



Zootaxa 3077: 1–118 (2011)
www.mapress.com/zootaxa/

Copyright © 2011 · Magnolia Press

Monograph

ISSN 1175-5326 (print edition)

ZOOTAXA

ISSN 1175-5334 (online edition)

ZOOTAXA

3077

**Systematics, distributions and bionomics of the Catopocerini
(eyeless soil fungivore beetles)
of North America (Coleoptera: Leiodidae: Catopocerinae)**

STEWART B. PECK & JOYCE COOK

Department of Biology, Carleton University, Ottawa, Ontario K1S 5B6 Canada

E-mail: stewart_peck@carleton.ca, joyce_cook@carleton.ca



Magnolia Press
Auckland, New Zealand

Accepted by C. Bellamy: 7 Jul 2011; published: 28 Oct. 2011

STEWART B. PECK & JOYCE COOK

**Systematics, distributions and bionomics of the Catopocerini (eyeless soil fungivore beetles)
of North America (Coleoptera: Leiodidae: Catopocerinae)**

(*Zootaxa* 3077)

118 pp.; 30 cm.

28 Oct. 2011

ISBN 978-1-86977-795-1 (paperback)

ISBN 978-1-86977-796-8 (Online edition)

FIRST PUBLISHED IN 2011 BY

Magnolia Press

P.O. Box 41-383

Auckland 1346

New Zealand

e-mail: zootaxa@mapress.com

<http://www.mapress.com/zootaxa/>

© 2011 Magnolia Press

All rights reserved.

No part of this publication may be reproduced, stored, transmitted or disseminated, in any form, or by any means, without prior written permission from the publisher, to whom all requests to reproduce copyright material should be directed in writing.

This authorization does not extend to any other kind of copying, by any means, in any form, and for any purpose other than private research use.

ISSN 1175-5326 (Print edition)

ISSN 1175-5334 (Online edition)

Table of contents

Abstract	4
Introduction	4
Materials	5
Methods	6
Bionomics and life history	9
Phylogeny	9
Systematics	12
Tribe Catopocerini Hatch, 1927 (1880)	12
Key to genera of Catopocerini	12
Genus <i>Catopocerus</i> Motschulsky, 1870	13
Genus <i>Pinodytes</i> Horn, 1880, resurrected status	14
Key to North American species of <i>Pinodytes</i> (males)	15
<i>Pinodytes newtoni</i> species group	16
<i>Pinodytes newtoni</i> Peck & Cook, new species	17
<i>Pinodytes borealis</i> species group	18
<i>Pinodytes borealis</i> Peck & Cook, new species	18
<i>Pinodytes punctatus</i> species group	19
<i>Pinodytes punctatus</i> Peck & Cook, new species	19
<i>Pinodytes colorado</i> species group	20
<i>Pinodytes colorado</i> Peck & Cook, new species	20
<i>Pinodytes pusio</i> species group	20
<i>Pinodytes pusio</i> Horn, 1892, resurrected combination	21
<i>Pinodytes ovatus</i> (Hatch, 1957), new combination	21
<i>Pinodytes chandleri</i> Peck & Cook, new species	22
<i>Pinodytes constrictus</i> Peck & Cook, new species	23
<i>Pinodytes contortus</i> Peck & Cook, new species	23
<i>Pinodytes eldorado</i> Peck & Cook, new species	24
<i>Pinodytes fresno</i> Peck and Cook, new species	25
<i>Pinodytes gibbosus</i> Peck & Cook, new species	25
<i>Pinodytes humboldtensis</i> Peck & Cook, new species	27
<i>Pinodytes idaho</i> Peck & Cook, new species	28
<i>Pinodytes klamathensis</i> Peck & Cook, new species	28
<i>Pinodytes losangeles</i> Peck & Cook, new species	29
<i>Pinodytes minutus</i> Peck & Cook, new species	31
<i>Pinodytes monterey</i> Peck & Cook, new species	31
<i>Pinodytes parvus</i> Peck & Cook, new species	32
<i>Pinodytes sanjacinto</i> Peck & Cook, new species	33
<i>Pinodytes sequoia</i> Peck & Cook, new species	34
<i>Pinodytes shasta</i> Peck & Cook, new species	35
<i>Pinodytes spinus</i> Peck & Cook, new species	36
<i>Pinodytes tehama</i> Peck & Cook, new species	36
<i>Pinodytes tuolumne</i> Peck & Cook, new species	37
<i>Pinodytes cryptophagoides</i> species group	38
<i>Pinodytes cryptophagoides</i> (Mannerheim, 1852), resurrected combination	38
<i>Pinodytes subterraneus</i> (Hatch, 1935), new combination	39
<i>Pinodytes imbricatus</i> (Hatch, 1957), new combination	40
<i>Pinodytes capizzii</i> (Hatch, 1957), new combination	41
<i>Pinodytes rothi</i> (Hatch, 1957), new combination	42
<i>Pinodytes tibialis</i> (Hatch, 1957), new combination	43
<i>Pinodytes angulatus</i> Peck & Cook, new species	43
<i>Pinodytes delnorte</i> Peck & Cook, new species	44
<i>Pinodytes garibaldi</i> Peck & Cook, new species	45
<i>Pinodytes haidagwaii</i> Peck & Cook, new species	45
<i>Pinodytes isabella</i> Peck & Cook, new species	46
<i>Pinodytes orca</i> Peck & Cook, new species	47
<i>Pinodytes setosus</i> Peck & Cook, new species	48
<i>Pinodytes shoshone</i> Peck & Cook, new species	48
<i>Pinodytes sinuatus</i> Peck & Cook, new species	49
Acknowledgements	50
References	50

