

**A Preliminary Annotated Checklist of the
Brahmaeidae of the World – Part VC.
Dactyloceras richinii BERIO, 1940 of the genus
Dactyloceras MELL, 1927
(Lepidoptera: Brahmaeidae)**

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Zusammenfassung: Der folgende Beitrag zur Kenntnis der Familie Brahmaeidae SWINHOE, 1892 (Lepidoptera) ist Teil der Serie „*Brahmaeidae of the World*“, die nach Fertigstellung eine möglichst vollständige Übersicht über diese Familie geben sollte. Neue Erkenntnisse und neue Namen wurden eingearbeitet soweit sie bis zur Drucklegung aus der Literatur bekannt und uns zugänglich waren. Auf Grundlage von etwa 400 Einzelpublikationen wurde versucht, eine aktuelle und nahezu vollständige Literaturübersicht über die Familie Brahmaeidae zu erstellen. Der Umfang machte eine möglichst zweckmässige Unterteilung in bestimmte Themenbereiche notwendig, die spätere Ergänzungen oder Korrekturen erleichtern sollte. Der Teil VC befasst sich speziell mit *Dactyloceras richinii* BERIO, 1940 der afrotropischen Gattung *Dactyloceras* MELL in Hering in Seitz, 1927. Diese erste zusammenhängende Analyse der Familie Brahmaeidae soll keine Gattungsrevision darstellen, sondern den heutigen Kenntnisstand aufzeigen und eine gute Arbeitsgrundlage für weitere Studien zur Familie Brahmaeidae SWINHOE, 1892 bieten.

Summary: The following contribution to knowledge the family Brahmaeidae SWINHOE, 1892 (Lepidoptera) is part of the series "*Brahmaeidae of the World*", which should give a complete overview of this family after completion. New findings and new names were incorporated as far as they were known from literature up to the time of printing and were accessible to us. On the basis of about 400 individual publications, an attempt was made to create an up-to-date and almost complete overview of the literature on the family Brahmaeidae. The scope made it necessary to subdivide the information into certain subject areas as expediently as possible, which should facilitate subsequent additions or corrections. Part VC deals specifically with *Dactyloceras richinii* BERIO, 1940 of the Afrotropical genus *Dactyloceras* MELL in Hering in Seitz, 1927. This first coherent analysis of the family Brahmaeidae is not intended to represent a generic revision, but merely to show the current state of knowledge and provide a good working basis for further studies on the family Brahmaeidae SWINHOE, 1892.

Taxonomic remark: we would like to point out that in this work we do not divide the taxa of the genus *Dactyloceras* MELL, 1927 into the nominotypical subgenus and the subgenus *Shinocksiceras* BOUYER, 2002 although we currently recognize the taxonomic status of *Shinocksiceras*. The status of *Shinocksiceras* is needed confirmed within a generic revision. We would also like to point out that the classification into collective-groups is provisional and needs to be confirmed and possibly corrected in the course of a generic revision.

Dactyloceras MELL, 1927

Brahmaeidae SWINHOE, 1892

Dactyloceras MELL in Hering in Seitz, 1927

Dactyloceras MELL in Hering in Seitz, 1927; STATUS-; subgenus of

Dactyloceras MELL in Hering in Seitz, 1927

Shinocksiceras BOUYER, 2002; STATUS-; subgenus of *Dactyloceras* MELL in Hering in Seitz, 1927

richinii BERIO, 1940 (*Dactyloceras*)

