

Beetles (Coleoptera) of Peru, a survey of the families: Sphindidae Jacquelin du Val, 1860, Corylophidae LeConte, 1852, and Latridiidae Erichson, 1842

Escarabajos (Coleoptera) de Perú, un inventario de las familias: Sphindidae Jacquelin du Val, 1860, Corylophidae LeConte, 1852, and Latridiidae Erichson, 1842

Joseph V. McHugh*¹

<https://orcid.org/0000-0002-7954-6254>
mchugh.jv@gmail.com

Caroline S. Chaboo²

<https://orcid.org/0000-0002-6983-8042>
cchaboo2@unl.edu

*Corresponding author

1. Department of Entomology, Biological Sciences Building, 120 Cedar Street, University of Georgia, Athens, GA, U.S.A. 30602-2603.

2. Systematics Research Collections, University of Nebraska State Museum, Lincoln, Nebraska, U.S.A. 68588-0514.

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Abstract

Three beetle families, Sphindidae Jacquelin du Val, Corylophidae LeConte and Latridiidae Erichson, are documented as part of the “Beetles of Peru” project. The checklists are based on fieldwork in Peru, museum specimens, and published literature. Three sphindid genera are indicated as new country records.

Resumen

Tres familias de escarabajos, Sphindidae Jacquelin du Val, Corylophidae LeConte y Latridiidae Erichson, están documentado como parte del proyecto “Escarabajos del Perú”. Los checklists se basan en trabajo de campo en Perú, especímenes en museos, y literatura publicada. Se indican tres géneros de Sphindidae registros nuevos para el país.

Keywords:

Taxonomy; new record; Neotropical; Fungi; Myxomycetes; South American biodiversity.

Palabras clave:

Taxonomía; nuevo registro; Neotropical; Fungi; Myxomyceta; biodiversidad de Sudamérica.

Introduction

The beetle families Sphindidae, Corylophidae and Latridiidae are treated below as part of the Beetles (Coleoptera) of Peru Project (see Chaboo 2015). These families were once considered members of Cucujoidea, a superfamily that has undergone extensive modification in recent years. A series of phylogenetic studies have supported dividing the traditional concept of Cucujoidea (e.g., Lawrence & Newton 1995) among five superfamilies: Cleroidea, Erotyloidea, Nitiduloidea, Coccinelloidea and Cucujoidea *sensu stricto* (see Cai et al. 2022). Sphindidae is currently placed in Nitiduloidea, while Latridiidae and Corylophidae are placed in Coccinelloidea. These three families are relatively small in known diversity but are likely to harbor many undiscovered species because they are easily overlooked due to their small body size, drab coloration, and cryptic lifestyles.

In each family treatment below, we provide diagnostic morphology, habitats, best collection methods, and cite all relevant literature.

Taxonomy

Family Sphindidae Jacquelin Du Val, 1860
(Fig. 1A)

Diversity in Peru. 1 subfamily, 4 genera, 5–6 species.

Recognition. This is a family of small (1.5–3.5 mm) brownish beetles that are best recognized by the following combination of anatomical characters: head partially visible in dorsal view; 10–11 segmented antennae with abrupt, pubescent 2–3 segmented club; scape and pedicel abruptly and asymmetrically inflated for apical 2/3; mandible bearing large central tubercle and setose cavity on dorsal surface; coxae transverse; tarsi simple, formula usually 5-5-5 female and 5-5-4 male; 5 distinct free abdominal ventrites; and elytral punctures usually seriate. In addition, myxomycophagy can be a valuable diagnostic character.

Habitat. Sphindids are commonly called “Cryptic Slime Mold Beetles” because both the adults and larvae eat fruiting bodies of plasmodial slime molds (Class Myxomycetes Link, 1833) (Lawrence & Newton 1980) and are often covered with their spores. Sphindid beetles are usually found in vegetated habitats that supply the decaying plant matter needed to support myxomycete growth, including leaf litter, dead twigs, tree bark, stumps, and decaying logs. Diverse myxomycetes have been recorded as hosts for Sphindidae (Russell 1979, Stephenson et al. 1994). A sphindid species may be found on more than one type of myxomycete, but some sphindids show preferences for particular slime molds (McHugh & Kiselyova 2003). All sphindid life stages are usually located on or near myxomycete fruitings (Burakowski & Ślipiński 1987). Forrester and McHugh (2010) review the natural history literature for this family.

Sphindids are infrequently encountered. They occasionally are collected using black light traps and Berlese funnel extraction from sifted detritus. The most effective way to find sphindids is to collect myxomycete fruitings and extract beetles from them using gentle heat (McHugh 2002). Large samples of sphindids can be obtained by rearing out multiple generations of beetles from larger myxomycete fruitings.

