X. carinulus* in having strongly angled right raspular base relative to the plane of the spine.

Distribution. Papua New Guinea, Irian Jaya, Aru Islands.



Figures 1-4. Raspulae. **1-2)***X. carinulus* sp. nov. **1)** Right raspula. **2)** Left raspula. **3-4)** *X. clinias buru* ssp. nov. **3)** Right raspula. **4)** Left raspula.

Remarks. The new species *X. carinulus* is the common and only known species of *Xylotrupes* occurring on mainland Papua New Guinea and Irian Jaya. In previous publications these geographic populations were referred to as *X. lamachus* (Paulian 1947), *X. gideon lamachus* (Endrödi 1951, 1976, 1985; Szent-Ivany 1969) and *X. macleayi lamachus* (Silvestre 2003b).

Description of a new subspecies

Xylotrupes clinias occurs from Sulawesi through Maluku at least to the Kei Islands, Indonesia. However, the populations of the Maluku island of Buru are found to have substantial and consistent morphological differences in genital morphology with regard to the other known populations of *X. clinias*. These *Xylotrupes* of Buru Island are here described as the following new subspecies.

Xylotrupes clinias clinias

Xylotrupes clinias Schaufuss 1885: 192.

X. baumeisteri var. *nicias* Schaufuss 1885: 192, (syn. Rowland 2003: 224).

X. baumeisteri Schaufuss 1885: 192 (syn. Endrödi 1951: 244).

X. baumeisteri, Paulian 1947: 485.

X. baumeisteri, Silvestre 2003a: 98.

X. gideon baumeisteri, Endrödi 1951: 244; 1976: 226; 1985: 624.

X. ulysses clinias, Rowland 2003: 224; 2006a: 8; 2006b: 8.

Note: Paulian, Silvestre and Endrödi regarded *X. clinias* as a junior synonym of *X. baumeisteri*, not vice versa. See Remarks, below.

Type. Male labeled "Clinias m. Süd Celebes" "Lectotype *Xylotrupes clinias* Schaufuss 1885 designator: J. M. Rowland" deposited at ZMHB. According to Schaufuss (1885), male and female syntypes of *X. clinias* were deposited in the collection of Ludwig Salvator which in large part now resides at the National Museum in Prague (Rowland 2003). However, after more than 10 years the presence of these syntypes has still not been confirmed. Moreover, the male syntype of *X. clinias* at ZMHB could be the male of the pair above and I here designate this specimen the **lectotype** of *X. clinias* in order to enhance stability in the nomenclature of *Xylotrupes*.

Remarks. The complex history of usage of the name *X. clinias* and several associated names has yielded their nomenclatural status unclear and the underlying issues require further work to resolve. However here I explain the basis for using the name *X. clinias* in the present context.

First, Schaufuss (1885) described *X. clinias* from "Celebes mer.", *X. baumeisteri* from "Celebes mer.," *X. baumeisteri* var. *nicias* from "Celebes" and *X. lorquini* from "Molucc."

Second, Paulian (1947), Endrödi (1951, 1976, 1985) and Silvestre (2003a) treated *X. clinias* as a subjective synonym of *X. baumeisteri*.

Third, Silvestre (2003a) cited Paulian's action as 'First Reviser' in selecting the name *X. baumeisteri* in preference to *X. clinias*.

Fourth, Endrödi (1951) synonymized *X. baumeisteri* var. *nicias* under *X. baumeisteri*, and Silvestre (2003a) synonymized *X. baumeisteri* var. *nicias* under *X. lorquini*.

Fifth, Rowland (2003) examined from ZMHB the syntypes of *X. clinias* from "Sud Celebes", the syntypes of *X. baumeisteri* from "S. Celebes," the syntypes of *X. baumeisteri* var. *nicias* from "Celebes" and the type of *X. lorquini* from "Molucc." Rowland (2003) treated *X. clinias* and *X. baumeisteri* var. *nicias* under the operational taxon *X. ulysses clinias* and discovered on the basis of raspular morphology that the syntypes of *X. baumeisteri* belong to the Pubescens Species Group, however *X. lorquini* was left unplaced because the only type specimen of this taxon lacked raspulae.