Taxonomic remarks: collective-group names established by Bouyer (2002) *Entomologia Africana*, revue de l'A.S.B.L. «Société d'Entomologie africaine», 7 (1): pp. 15-27, and further publications by the same author comply with the requirements of the ICZN (1999) Art. 1.2, 10.3, 13.3.2, 23.7, 42.2.1, 66.1, and 67.14. Bouyer (2005: 454) remarked that the names listed in the collective-group in no way reflect the systematics of the group but simply the existence of the names published without prejudging either their taxonomic level or their validity as a species. Bouyer (2008 : 184) noted that the discoveries of *D. (Shinocksiceras) vandeweghei* BOUYER, 2008, *D. (Shinocksiceras) minettii* BOUYER, 2008, *D. (Shinocksiceras) cadioui* BOUYER, 2008, and *D. (Shinocksiceras) tanzaniensis* BOUYER, 2008, as well as the two previous ones *D. vingerhoedti* BOUYER, 2005 and *D. noellae* BOUYER, 2006 call into question the division of the subgenus *Shinocksiceras* BOUYER, 2002 into collective-groups previously proposed Bouyer (2002). The names *bramarbas*-group (sensu Bouyer 2002) and *barnsi*-group (sensu Bouyer 2002) were deleted by Bouyer (2008) because they obviously not only do not represent monophyletic groups, but in addition also no longer offer any useful advantage in the identification or classification of the subgenus *Shinocksiceras* BOUYER, 2002.

We intend to establish collective-group names herein tentative for certain assemblages of taxonomic convenience. *D. richinii* BERIO, 1940 not fits to any of the so far proposed collective-groups (sensu Paukstadt & Paukstadt 2021) of the genus *Dactyloceras* MELL in Hering in Seitz, 1927. This species might be the sister-species of all other taxa in the subgenus *Shinocksiceras* BOUYER, 2002. Further phylogenetic studies are considered needed.

Type localities

richinii BERIO, 1940 (*Dactyloceras*): Eritrea, Adi-Abuna (Adua) [Adi Abuna is next to Ādī Ābun and is located in Tigray Region, Ethiopia, cf. <https://et.geoview.info/>].

Remarks: the location is in the Tigray Region, Ethiopia just ca. 30 km south of the today border to Eritrea. Between Eritrea and Ethiopia there are border disputes that are historically conditioned. The disputed border areas are located on both sides of today's border.



Map 1. Type locality of *Dactyloceras richinii* BERIO, 1940 of the genus *Dactyloceras* MELL in Hering in Seitz, 1927 (Lepidoptera: Brahmaeidae).

1. *richinii* BERIO, 1940 (*Dactyloceras*)

Dactyloceras MELL, 1927

Dactyloceras richinii BERIO, 1940

richinii BERIO, 1940 (*Dactyloceras*)

Original citation and spelling: *Dactyloceras Richinii* n. sp.

Original description: Berio, E. (1940) Contributo alla Conoscenza dei Lepidotteri Eteroceri dell'Eritrea. IV. Eteroceri raccolti dal Cap. Richini ad Adi-Abuna (Adua) nel Giugno – Luglio 1939-XVII. – Memorie della Società Entomologica Italiana. – Supplemento al Bollettino della Società Entomologica Italiana (Genova); Vol. XIX – 1940 – XIX E. F. Fascicolo II, 1940: pp. 190-192.

Type locality: [Eritrea,] Adi-Abuna [Adua] [Ádua is in Ethiopia today].

Remarks: after the defeat of Ethiopia, Italy founded an empire in Africa in 1936 called “Africa Orientale Italiana”. It took six years until World War II and consisted of 6 governorates. One of them was the “Eritrean Governorate”. In 1938 the Eritrean Governorate was divided into 13 “commissariati” (provinces). One of these was the Commissariato del Tigray Occidentale (Capital Ádua). The original Italian Eritrea, also called Colonia primogenita (first colony), was enlarged by 110,000 km², with areas (“Tigray”) coming from northern Ethiopia, which were mainly populated by ethnic Eritreans, cf. <https://gaz.wiki/Gouvernement Eritrea>.

With other words the type specimens were correctly collected in Eritrea in 1940 but the type locality is actually located in Ethiopia at the time being.