McHugh (1993) reviewed the family most recently, conducted a phylogenetic analysis, and provided a generic key that includes the four genera known to occur in Peru. New species of this easily overlooked family are likely to be found in Peru.

Notes. Blackwelder (1944–1957) did not report Sphindidae from Peru. The following list is derived from published records by McHugh (1993) and from museum specimens at the Snow Entomological Museum Collection (SEMC), Field Museum of Natural History (FMNH), Smithsonian National Museum of Natural History (NMNH), and University of Georgia Collection of Arthropods (UGCA). Queries of online specimen data repositories (e.g., SCAN, GBIF) did not recover any additional Peruvian records. New biodiversity occurrence data are

indicated by “*”. For new Peruvian records, collection data are provided verbatim with “/” indicating a new line and “//” indicating a new label. Some of the new generic records are based on specimens that appear to represent multiple species; thus, the current diversity estimate for this family in Peru is 5–6 species.

Checklist

FAMILY SPHINDIDAE JACQUELIN DU VAL, 1860

SUBFAMILY SPHINDINAE JACQUELIN DU VAL, 1860

1. *Carinisphindus* McHugh, 1990

Unidentified sp., **new country record for genus** *. PERU: Pasco Dept. / Villa Rica, 5kmSSW, Villa Rica Rd. / Río de la Sal, 1850 m / 10°45'6"S, 75°18'12"W / 15–17OCT 1999; R.Brooks / PERU1B99031B / ex: flight intercept trap [1, SEMC].

2. *Eurysphindus* LeConte, 1878

Unidentified spp., **new country record for genus** *. PERU: Pasco Dept. / Villa Rica Rd. 1475 m / 10°47'6"S, 75°18'54"W / 15–18 OCT 1999; R.Brooks / D.Brzoska, PERU1B99 030C / ex: flight intercept trap [1, SEMC]; PERU: Dept. Loreto / 1.5km N Teniente Lopez / 2°35.66'S, 76°06.92'W / 18 July 1993, 210–240 m / Richard Leschen, #119 / ex: flight intercept trap [1, SEMC]; PERU: Cuzco Dept., / Pillahuata, Manu rd / km 128, 18-IX-1982 // FMHD #82-253 L. E. / Watrous & G. Mazurek [3, FMNH].

3. *Genisphindus* McHugh, 1993

Genisphindus roxanneae McHugh, 1993

4. *Sphindus* Megerle in Dejean, 1821

Unidentified sp., **new country record for genus** *. PERU: Tambopata Prov./ 15 km NE Pto. Maldonado / 22 June 1989, 200m / J.Ashe,R.Leschen#219 / ex:*Stemonitis* [8, SEMC]; Peru: Loreto: / Yacumama Lodge, / 73.5 ° W, 4.8° S, 6- / 20.VIII.1994 // nr. Jct Rio Marañon / & Rio Usayal / D.Nickle, P.Skelley [498, UGCA]; Peru: Dpto. Amazonas: / Fatima (Bagua-Imaza / Rd.). Elev. 450 m. / Goloboff, Santisteban, / McHugh 22.XII.90 [18, UGCA]; PERU: Madre de Dios; / Rio Tambopata Res; 30 air / km. SW Pto. Maldonado, 290m. / 2–5 XI 1979 J.B.Heppner / subtropical moist forest [1, NMNH].

Family Corylophidae Leconte, 1852
(Fig. 1B)

Diversity in Peru. 1 subfamily, 4 tribes, 4 genera, 5 species.

Recognition. The Corylophidae, or “Minute Hooded Beetles”, may be recognized by their very small size (usually <2 mm); body shape typically oval, coccinelloid; antennae elongate with 3-segmented club bearing sensory vesicles; pronotum usually concealing the head in dorsal view; tarsi 4-4-4; metacoxae widely separated;

first abdominal ventrite elongate; and last abdominal tergite often exposed.

Habitat. Most corylophids feed on spores and hyphae of fungi, typically molds and other microfungi; therefore, they normally occur in habitats with accumulations of decaying vegetation such as leaf litter, piles of cut grass, bird nests, stumps, logs, and dead twigs and branches. Corylophidae are sampled effectively by beating decaying flowers, leaves, and branches, or by Berlese funnel extraction from sifted detritus. In addition, corylophids have been sampled in canopy traps high above the forest floor (e.g., Ulyshen & Hanula 2007). Ślipiński et al. (2010) review the natural history literature for Corylophidae.

Notes. The following checklist is derived from Blackwelder (1945), who reported four species, and was supplemented by Pakaluk (1987). Queries of online specimen data repositories (e.g., SCAN, GBIF) did not recover any additional Peruvian records. Corylophidae are poorly studied in the Neotropics and are easily overlooked, so the discovery of additional taxa is expected for Peru.