Sixth, Rowland (2006a,b) determined that *X. lorquini* is a member of the Pubescens Species Group and is a synonym of *X. baumeisteri,* based upon the ZMBH syntypes of the latter taxon.

Seventh, Silvestre (2003a) purportedly found syntypes of *X. baumeisteri* and *X. baumeisteri* var. *nicias* in MNHN and designated specimens from Batjan Island and "Sud Celebes / Celebes Mer." respectively, as lectotypes.



Figures 5-6. Male holotypes. **5)** *X. carinulus* sp. nov.; total length 66 mm. **6)** *X. clinias buru* ssp. nov.; total length 69 mm.

The foregoing events yield my placement of the name *X. baumeisteri* in the Pubescens Species Group and that of *X. baumeisteri* var. *nicias* in the Ulysses Species Group on the basis of the ZHMB syntypes an open issue because: **1**, I have not been allowed by MNHN to examine the syntypes of *X. baumeisteri* and *X. baumeisteri* var. *nicias* that Silvestre (2003a) designated as the lectotypes; **2**, it is possible that the ZMHB syntypes and the MNHN lectotype of *X. baumeisteri* represent different species; and, similarly, **3**, it is possible that the ZMHB syntypes and the MNHN lectotype of *X. baumeisteri* var. *nicias* represent different species. It is certainly the case that the syntypes in ZMHB of *X. baumeisteri* and *X. baumeisteri* var. *nicias* that I examined clearly belong to different species. In fact they belong to different species groups: Pubescens and Ulysses Species Groups, respectively.

Moreover, depending upon the identity of Silvestre's (2003a) lectotypes of *X. baumeisteri* and *X. baumeisteri* var. *nicias* the taxonomic treatment herein could be effected in the following ways: **1**, if the MNHN lectotype and the ZMBH syntypes of *X. baumeisteri* are the same taxon, and thus members of the Pubescens Species Group, then my use herein of the name *X. clinias*, will be sustained; **2**, if the lectotype of *X. baumeisteri* proves to be *X. clinias* herein, then the name *X. baumeisteri* should replace *X. clinias* in my system because Paulian (1947) as First Reviser selected the name *X. baumeisteri* over *X. clinias*; **3**, if the MNHN lectotype and the ZMHB syntypes of *X. baumeisteri* var. *nicias* are the same taxon, and thus members of the Ulysses Species Group, then my use of *X. clinias* herein will be sustained because I was

the First Reviser of these two taxa (Rowland 2003) and I established the name *X. clinias* in preference to *X. nicias*; **4**, if the lectotype of *X. baumeisteri* var. *nicias* proves to be the same taxon as the type of *X. lorquini*, then my use of the latter name will be sustained because Silvestre (2003a) synonymized these two taxa and as First Reviser established the name *X. lorquini* in preference to *X. nicias*. Further, should the latter author have destroyed the raspulae of the lectotypes - then actions through the ICZN might be required to resolve the nomenclature of affected taxa. Thus, I employ the name *X. clinias* in the present context because in the majority of the possible outcomes listed above this usage would prove correct.

***Xylotrupes clinias buru* ssp. nov.**
Fig. 3-4, 6

Types. Male holotype labeled "Buru" and "Holotype *Xylotrupes clinias buru* Rowland 2011" and eight male paratypes from Buru Island, Indonesia deposited at ZMHB.

Etymology. The name *buru* is a noun used in apposition and refers to Buru Island, Indonesia, the only know locality of this taxon.

Description. Measures of male holotype and paratypes in mm (range of 8 paratypes): Total length 69 (47-60), body length 44 (37-42), cephalic horn length 20.7 (10.1-19.6), pronotal horn length 36.8 (16.7-34.1), pronotal width 20.1 (17.2-18.8), elytral length 30.0 (26.3-28.1), elytral width 27.0 (22.6-24.8), abdominal height 16.0 (13.5-14.6). Head: Cephalic horn denticle absent; mandible with two denticles. Thorax: Pronotal horn expression dimorphic; pronotal carinae strong in males, in lateral view they extend beyond anterior midline of pronotum; pronotal punctation light in large males; male elytra glossy, sculpturing almost absent. Genitalia: Parameres essentially symmetric; paramere blades angled toward orifice; right raspular spine gradually curved, basal process distinct; left raspular spine longer and wider than right raspular spine; left raspular base small, oval; basal raspular piece shorter than right raspula. Color: Males dark reddish brown, slightly bicolored.