Bouyer (2005: 454) noted that the type locality Adi-Abuna (Adua) / Eritrea should be verified [we disagree] because it seems that it is currently a locality in northern Ethiopia (data collected on the website of Falling Rain Genomics, Inc.).

Geographical and altitudinal distribution: so far known from the type locality border Eritrea / Ethiopia and from Ethiopia. Bouyer (2005: 454) recorded this species from Ethiopia (Mt. Bale, Neghelli, Bulale and Dangila) from altitudes exceeding 1,000 meters and noted that *richinii* is undoubtedly an endemic to Ethiopia. De Prins, J. & De Prins, W. (2011-2021) Afromoths, online database of Afrotropical moth species (Lepidoptera). World Wide Web electronic publication (<http://www.afromoths.net>) [accession date 04 SEP 2021]; recorded *D. richinii* from Ethiopia, Shasemene (Arsi), 2,000 m and Anfarara, Sidamo [records from Tanzania are excluded herein].

Etymology: this new species was named in honor of the collector Mr. A. Richini.

Type material: the description based on two ♂ specimens; the holotype and paratype by original designation. The ♂ holotype is preserved in the Museo civico di Storia naturale (Genova, Italy).

Taxonomic notes: Bouyer (2005) placed *D. richinii* BERIO, 1940 in the *barnsi*-group (sensu Bouyer 2002, 2005) but Bouyer (2008) finally rejected the names *bramarbas*-group and *barnsi*-group (sensu Bouyer 2002). So far we do not intend to place *D. richinii* BERIO, 1940 in any group of the genus *Dactyloceras* MELL, 1927, since this taxon might be the sister-species of all other taxa in the subgenus *Shinocksiceras* BOUYER, 2002.

Dactyloceras (Shinocksiceras) richinii BERIO, 1940 was listed as species in Kitching, I.J., Rougerie, R., Zwick, A., Hamilton, C.A., St Laurent, R.A., Naumann, S., Ballesteros Mejia, L. & Kawahara, A.Y. (2018): A global checklist of the Bombycoidea (Insecta: Lepidoptera); published online 2018 Feb 12. doi: 10.3897/BDJ.6.e 22236.

General notes: Weritz, Rieker & Naumann (2016) described and figured the complete life-history of *Dactyloceras richinii* BERIO, 1940 from Ethiopia in color (pl. 1, figs.1-8, pl. 2, figs. 9-14), (: 351) col.pl. 4 the ♂ holotype of *Dactyloceras richinii* preserved in Museo civico di Storia naturale (Genova) was figured in color dorsally (pl. 4, fig. 21), ventrally (fig. 22), and its data label (fig. 23). (: 351, col.pl. 4) the ♂ genitalia structures were figured (fig. 24) and various specimens: reared ♀ dorsally (fig. 25), wild collected ♂ dorsally (fig. 26) and ventrally (fig. 27), and wild collected ♀ dorsally (fig. 28) and ventrally (fig. 29).

Remarks: above descriptions and figures were not based on *D. richinii* from the type locality in Tigray but from much further south in the SNNPR Region.

Synonyms: for misinterpretations see the appropriate text parts. Junior subjective synonyms, junior objective synonyms, errors and incorrect subsequent spellings for *richinii* BERIO, 1940 are as follows:

so far nothing known from literature

Hybridizations: inter-generic and inter-specific pairings with *richinii* BERIO, 1940 are unknown from literature.

Further readings on *richinii* BERIO, 1940

Berio (1940) Memorie Soc. Entomol. Ital., Vol. XIX, Fasc. II, 1940, pp. 190-192; described the new species *Dactyloceras Richinii* [sic] of the family Brahmaeidae [sic] from Eritrea. The new species was compared with *D. lucina* DRURY [sic], *D. bramarbas* [sic], *D. Widenmanni* [sic], and *D. ostentator* SEITZ [sic] (: 191).

Remarks: the type locality has been in Eritrea at the time the specimens were collected, but the type locality is in Ethiopia today.

