

Short scientific note**On the true identity of *Curculio pericarpus* Linnaeus, 1758 (Coleoptera: Curculionidae)**Junhao HUANG¹, Enzo COLONNELLI²¹ Institute of Forestry Protection, School of Forestry and Biotechnology, Zhejiang A & F University - 88 Huancheng Beilu, Linan, Hangzhou, Zhejiang CN-311300, China - junhao_huang@hotmail.com² Via delle Giunchiglie 56, I-00172 Rome, Italy - ecolonnelli@yahoo.it**Abstract**

Basing on the study of the type specimen of *Curculio pericarpus* Linnaeus, 1758 preserved in the Linnean Collection in London, and here designated as the lectotype, it was found that this name was misapplied to another close species of the genus *Rhinoncus* Schoenherr, 1825 starting from the Paykull 1792 misidentification. As a consequence, the following new synonymies are established: *Rhinoncus pericarpus* (Linnaeus, 1758) [= *Curculio castor* Fabricius, 1792, **syn. n.**; = *Curculio interstitialis* Reich, 1787, **syn. n.**; = *Curculio scabratus* Fabricius, 1792, **syn. n.**; = *Curculio fruticosus* Herbst, 1795, **syn. n.**; = *Curculio interstitialis* Reich, 1797, **syn. n.**; = *Rhynchaenus seniculus* Gravenhorst, 1807, **syn. n.**; = *Campylirhynchus quadricornis* (Gyllenhal, 1813) sensu Dejean, 1821: 85 [misidentification] not *Rhynchaenus quadricornis* Gyllenhal, 1813, **syn. n.**; = *Rhinoncus flavipes* Stephens, 1831, **syn. n.**; = *Rhinoncus rufipes* Stephens, 1831, **syn. n.**; = *Rhinoncus granulipennis* Gyllenhal, 1837, **syn. n.**; = *Rhinoncus pyrrhopus* Boheman, 1845 sensu Hatch & Kincaid, 1958: 20 [misidentification] not *Rhinoncus pyrrhopus* Boheman, 1845, **syn. n.**; and *Rhinoncus leucostigma* (Marsham, 1802) [= *Curculio pericarpus* Linnaeus, 1758 sensu Paykull, 1792 [misidentification] not *Curculio pericarpus* Linnaeus, 1758, **syn. n.**; = *Cryptorhis herbstii* Billberg, 1820: 43 [replacement name for *Curculio pericarpus* Linnaeus sensu Paykull, 1792], **syn. n.**; = *Rhinoncus spartii* Stephens, 1831, **syn. n.**; = *Rhinoncus sanguinipes* Reitter, 1916, **syn. n.**; = *Rhinoncus pericarpus* ssp. *montanus* Hoffmann, 1960, **syn. n.**]. Lectotypes are designated for *Curculio pericarpus* Linnaeus, 1758 and *Curculio leucostigma* Marsham, 1802. A neotype is selected for *Curculio interstitialis* Reich, 1797.

Key words: *Curculio pericarpus*, *Curculio leucostigma*, *Curculio interstitialis*, Curculionidae, Coleoptera, Linnean Collection.**Introduction**

Reading of the papers by Linnaeus (1746, 1758, 1761, 1767) drives one to the conclusion that the name *Curculio pericarpus* was referred almost since its description to different small weevils belonging to the present genera *Rhinoncus* Schoenherr, 1825 (Ceutorhynchinae Phytobii-ni) and *Cionus* Clairville, 1798 (Curculioninae Cionini).

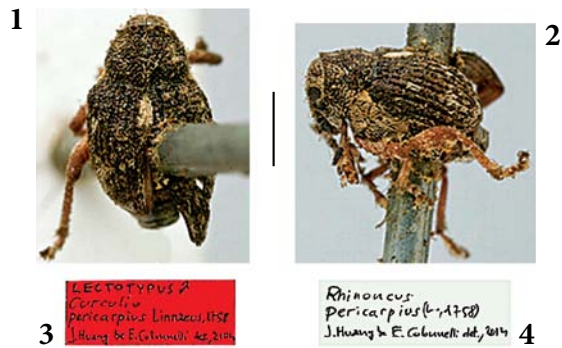
Indeed, the first part of the Linnaeus (1746: 158) still not binomial description of this species: “totus e nigro et fusco medius, scaber, striatus, vellere cinereo raro adpersus, ad suturas elytrorum juxta thoracem in medio dorso macula alba, ex lineola in singulo elytro eodem loco alba, antennarum infimo articulo longus” is precisely that of the very specimen preserved today in the Linnean collection, whereas the second part of the 1746 description: “saepe ante maculam cordatam albam observatur punctum nigrum; saepe etiam versus caudam propius macula alba”, and the Linnaeus (1758: 380) sentence “Habitat in Scrophulariis cum sequente [*Curculio scrophulariae*, our note]” points to a species of *Cionus*.