Comparisons. The raspulae of *X. clinias buru* are distinct from other *Xylotrupes* in that the left raspular spine is larger or as large as the right raspular spine. Specifically in regard to the other known populations of *X. clinias, X. clinias buru* is distinct in having a larger right raspular basal process and an oval rather than triangular left raspular base. *Xylotrupes clinias buru* shares the latter character state with most specimens of *X. ulysses*, though in the latter taxon occasional specimens have a triangular left raspular base.

Distribution. Buru Island, Indonesia.

Key to males of the Ulysses Species Group of *Xylotrupes*

1. Alpha and beta alternative male phenotypes expressed (see Rowland and Emlen 2009). Cephalic and pronotal horn maximum length about 20mm. Horn scaling essentially sigmoid-shaped. Elytra matte or glossy. Pronotum of large males usually laterally coarsely punctate **4**
— Only beta male phenotype expressed. Cephalic and pronotal horn maximum length about 12mm. Horn scaling essentially linear. Elytra matte. Pronotum of large males laterally finely punctate **2**

2(1). Right raspular base less than 20% of total length of right raspula. Maluku ..... ***X. telemachos* Rowland**
— Right raspular base more than 30% of total length of right raspula. Australia **3**

3(2). Maximum body length about 5cm. Cephalic horn tines of large males stout, strongly recurved. Right and left raspular spines of equal thickness. Queensland, Australia ..... ***X. australicus australicus* Thomson**
— Maximum body length about 3.5cm. Cephalic horn tines of large males attenuate, moderately recurved. Right raspular spine thinner than left. Northern Territory, Australia ..... ***X. australicus darwinia* Rowland**

4(1). Right raspular base angled laterally relative to spine. Pronotal carinae weak. Elytra glossy. Pronotum of large males finely punctate. Sanghir Islands ..... ***X. falcatus* Minck**

— Right raspular base in same plane as spine. Pronotal carinae usually strong. Elytra matte or glossy. Pronotum of large males coarsely punctate **5**

5(4). Right raspular basal process reflected upward. Left raspular base oval or triangular. Elytra glossy **6**

— Right raspular basal process reflected downward. Left raspular base triangular. Elytra matte **8**

6(5). Right raspular basal process strong. Left raspular base oval, rarely triangular. Maximum total length about 8.5cm. Bismarck Archipelago ..... ***X. ulysses* (Guérin-Méneville)**

— Right raspular basal process weak. Left raspular base triangular. Maximum total length about 7 cm. Sulawesi and Maluku, Indonesia **7**

7(6). Right raspular spine longer than left. Left raspular base triangular. Sulawesi and Maluku, Indonesia ..... ***X. clinias clinias* Schaufuss**

— Right raspular spine shorter than left. Left raspular base oval. Buru Island, Indonesia. (Fig. 3-4, 6) ..... ***X. clinias buru* Rowland ssp. nov.**

8(5). Pronotal carinae strong. Milne Bay Province and Solomon Islands, PNG **9**

— Pronotal carinae weak. Papua New Guinea, Irian Jaya, Aru Islands. (Fig. 1-2, 5) .... ***X. carinulus* Rowland sp. nov.**

9(8). Maximum total length about 7cm. Concise dimple at apex of scutellum almost always present. Milne Bay islands of PNG, Vanuatu ..... ***X. macleayi macleayi* Montrouzier**

— Maximum total length about 8.5cm. Concise dimple at apex of scutellum rarely present. Northwestern Solomon Islands ..... ***X. macleayi szekessyi* Endrödi**

Acknowledgments

I thank Jen-Pan Huang (University of Michigan) for productive discussions, Frank Krell (Denver Museum of Nature & Science) for advice on nomenclature, Laurence Beaudoin-Ollivier (CIRAD), Charles Dewhurst (Kimbe, New Britain), Scott Fay (UC Berkeley), Otto Merkl (HNHM), Ed Riley (TAMU) and Joachim Willers (ZMHB) for critical specimens and Jiri Zidek (Prague) and David Edmonds (Marfa, TX) for advice regarding the manuscript.

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Received March 22, 2011; Accepted April 12, 2011.