The phylogeny and classification of Corylophidae have been addressed recently by Ślipiński et al. (2009) and Robertson et al. (2013). Because the four genera known to occur in Peru are the only representatives of their tribes currently reported there, the key to subfamilies and tribes of Corylophidae provided by Ślipiński et al. (2009) could be helpful for doing identifications. The generic key provided by Bowstead and Leschen (2002) includes all genera currently known from Peru except *Hoplicnema*, a genus that would key out to Couplet 9 (Rypobiini) where it could be differentiated from *Rypobius* LeConte by having the following features: 11-segmented antennae, head completely concealed from above by the pronotum, hind angles of the prothorax posteriorly produced, mesosternal region with exposed, relatively large,

subquadrate area between the mesocoxal cavities; male protibia with tooth-like spines; and spermatheca large, globose (Pakaluk 1987). *Clypastraea* Haldeman (Parmulini) is known from neighboring countries and is likely to occur in Peru. *Clypastraea* has the anterior margin of the prosternum bearing a sharp lateral emargination (an “antennal slot”) on each side which distinguishes it from *Arthrolips* Wollaston, the only member of Parmulini currently known from Peru.

Checklist

FAMILY CORYLOPHIDAE LECONTE, 1852

SUBFAMILY CORYLOPHINAE LECONTE, 1852

TRIBE PARMULINI POEY, 1854

5. *Arthrolips* Wollaston, 1854

Arthrolips posticus Kirsch, 1876

Arthrolips thoracicus Kirsch, 1876

TRIBE SERICODERINI MATTHEWS, 1888

6. *Sericoderus* Stephens, 1829

Sericoderus tropicus Kirsch, 1876

TRIBE CORYLOPHINI LECONTE, 1852

7. *Corylophus* Leach in Stephens, 1832

Corylophus peruanus Kirsch, 1876

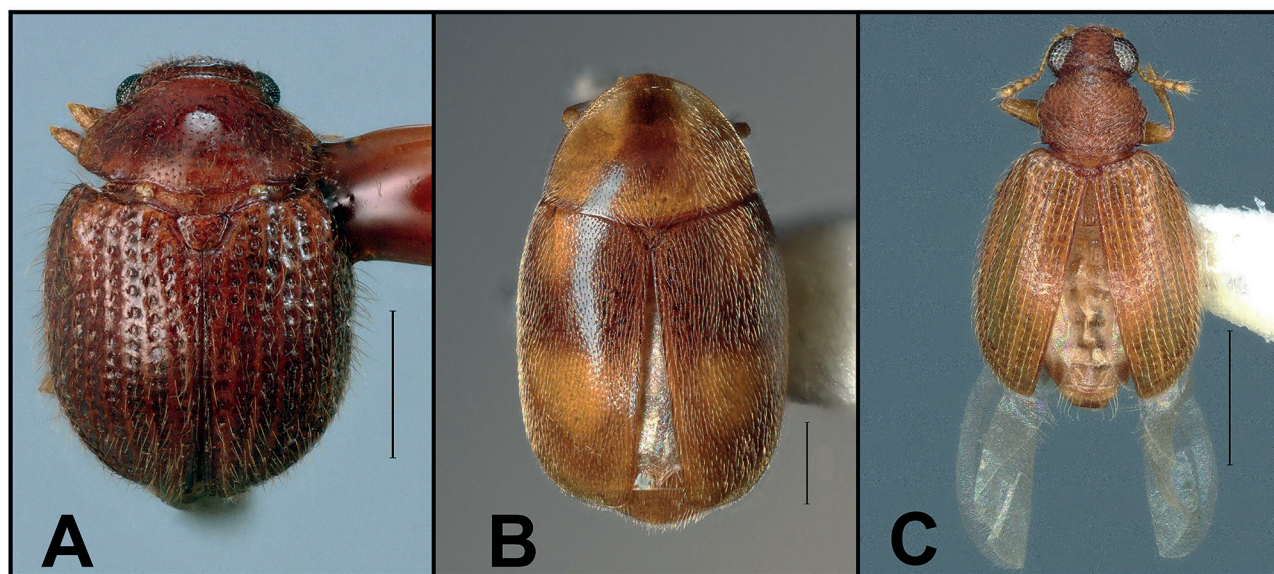


Figure 1. Habitus, dorsal: A) *Genisphindus roxanneae* McHugh 1993 (Sphindidae), Peru: Madre de Dios, Tambopata Res. (UGCA), scale line = 0.5 mm; B) *Clypastraea* sp. (Corylophidae), Bolivia: Santa Cruz, Potrerillos del Guenda Res. (UGCA), scale line = 0.25 mm; C) *Melanophthalma* sp. (Latridiidae), Bolivia: Santa Cruz, Potrerillos del Guenda Res. (UGCA), scale line = 0.5 mm.