Brosch, Naumann & Meister (2002) [21.i.2002] galathea – Berichte des Kreises Nürnberger Entomologen eV (Nürnberg), 17 (4), 2001, pp. 189-197; listed *D. richinii* BERIO, 1940 including information on the type locality, as one of the 15 described Afrotropical taxa of the Brahmaeidae, no information on the present taxonomic status of *richinii* was given (: 190).

Bouyer (2002) [iv.2002] Entomologia Africana, 7 (1), 2002: pp. 15-27; proposed the new subgenus *Shinocksiceras* of the genus *Dactyloceras* MELL, 1927 for taxa within the *bramarbas*-group, the *barnsi*-group, and the *windenmanni* [sic] (*neumayeri*)-group. The species *lucina* (DRURY, 1982 [sic]) with its synonym *swanzii* (BUTLER, 1871), *tridentata* [sic] (CONTE, 1911), and *nebulosa* [sic] BROSCHE, NAUMANN & MEISTER, 2002 remain in the subgenus *Dactyloceras*. A further single species was grouped as *incertae sedis*: *richinii* BERIO, 1940 (*windenmanni*-[sic] or *barnsi*-group because the type was not examined).

Remarks: Bouyer (2005) finally transferred *D. (Shinocksiceras) richinii* BERIO, 1940 from the *incertae sedis*-group to the *barnsi*-group (sensu Bouyer 2005).

Bouyer (2005) [ix.2005] Lambillionea, 105 (3), pp. 453-455, 2 col.figs.; described the new species *Dactyloceras (Shinocksiceras) vingerhoedti* from Tanzania and Rwanda. An updated arrangement of the *bramarbas*, *barnsi* and *windenmanni* species-groups of the subgenus *Shinocksiceras* BOUYER, 2002 was presented (: 454). The *barnsi*-group (sensu Bouyer 2005) comprises of *Dactyloceras (Shinocksiceras) barnsi* (JOICEY & TALBOT, 1924), *D. (S.) karinae*, *D. (S.) ducarmei*, *D. (S.) richinii* BERIO, 1940, and *D. (S.) vingerhoedti* BOUYER, 2005. The author noted that after examination of the type specimens of *D. (S.) richinii* he found that it is however quite distinct and its species status is perfectly justified. Bouyer further noted that the type locality Adi-Abuna (Aduna), Eritrea cited by Berio should be verified because it seems that it is currently a locality in northern Ethiopia (data collected on the website of Falling Rain Genomics, Inc.). Bouyer was also able to collect each 2 ♂ and ♀ adults at altitudes exceeding 1,000 meters: Mt. Bale, Neghelli, Bulale and Dangila. *D. (S.) richinii* was noted to be undoubtedly an endemic to Ethiopia.

Remarks: the type specimens were collected in Eritrea in 1940 but the type locality is located in Ethiopia at the time being.

Bouyer (2006) [ix.2006] Lambillionea, CVI (3), Tome I, pp. 402-404, 2 col.figs.; described the new species *Dactyloceras (Shinocksiceras) noellae* from Kenya. The new species was placed in the updated *barnsi*-group (sensu Bouyer 2005). The updated group (sensu Bouyer 2006) consists of the following taxa of the subgenus *Shinocksiceras*: *barnsi* (JOICEY & TALBOT, 1924), *ducarmei* BOUYER, 2002, *karinae* BOUYER, 2002, *noellae* BOUYER, 2006, *richinii* BERIO, 1940 from Ethiopia and ?Eritrea, and *vingerhoedti* BOUYER, 2005.

Remarks: the type locality has been in Eritrea at the time the type specimens were collected, but the type locality is in Ethiopia today. There are no new records from Eritrea in literature.