Starting already from Geoffroy (1762: 298), the name of *Curculio pericarpus* was subsequently applied by several early authors to a long-nosed *Cionus* rather than to a

relatively short-nosed *Rhinoncus*, with the notable exception of Paykull (1792: 62) who definitely described a true *Rhinoncus* under the name of *Curculio pericarpus* Linnaeus. Next in the same year Fabricius (1792) described his new species *Curculio castor* on page 408.

Curculio castor was later synonymized by Billberg (1820: 43) with *C. pericarpus* under the genus *Cryptorhis* Billberg, 1820, synonymy overlooked by all the following authors. This implies that the synonymy established by Colonnelli (2004: 13) between *Cryptorhis herbstii* Billberg, 1820 and *Curculio pericarpus* Linnaeus, 1758 is incorrect. As a consequence of his synonymy, Billberg gave the replacement name of *Cryptorhis herbstii* to the species until then wrongly named *Curculio pericarpus* Linnaeus already by Paykull (1792) and Fabricius (1792) and by all the following authors up to now.

Schoenherr (1825: col. 586) included both *Curculio castor* and *C. pericarpus* in *Ceutorhynchus* Germar, 1824 subgenus *Rhinoncus* Schoenherr, 1825, to which was then given full generic status by Stephens (1831: 3). Note that although Schoenherr (1825) selected *Rhynchaenus quadrituberculatus*, currently *Pelenomus quadrituberculatus* (Fabricius, 1787), as type species of *Rhinoncus*, the International Commission ruled in order to preserve stability



Figs 1-4 – 1, habitus of *Curculio pericarpus* Linnaeus, 1758, lectotype in dorsal view; 2, lateral view (from Linnean Society 2014); 3, handwritten red label designating the lectotype; 4, handwritten white identification label (Linnaeus). Scale bar for the specimen: 1 mm.

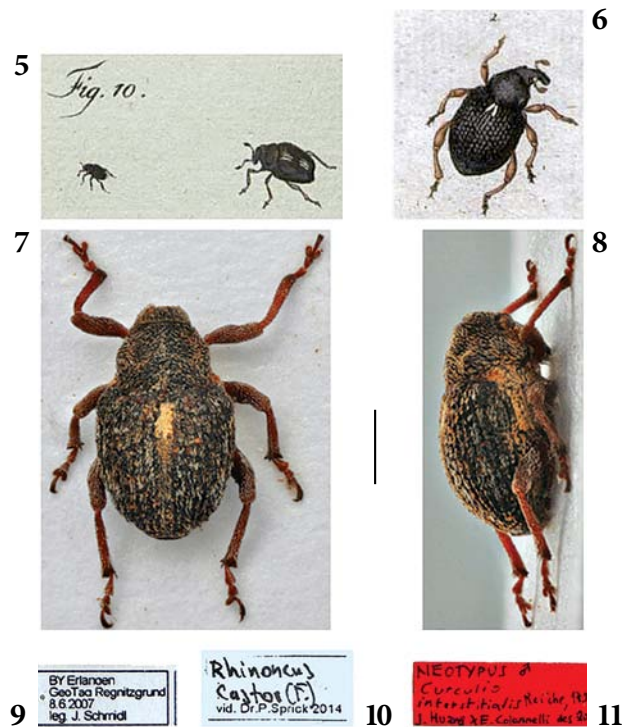
(ICZN 1989) that *Curculio pericarpus* was to consider the type species of *Rhinoncus* Schoenherr, 1825, which name took then precedence over the senior unused *Cryptorhis* Billberg, 1820.

Results

During a visit by the second author to the Linnean collection in London the single type specimen of *Curculio pericarpus* Linnaeus, 1758 was studied. It is a male in quite good a shape, pinned through right elytron, which is partly broken.