TRIBE RYPOBIINI PAULIAN, 1950**8. *Hoplicnema* Matthews, 1899***Hoplicnema amplissima* Pakaluk, 1987Family Latridiidae Erichson, 1842
(Fig. 1C)**Diversity in Peru.** 2 subfamilies, 4 genera, 4 species.

Recognition. Latridiidae are commonly called “Minute Brown Scavenger Beetles.” They may be recognized by the following features: body size small (< 3 mm); body shape elongate oval; antenna with 10–11 segments with a gradual 2–3 segmented club; pronotum narrower than the elytra; elytral humeral angles usually rounded; and tarsi 3-3-3. The elytra are often deeply punctate-striate and intervals may be raised and carinate. Adults of Latridiinae often have a bright white waxy secretion on the body that can obscure some features.

Habitat. Most latridiids feed on spores and hyphae of fungi, typically molds and other microfungi; however, some species are specialists on Myxomycetes. Latridiids most frequently occur in damp habitats with decaying vegetation such as leaf litter, piles of cut grass, logs, stumps, seed pods, dead twigs, and branches, and in nests of birds and rodents. A few are found regularly in stored plant products, especially if they were exposed to humidity. Hartley and McHugh (2010) review the natural history literature for the family.

Latridiidae can be sampled with blacklighting, sweeping and beating dying and dead vegetation, and by Berlese funnel extraction from sifted detritus. Some latridiids have been sampled in canopy traps high above the forest floor (e.g., Ulyshen & Hanula 2007).

A phylogenetic analysis and reclassification were done by Lord et al. (2010). The Latridiidae key of Andrews (2002) includes the genera known to occur in Peru with the exception of *Eufalloides* Hinton, a monotypic latridiine genus that includes only *Eufalloides holmesi* Hinton. In the Andrews key, *Eufalloides* would key out to *Eufallia* Muttkowski, which also has greatly elongated trochanters. According to Hinton (1941), *Eufalloides* can be distinguished from *Eufallia* by “the 2- instead of 3-segmented antennal club and the pronotum, which is much broader than the head and has the sides broadly dilated.” *Melanophthalma* Motschulsky is represented in neighboring states and is likely to occur in Peru.

Notes. The following checklist derives from Blackwelder (1945) and Rucker (2020). Recent works describing new Peruvian taxa include Dajoz (1974) and Johnson (1997). Queries of online specimen data repositories (e.g., SCAN, GBIF) did not recover any additional Peruvian records.

Checklist

FAMILY LATRIDIIDAE ERICHSON, 1842**SUBFAMILY CORTICARIINAE CURTIS, 1829****9. *Corticaria* Marsham, 1802***C. elongata* (Gyllenhal, 1827)**10. *Corticarina* Reitter, 1881***C. lescheni* Johnson, 1997**SUBFAMILY LATRIDIINAE ERICHSON, 1842****11. *Adistemia* Fall, 1899***A. rileyi* Hinton, 1941**12. *Cartodere* C. G. Thomson, 1859****Subgenus *Aridius* Motschulsky, 1866***C. A. malouinensis* Champion, 1918*C. A. peruvianus* Dajoz, 1974*C. A. subfasciatus* (Reitter, 1877)**13. *Eufalloides* Hinton, 1941***E. holmesi* Hinton, 1941

Queries in data repositories

GBIF.org (12 July 2022) GBIF Occurrence Download <https://doi.org/10.15468/dl.seat23>GBIF.org (12 July 2022) GBIF Occurrence Download <https://doi.org/10.15468/dl.uev3tb>GBIF.org (12 July 2022) GBIF Occurrence Download <https://doi.org/10.15468/dl.9xxv4p>SCAN-bugs.org (12 July 2022) SCAN Occurrence Download <https://scan-bugs.org/portal/collections/list.php?taxa=Corylophidae&thes=1&type=1&country=Peru&db=all&page=1>SCAN-bugs.org (12 July 2022) SCAN Occurrence Download <https://scan-bugs.org/portal/collections/list.php?taxa=Latridiidae&thes=1&type=1&country=Peru&db=all&page=1>SCAN-bugs.org (12 July 2022) SCAN Occurrence Download <https://scan-bugs.org/portal/collections/list.php?taxa=Sphindidae&thes=1&type=1&country=Peru&db=all&page=1>

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The authors declare no conflict of interest.

Rol de los autores / Authors Roles:

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Aspectos éticos / legales; Ethics / legals:

There are no ethical or legal aspects to declare as expeditions were officially permitted, and the specimens are deposited in public institutional collections.