Naumann (2008) [30.i.2008] Family Brahmaeidae, Brahmids Moths, pp. 111-116, in: Kühne (2008) Butterflies and moths diversity of the Kakamega forest (Kenya), 203 pp.; recorded *Dactyloceras* MELL in Hering in Seitz (ed.), 1927 from Africa excluding the South and arid Northwestern regions. Recently proposed emendations to names of taxa in *Dactyloceras* were discussed. The author noted that the ♂ genitalia structures of *Shinocksiceras* which were found distinct from those of the subgenus *Dactyloceras* by Bouyer (2002) were of no subgeneric significance (: 112). The correct authorship / original description of *Dactyloceras* MELL in Hering in Seitz, 1927 was pointed out. 19 taxa of *Dactyloceras* and their type localities were listed (: 112-113), including *D. richinii* BERIO, 1940.

Weritz, Riekert & Naumann (2016) [04.i.2016] Entomofauna, 37 (2), pp. 333-352; described and figured the complete life-history of *Dactyloceras richinii* BERIO, 1940 from Ethiopia in color (pl. 1, figs.1-8, pl. 2, figs. 9-14) and for comparisons of *Dactyloceras lucina* (DRURY, 1782) the 1st and 3rd instar larvae (pl. 2, figs. 15, 16) and the 4th instar larva (pl. 3, fig. 17). Illustrations of the mature larvae of *Dactyloceras bramarbas* (KARSCH, 1895) were copied from Schultz (1914: col.pl. IV) (pl. 3, figs. 18, 18a, and 18b), and the mature larva and pupa of *Dactyloceras* sp. (*lucina* or *tridentatum*) were copied from Schultz (1931: pl. 3, figs. 1, 3), larva (pl. 3, fig. 19) and the pupa ventrally, laterally and detail (pl. 3, fig. 20). (: 351) col.pl. 4 the ♂ holotype of *Dactyloceras richinii* preserved in Museo civico di Storia naturale (Genova) was figured in color dorsally (pl. 4, fig. 21), ventrally (fig. 22), and its data label (fig. 23). (: 351, col.pl. 4) the ♂ genitalia structures were figured (fig. 24) and various specimens: reared ♀ dorsally (fig. 25), wild collected ♂ dorsally (fig. 26) and ventrally (fig. 27), and wild collected ♀ dorsally (fig. 28) and ventrally (fig. 29). The authors presented an updated list of taxa of the genus *Dactyloceras* MELL, 1927 listed in chronological order, the type localities were included, as well as the actual geographic situation was added when necessary. No remarks on the taxonomic status including synonymies were made. *D. richinii* BERIO, 1940 (type locality: Eritrea, Adi Abuna) was included in this overview.

Remarks: above descriptions and figures were not based on *D. richinii* BERIO, 1940 from the type locality in Tigray but from much further south in the SNNPR Region.

Kitching, Rougerie, Zwick, Hamilton, St Laurent, Naumann, Ballesteros Mejia & Kawahara (2018) A global checklist of the Bombycoidea (Insecta: Lepidoptera), published online 2018 Feb 12. doi: 10.3897/BDJ.6.e22236; listed *richinii* BERIO, 1940 as species in the subgenus *Shinocksiceras* BOUYER, 2002 of the genus *Dactyloceras* [HERING] [sic], 1927.

De Prins, J. & De Prins, W. (2011-2021) Afromoths, online database of Afrotropical moth species (Lepidoptera). World Wide Web electronic publication (<http://www.afromoths.net>) [accession date 04 SEP 2021]; recorded *D. richinii* BERIO, 1940 from Ethiopia, Shasemene (Arsi), 2,000 m and Anfarara, Sidamo. Two ♂ specimens were figured in color.

Remarks: two further illustrated ♂ specimens recorded from Tanzania are not included herein due to uncertain identity.

Remarks: A "Preliminary Checklist" of the names in the family Brahmaeidae, the "References" and the "Internet References", and the "Acknowledgements" are supposedly provided with the last issue of this series.

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