As can be seen from the figures 1 and 2 (Linnean Society 2014), the type of *Curculio pericarpus* belongs to the species which is presently named *Rhinoncus castor* (Fabricius, 1787) as a consequence of the misidentification by Paykull (1792) used up to now. We have no doubts about the specimen being one of the Linnean types, since it well matches the Linnaeus (1746) relatively long description to which the Linnaeus (1758) paper expressly made reference. Thus, also according to the art. 12.2.1 of the Code (ICZN 1999), we select this male as the lectotype of *Curculio pericarpus* by adding to the specimen a handwritten red label (semicolons indicate changes of line): “LECTOTYPUS ♂; Curculio; pericarpus Linnaeus, 1758; J. Huang & E. Colonnelli des. 2014” (Fig. 3), and our white identification label: “Rhinoncus; pericarpus (L., 1758); J. Huang & E. Colonnelli det., 2014” (Fig. 4). As a consequence, we resurrect the following synonymy established by Billberg (1820): *Rhinoncus pericarpus* (Linnaeus, 1758) [= *Rhinoncus castor* (Fabricius, 1792)]. The types of *Rhinoncus castor* (Fabricius) were studied by Colonnelli (1993), and the three of them are conspecific with the Linnean example.

At this point arises the question if any of the names older than *Cryptorhis herbstii* Billberg, 1820 may take precedence over it, becoming thus the valid one for the common Holarctic species currently wrongly denominated



Figs 5-11 – 5, illustrations of *Curculio fruticulosus* Herbst, 1795 from Herbst ([1795]); 6, illustration of *Curculio interstitialis* Reich, 1797 from Reich (1797); 7, habitus of *Curculio interstitialis* Reich, 1797, neotype in dorsal view, 8, lateral view; 9-11, labels borne by the specimen. Scale bar for the specimen: 1 mm.

Rhinoncus pericarpus because of the 1792 misidentification by Paykull. Not considering unavailable names such as incorrect subsequent spellings and nomina nuda listed for the sake of completeness by Colonnelli (2004), they are: *Curculio scabratus* Fabricius, 1792, *Curculio fruticulosus* Herbst, 1795, *Curculio interstitialis* Reich, 1797, *Curculio leucostigma* Marsham, 1802, and *Rhynchaenus seniculus* Gravenhorst, 1807.

The *Curculio scabratus* types were studied by Colonnelli (1993), whilst the *Rhynchaenus seniculus* neotype was selected by Colonnelli (1998), and both names are now to be considered new synonyms of *Curculio pericarpus* Linnaeus.

Description (Herbst 1795) and figure (Herbst [1795]) of *Curculio fruticulosus* Herbst leave no doubt (Fig. 5) that also this name must be referred to *Curculio pericarpus* Linnaeus, to which therefore it is here newly synonymized. There is no mention in all the following literature of any Reich collection (Horn & Kahle 1936, 1937; Horn et al. 1990), so the three types of *Curculio interstitialis* Reich, 1797, a species described and illustrated by Reich (1797), are surely to be considered lost. In consequence, according to art. 75 of the Code (ICZN 1999), there is the need to select a neotype of *Curculio interstitialis* for unequivocally assessing to which species this name must be referred, given that there are discrepancies between the descrip-



Figs 12-15—12, habitus of *Curculio leucostigma* Marsham, 1802, lectotype in dorsal view, 13, ventral view, 14, lateral view; 15, labels borne by the specimen. Scale bars for the specimen: 1 mm.

tion in which is stated that the elytral intervals are “carinato-muricatis” (Reich 1797: 2) and the figure where is depicted a weevil with rather smooth elytra (Fig. 6). Since the Reich species were all described from the surroundings of Nuremberg, we select a male well corresponding to the Reich (1797) description preserved in the Institut für Biologie, Universität Erlangen-Nürnberg as the neotype of *Curculio interstitialis*, and labeled: “BY Erlangen; Geo Tag Regnitzgrund; 8.6.2007; leg. J. Schmidl” [white, printed], “*Rhinoncus*; castor (F.); vid. Dr. P. Sprick 2014” [white, partly printed] by adding a red handwritten label “NEOTYPUS ♂; *Curculio*; *interstitialis* Reiche, 1797; J. Huang & E. Colonnelli des. 2014” (Figs 7-11). As a result, we establish the following new synonymy: *Curculio pericarpus* Linnaeus, 1758 [= *Curculio interstitialis* Reich, 1787; **syn. n.**].