Abstract

This paper is a review and revision of the tribe Catopocerini (Coleoptera: Leiodidae: Catopocerinae) of North America. It covers the following genera: *Catopocerus* Motschulsky, 1870 with five species east of the Mississippi River and the resurrected genus *Pinodytes* Horn, 1880 with 42 species in North America west of the Mississippi River. All species in the tribe are eyeless and wingless inhabitants of forest soil and litter. Larvae and adults probably feed on subterranean fungi. *Pinodytes* Horn is resurrected to valid generic status. A neotype is assigned for *Catopocerus politus* Motschulsky. Lectotypes are designated for *Catops cryptophagoides* (Mannerheim, 1852) (which is transferred to *Pinodytes*), and *Pinodytes pusio* Horn, 1892. The following new synonym is recognized: *Catopocerus ulkei* Brown, 1933 = *Catopocerus politus* Motschulsky, 1870. The 33 new species and their distributions are as follows: *Pinodytes angulatus* (NW Oregon, USA), *P. borealis* (central Alaska, USA), *P. chandleri* (N California, USA), *P. colorado* (Colorado, USA), *P. constrictus* (S California, USA), *P. contortus* (E California, USA), *P. delnorte* (NW California, USA), *P. eldorado* (E California, USA), *P. fresno* (central California, USA), *P. garibaldi* (NW Oregon, USA), *P. gibbosus* (S California, USA), *P. haidagwaii* (Haida Gwaii (formerly Queen Charlotte) Islands, British Columbia, Canada), *P. humboldtensis* (NW California, USA), *P. idaho* (NW Idaho, USA), *P. isabella* (N Idaho, USA), *P. klamathensis* (SW Oregon and NW California, USA), *P. losangeles* (S California, USA), *P. marinensis* (W California, USA), *P. minutus* (central California, USA), *P. monterey* (SW California, USA), *P. newtoni* (Ozarks region to E Texas, USA), *P. orca* (SW Oregon, USA), *P. parvus* (NW California, USA), *P. punctatus* (W Idaho and E Washington, USA), *P. sanjacinto* (S California, USA), *P. sequoia* (S central California, USA), *P. setosus* (SW Oregon and NW California, USA), *P. shasta* (N California, USA), *P. shoshone* (N Idaho, USA), *P. sinuatus* (SW Oregon, USA), *P. spinus* (N central California, USA), *P. tehama* (N California, USA), and *P. tuolumne* (E central California, USA). The following new combinations are established: *Pinodytes capizzii* (Hatch, 1957), ex *Catopocerus*; *P. cryptophagoides* (Mannerheim, 1852), ex *Catopocerus*; *P. imbricatus* (Hatch, 1957), ex *Catopocerus*; *P. newelli* (Hatch, 1957), ex *Catopocerus*; *P. ovatus* (Hatch, 1957), ex *Catopocerus*; *P. pusio* Horn, 1892, ex *Catopocerus*; *P. rothi* (Hatch, 1957), ex *Catopocerus*; *P. subterraneus* (Hatch, 1935), ex *Catopocerus*; *P. tibialis* (Hatch, 1957), ex *Catopocerus*.

Key words: *Catopocerus*, *Pinodytes*, *Perkovskius*, *Glacicavicola*, Glacicavicolini, Catopocerini, Leiodidae, taxonomy, new species

Introduction

The subfamily Catopocerinae (Coleoptera: Leiodidae) was previously recognized to be composed of three described genera. These are distributed in north temperate (east Asia and North America) and south temperate (an undescribed genus in Chile, southern South America) parts of the world. Little is known of their biology, but some species, and perhaps many, feed as adults and larvae on subterranean fungi (Newton 1998).

The subfamily is composed of two tribes (Newton 1998): Glacicavicolini, with one species (and the most modified cave-adapted morphology of any beetle species in North America) in ice caves in Idaho and Wyoming; and Catopocerini, with three genera: *Catopocerus* Motschulsky, 1870 with 5 species occurring east of the Mississippi River in North America; *Pinodytes* Horn, 1880 (here resurrected from synonymy) with 42 species (of which 33 are newly described in this paper) occurring west of the Mississippi River in North America; and *Perkovskius* Lafer, 1989 occurring in eastern Siberia. The Catopocerini genera are composed exclusively of small (1.0–4.5 mm body length) beetles which are eyeless, wingless, and usually depigmented inhabitants of moist forest soil and leaf litter.

Previous publications on the Catopocerinae are few and are mostly isolated species descriptions. For the tribe Glacicavicolini they are Westcott (1968) who described the remarkable ice cave beetle *Glacicavicola bathysciodes* and placed it in a monobasic subfamily Glacicavicolinae, which was reduced to a tribe by Newton (1998). Peck (1974, 1982) reported on its life cycle and distribution. For the tribe Catopocerini of North America the publications are: Mannerheim (1852), Motschulsky (1870), Austin (1880), Horn (1880), Hatch (1935, 1957), and Peck (1975).

Victor Motschulsky (1870) described the genus *Catopocerus* for the species *Catopocerus politus*, type locality: “North America”, based on a specimen apparently collected by himself: “Je l’ai découvert dans l’Amérique du nord.” Motschulsky was a Russian military officer and a prolific collector and describer of beetles. It has been assumed that this species was from somewhere in Russian North America (which extended from Alaska down to northern California). We have found no reference to Motschulsky ever visiting western North America. However, it is recorded that he visited and extensively collected in eastern North America in 1853 and spent the months of May and June in the vicinities of Washington, DC and Philadelphia, PA (Motschulsky 1856). We have been unable to locate the type specimen of *Catopocerus politus*. It is known that much of his collection has been lost or destroyed.