Upon our request, Michael Morris informed us that the single Marsham syntype of *Curculio leucostigma* Marsham, 1802 preserved in the Stephens’ collection (Stephens 1823) in the Natural History Museum of London perfectly corresponds to the species hitherto misidentified as *Curculio pericarpus*. He wrote us: “I examined the material of Marsham’s *Curculio leucostigma* (1802) in the Natural History Museum. Standing under the name in the Stephens’ collection is a single specimen that is an original Marsham one (with the characteristic small circular label and Marsham’s number 51 on its underside). It cannot be regarded as the holotype of *Curculio leucostigma* as Stephens (1831) specifically states ‘My specimens were obtained from the Marshamian collection’. The use of the plural shows that other syntypes existed and may well still exist. I believe this specimen should be designated lectotype of *Curculio leucostigma* Marsham, 1802.”

We then examined this specimen, and we select it here as the lectotype of *Curculio leucostigma* Marsham, 1802. It is a female in quite good shape missing of the left posterior leg, obliquely pinned through the right elytron, whose legs touch a circular small label on underside of which is a handwritten number “51” (figs 12-14). The lectotype is

labeled (Fig. 15): “Holotype” [circular printed label bordered in red], “LECTOTYPUS ♂; *Curculio*; *leucostigma* Marsham, 1802; J. Huang & E. Colonnelli des. 2014” handwritten on red paper and added by us. The “Holotype” label brought by this female was subsequently customary added by curators of the museum, and does not imply any designation previous of the present one, since was never published a note on this specimen which moreover was surely one of a series according to Stephens (1831: 42). In consequence of our designation we establish the following new synonymies as follows: *Rhinoncus leucostigma* (Marsham, 1802) [= *Curculio pericarpus* Linnaeus, 1758 sensu Paykull, 1792 not *Curculio pericarpus* Linnaeus, 1758, **syn. n.**; = *Cryptorhis herbstii* Billberg, 1820, **syn. n.**].

It is a fortunate event that both *Rhinoncus leucostigma* (Marsham) and *R. pericarpus* (Linnaeus) in the correct meaning both belong to the same genus and are in addition close each other, since the latter is the type species of *Rhinoncus* Schoenherr (ICZN 1989).

Following the format of the world catalogue of Ceutorhynchinae by Colonnelli (2004), we give below the complete synonymy of both *Rhinoncus* species treated here which should replace (unavailable names excluded) that published in the Colonnelli (2004) paper:

***Rhinoncus pericarpus* (Linnaeus, 1758)**

- Curculio pericarpus* Linnaeus, 1758: 380
- Curculio castor* Fabricius, 1792: 408, **syn. n.**
- Curculio scabratus* Fabricius, 1792: 411, **syn. n.**
- Curculio fruticosus* Herbst, 1795: 400, **syn. n.**
- Curculio interstitialis* Reich, 1797: 6, **syn. n.**
- Rhynchaenus seniculus* Gravenhorst, 1807: 206, **syn. n.**
- Campylirhynchus quadricornis* (Gyllenhal, 1813) sensu Dejean, 1821: 85 [misidentification] nec *Rhynchaenus quadricornis* Gyllenhal, 1813, **syn. n.**
- Rhinoncus flavipes* Stephens, 1831: 41, **syn. n.**
- Rhinoncus rufipes* Stephens, 1831: 42, **syn. n.**
- Rhinoncus granulipennis* Gyllenhal, 1837: 580, **syn. n.**
- Rhinoncus pyrhopus* Boheman, 1845 sensu Hatch & Kincaid, 1958: 20 [misidentification] nec *Rhinoncus pyrhopus* Boheman, 1845, **syn. n.**

***Rhinoncus leucostigma* (Marsham, 1802), resurrected name**

- Curculio pericarpus* Linnaeus, 1758 sensu Paykull, 1792 nec *Curculio pericarpus* Linnaeus, 1758: 380, **syn. n.**
- Curculio leucostigma* Marsham, 1802: 255
- Cryptorhis herbstii* Billberg, 1820: 43 [replacement name for *Curculio pericarpus* Linnaeus sensu Paykull, 1792], **syn. n.**
- Rhinoncus spartii* Stephens, 1831: 41, **syn. n.**
- Rhinoncus sanguinipes* Reitter, 1916: 176, **syn. n.**
- Rhinoncus pericarpus* ssp. *montanus* Hoffmann, 1960: 20, **syn. n.**

Acknowledgements – We gratefully thank Max Barclay and Alberto Zilli of the Natural History Museum of London for respectively loaning and hand delivering the Marsham specimen of *Curculio leucostigma*. Jürgen Schmidl, Ecology group, Developmental Biology, Department of Biology, University of Erlangen-Nuremberg, Germany sent to the second author seven specimens

from the surroundings of Nuremberg among which was selected the neotype of *Curculio interstitialis* Reich upon request of Peter Sprick, Hannover. Michael Morris, Dorchester, England gave us valuable information about Marsham types. Francesco Sacco, Rome, Italy was so kind to take pictures of *Curculio leucostigma* and *Curculio interstitialis* types with a Nikon D90 camera with an AF Micro Nikkor 60 mm objective, pictures then edited using the programs Helicon Focus and Adobe Photoshop PS4. We thank the National Natural Science Foundation of China (NSFC, Grant No. 31472031) for supporting the first author's visiting the second author in Rome, which made this joint work possible.

References

- Billberg G.J. 1820. Enumeratio insectorum in museo Gust. Joh. Billberg. Typis Gandelianis, Stockholm, 138 pp.
- Boheman C.H. 1845. [descriptions]. In: Schoenherr C.J. Genera et species curculionidum, cum synonymia hujus familiae. Species novae aut hactenus minus cognitae, descriptionibus a Dom. L. Gyllenhal, C. H. Boheman, O.J. Fahraeus, et entomologiis aliis illustratae. Tomus octavus. Pars secunda. Supplementum continens. Roret, Paris; Fleischer, Lipsiae, VIII + 504 pp.
- Colonnelli E. 1993. The Ceutorhynchinae types of I. C. Fabricius and G. von Paykull (Coleoptera: Curculionidae). Koleopterologische Rundschau, 63: 299-310.
- Colonnelli E. 2004. Catalogue of Ceutorhynchinae of the world, with a key to genera (Insecta: Coleoptera: Curculionidae). Argania editio, Barcelona, 124 pp.
- Dejean P.F.M.A. 1821. Catalogue de la collection de coléoptères de M. le Baron Dejean. Crevot, Paris, [2] + VIII + 136 pp.
- Fabricius J.C. 1792. Entomologia systematica emendata et aucta. Secundum classes, ordines, genera, species adjectis synonymis, locis, observationibus, descriptionibus. Tom. I. Pars II. Proft, Hafniae, XX + 538 pp.
- [Geoffroy E.L.]. 1762. Histoire abrégée des insectes qui se trouvent aux environs de Paris; dans laquelle ces animaux sont rangés suivant un ordre méthodique. Tome premier. Durand, Paris, XXVIII + 523 pp. + 10 pl.
- Gravenhorst I.L.C. 1807. Vergleichende Uebersicht des Linneischen und einiger neuern zoologischen Systeme, nebst dem eingeschalteten Verzeichnisse der zoologische Sammlungen des Verfassers und den Beschreibungen neuer Thierarten, die in derselben vorhanden sind. Dieterich, Göttingen, XX + 476 pp.
- Gyllenhal L. 1837. [descriptions]. In: Schoenherr C.J. Genera et species curculionidum, cum synonymia hujus familiae. Species novae aut hactenus minus cognitae, descriptionibus a Dom. Leonardo Gyllenhal, C. H. Boheman, et entomologiis aliis illustratae. Tomus quartus. Pars prima. Roret, Paris; Fleischer, Lipsiae, pp. [IV] + 1-600.
- Herbst J.F.W. 1795. Natursystem aller bekannten in- und ausländischen Insekten, als eine Fortsetzung der von Buffonschen Naturgeschichte. Der Käfer sechster Theil. Mit 38 illuminierten Kupfertafeln. Pauli, Berlin, XXIV + 520 pp. E
- [Herbst J.F.W.] [1795]. [Natursystem aller bekannten in- und ausländischen Insekten als eine Fortsetzung der von Buffonschen Naturgeschichte: Nach dem System des Ritters Carl von Linne bearbeitet von Carl Gustav Jablonsky, fortgesetzt von Johann Friedrich Wilhelm Herbst. [2]. Der Käfer sechster Theil. Mit sechzehn illuminierten Kupfertafeln.]. - Tab. LX-XCV [= 60-95], [Tab. O-P]. Berlin. (Pauli).
- Hoffmann A. 1960. Nouveaux curculionides de la faune française (Additif à la Faune de France: Ire note). L'Entomologiste, 16(1/2): 19-23.
- Horn W., Kahle I. 1936. Über entomologische Sammlungen, Entomologen & Entomo-Museologie (Ein Beitrag zur Geschichte der Entomologie) unter Mitarbeit von R. Korschefsky mit VI und 536 Seiten, 38 Tafeln und 3 Textfig. Entomologische Beihefte aus Berlin-Dahlem, 3: 161-296 + 10 pl.
- Horn W., Kahle I. 1937. Über entomologische Sammlungen, Entomologen & Entomo-Museologie (Ein Beitrag zur Geschichte der Entomologie) unter Mitarbeit von R. Korschefsky mit VI und 536 Seiten, 38 Tafeln und 3 Textfig. Entomologische Beihefte aus Berlin-Dahlem, 4: 297-388.
- Horn† W., Kahle† I., Friese G., Gaedike R. 1990. Collectiones entomologicae. Akademie des Landwirtschafts-wissenschaften, Berlin, 573 pp.
- International Commission on Zoological Nomenclature. 1989. Opinion 1529. *Ceutorhynchus* Germar, 1824, *Rhinoncus* Schoenherr, 1825 and *Curculio assimilis* Paykull, 1792 (Insecta, Diptera [sic!]): conserved, and *Curculio assimilis* Paykull, 1792 and *Curculio pericarpus* Linnaeus, 1758 designated as the type species of *Ceutorhynchus* and *Rhinoncus* respectively. Bulletin of Zoological Nomenclature, 46(1): 71-73.
- International Commission on Zoological Nomenclature. 1999. International Code of Zoological Nomenclature. Fourth edition adopted by the International Union of Biological Sciences. International Trust for Zoological Nomenclature, London, XXIX + 306 pp.
- Linnaeus C. von. 1746. Fauna suecica sistens animalia Sueciae regni: quadrupedia, aves, amphibia, pisces, insecta, vermes, distributa per classes et ordines, genera et species cum differentiis specierum, synonymis auctorum, nominibus incolarum, locis habitationum, descriptionibus insectorum. Salvius, Holmiae, 15 + 411 pp. + 2 pl.
- Linnaeus C. von. 1758. Systema naturae per regna tria naturae, secundum classes, ordines, genera, species, cum characteribus, differentiis, synonymis, locis. Editio decima, reformata. Tom I. Salvius, Holmiae, [vi] + 823 [+1] pp.
- Linnaeus C. von. 1761. Fauna suecica sistens animalia Sueciae Regni: Mammalia, Aves, Amphibia, Pisces, Insecta, Vermes. Distributa per classes et ordines, genera et species, cum differentiis specierum, synonymis auctorum, nominibus incolarum, locis natalium, descriptionibus insectorum. Salvius, Stockholmiae, [48] + 578 pp. + 2 pl.
- Linnaeus C. von. 1767. Systema naturae per regna tria naturae, secundum classes, ordines, genera, species, cum characteribus, differentiis, synonymis, locis. Editio duodecima, reformata. Tom I. Pars II. Salvius, Holmiae, [2] + 533-1327 + [37] pp.
- Linnean Society. 2014. The Linnean collections. Http: www.linnean-online.org accessed August 24, 2014.
- Marsham T. 1802. Entomologia britannica, sistens insecta Britanniae indigena, secundum methodum Linneanam disposita. Vol. I. Coleoptera. White, Londini, XXXI + 548 pp.
- Paykull G. von. 1792. Monographia curculionidum Sueciae. Upsala, VIII + 151 [+1] pp.
- Reich G.C. 1797. Mantissae insectorum iconibus illustratae species novas aut nondum depictas exhibentis. Fasciculus I. Felsecker, Norimbergae, 16 pp. + 1 pl.
- Reitter E. 1916. Fauna Germanica. Die Käfer des Deutsches Reiches. Nach der analytische Methode bearbeitet. V. Band. Mit 18 Text-Illustrationen und 16 Farbendrucktafeln, zusammengestellt und redigiert von Dr. K. G. Lutz. Lutz' Verlag, Stuttgart, 343 pp. + 16 pl.
- Schoenherr C. J. 1825. Tabulae synopticae familiae curculionidum (continuatio). Isis von Oken, 5: columns 581-588.
- Stephens J. F. 1831. Illustrations of British entomology; or a synopsis of indigenous insects: containing their generic and specific distinctions; with an account of their metamorphoses, times of appearance, localities, food, and economy, as far as practicable. Mandibulata, vol. IV. Baldwin & Cradock, London, 414 pp. + 4 pl.