



Larvae and pupae of two North American darkling beetles (Coleoptera: Tenebrionidae; Stenochiinae), *Glyptotus cribratus* LeConte and *Cibdelis blaschkei* Mannerheim, with notes on biology



Warren E. Steiner, Jr.
Research Collaborator
c/o Department of Entomology, NHB-187,
Smithsonian Institution,
Washington, DC 20560

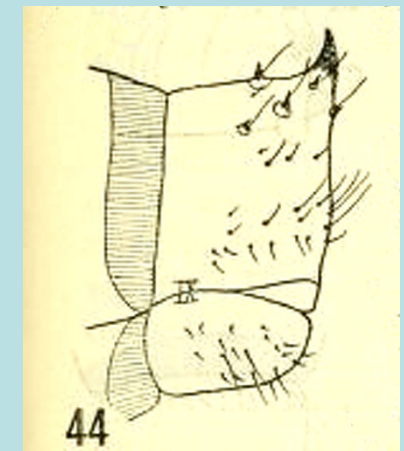


This study describes the larvae and pupae of two North American darkling beetles (Coleoptera: Tenebrionidae) in the subfamily Stenochiinae, *Glyptotus cribratus* LeConte from the southeastern United States, and *Cibdelis blaschkei* Mannerheim from California. Both species inhabit forested regions where adults and associated larvae have been found in soft rotten dry wood of dead branches, usually on living trees or in sections recently fallen from them. A single larva presumed to be *G. cribratus* was studied by St. George (1924) and some key characters were given, but the identity has remained uncertain. New associated adult and larval material, including one larva having been reared to adult and another providing the first known pupal specimen described here, suggests that this larva was not that of *Glyptotus*. Immature stages of *C. blaschkei*, a common beetle in oak forests of California, are described here for the first time. Identity of these is also confirmed by rearing of adults and pupae and discovery of both in pupal cells with associated exuvia.

St. George (1924) included *Glyptotus* in a key to larvae based on a single specimen of questionable identity...

- | | |
|--|---------------------------|
| 7. Epipharynx with many short, spinelike setae on the soft skinned part (fig. 1) (eastern and southern species)----- | Xylopinus LeConte. |
| Epipharynx with only two short, spinelike setae on the soft skinned part (eph, fig. 31)----- | 8. |
| 8. Pygidium with transverse row of strong, hook-shaped, seta-bearing spines anterior to cerci----- | Glyptotus LeConte. |
| Pygidium with small, but not hook-shaped, seta-bearing spines anterior to cerci (fig. 44)----- | 9. |

The genus *Glyptotus* LeConte, containing the single species *cribratus* LeConte, is represented by only one larval specimen. It was taken by H. S. Barber from a dead limb of a palm tree (*Thrinax*) on Big Pine Key, Florida, March 6, 1919. This specimen was determined by the writer, by locality, by comparison with size of adult and by a process of elimination of larval characters. Doctor Schwarz states that the species *cribratus* is about the only one there of its size and that it occurs in large numbers.







TEXAS: San Patricio Co.
12 km NE Sinton,
Welder Wildlife Refuge
8 December 1984
W. Steiner, B. Gill
& D. Whitehead colrs.

In rotten
of log of Celtis

larva coll. 8 DEC. 84
pupated 25 APR. 85
eclosed 14 MAY. 85
preserved 1 JUNE



CALIFORNIA: Napa Co.,
3 km NW Yountville
38°25'05"N, 122°23'52"W
25 June 2012
coll. W. E. Steiner
& J. M. Swearingen
in rotten dry wood
of fallen branch
Quercus garryana
among vineyards;
preserved 19 July 2012

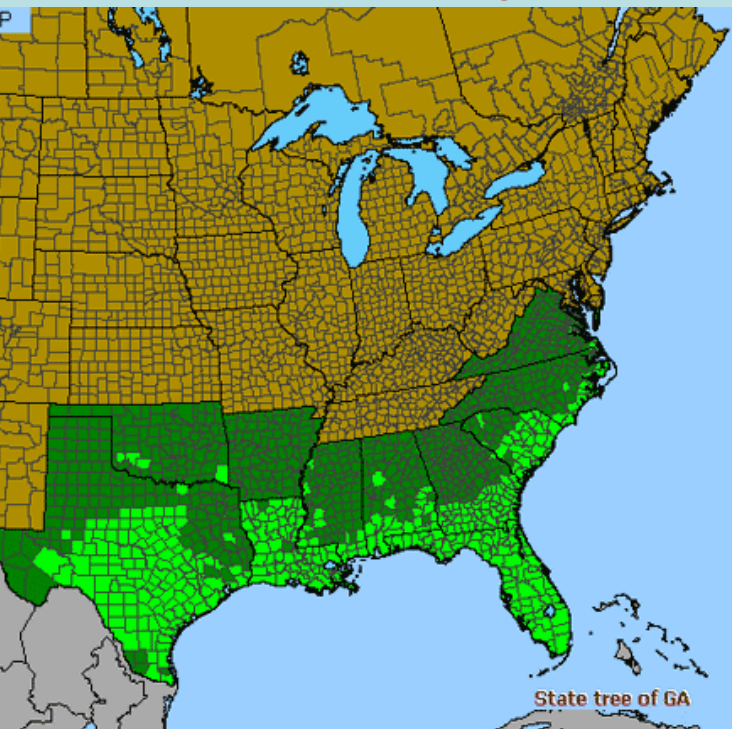
Glyptotus cribratus

Maritime oak forest, coastal Georgia, USA





Quercus virginiana







*Quercus
laevis*



Longleaf pine & turkey oak community,
South Carolina, USA



Glyptotus cribratus larval, pupal and reared adult material examined:

“FLORIDA: Highlands Co., 2 km N Cornwell at Kissimmee River, 1 March 1984 / In rotting wood of log of live oak / W. E. Steiner, A. G. Gerberich, J. E. Lowry collectors” (1 L);

“FLORIDA: Highlands Co., Archbold Biol. Sta., S of Lake Placid, forest tract, NE part, 27°12'N, 81°20'W, 19 April 2003 / In pithy rotten wood of dead standing oak branch, mixed scrub forest burned ca. 1 year ago / W. E. Steiner, J. M. Swearingen et al. collectors” (1 L);

“FLORIDA: Highlands Co., Archbold Biol. Sta., S of Lake Placid, hill area E of Station, 27°11'N, 81°20'30"W, / In dry rotten wood of recently fallen dead branch of live oak / 31 December 2006, W. E. Steiner, J. M. Swearingen, A. W. & B. B. Norden collectors” (1 L);

“GEORGIA: Camden Co., Little Cumberland I., 30°58'N, 81°25'W, 30 November 1997, W. E. Steiner et al. / In pithy rotten wood of dead branch on live oak, *Quercus virginiana*” (1 L); same data except “28 November 1998” (1L);

“NORTH CAROLINA: Dare County, Kill Devil Hills, 35°58'33"N, 75°39'11"W, 23 February 2007, Coll. W. E. Steiner, J. M. Swearingen / In dry rotten wood of recently fallen dead branch of S. red oak (*Quercus falcata*)” (1L); same data except “Reared from larva in dry rotten wood of recently fallen dead branch of S. red oak (*Quercus falcata*); pupated 25 April, preserved 1 May 2007” (1 P);

“SOUTH CAROLINA: Dillon County, Fork, Little Pee Dee S. P., sand area, 34°19'10"N, 79°17'06"W, 16 April 2012, In dry soft rotten wood of dead branch of live *Quercus laevis* in open pine-oak sand scrub; colls. J. C. Ciegler, W. E. Steiner, J. M. Swearingen” (1 L);

“SOUTH CAROLINA: Georgetown County, Huntington Beach, near Murrells Inlet, 33°30'51"N, 79°03'09"W, 15 April 2012, In dry soft rotten wood of dead lower branch *Quercus virginiana* in maritime forest; colls. J. C. Ciegler, W. E. Steiner, J. M. Swearingen” (1 L);

“TEXAS: San Patricio Co., 12 km NE Sinton, Welder Wildlife Refuge, 8 December 1984, W. Steiner, B. Gill & D. Whitehead collrs. / In rotting wood of log of *Celtis*; larva coll. 8 Dec. 84, pupated 25 Apr. 85, eclosed 14 May 85, preserved 1 June” (1 teneral adult pinned with associated larval and pupal exuvia in gelatin capsule);

VIRGINIA: City of Va. Beach, First Landing S. P., beach campground, 36°55.4'5N, 76°2.8'W, 16 June 2007 / In pithy rotten wood of dead branch on live oak, *Quercus virginiana* / W. E. Steiner, J. M. Swearingen et al. collectors” (1 L)

Cibdelis blaschkei

Oak forest and savanna, central California, USA







Quercus garryana

Cibdelis blaschkei larval, pupal and reared adult material examined:

“CALIFORNIA: Contra Costa Co., Tilden Park NE of Berkeley, 37°53'24"N, 122°14'13"W, 23 June 2012, colls. W. E. Steiner, J. M. Swearingen et al. / Under bark of fallen pine branch in mixed forest grove” (1 P);

“CALIFORNIA: Napa Co., Angwin, near airport, 38°34'13"N, 122°25'50"W, 29 June 2012, coll. W. E. Steiner & J. M. Swearingen, In rotten dry wood of fallen oak branch in mixed forest” (5 L); same data except: “preserved 2 July 2012” (1 P); “preserved 4 July 2012” (2 P); “preserved 9 July 2012” (2 P);

“CALIFORNIA: Napa County, St. Helena, 16 Feb. 2003, W. E. Steiner, J. M. Swearingen et al. collectors / In dry rotten wood of recently fallen dead branch of oak” (2 L); same data except “21 Dec. 2003” (2 L); “CALIFORNIA: Napa County, 7 km NW St. Helena, 38°32'N, 122°31'W / 15 Dec. 2003, W. E. Steiner & J. M. Swearingen collectors / In dry rotten wood of recently fallen dead branch of oak” (2 L);

“CALIFORNIA: Napa Co., Silverado area, 5 km NE of Napa, 38°20'N, 122°15'W / 18 Feb. 2003, W. E. Steiner, J. M. Swearingen collectors / In pithy dry wood of fallen oak branch ca. 8 cm diameter on ground, open hills with oak groves (3 L); same data except “25 April 2004” and “branch ca. 5 cm.” (1 L);

“CALIFORNIA: Napa Co., Skyline Park area, 5 km SE of Napa, 38°16'N, 122°15'W / 8 Feb. 2003, W. E. Steiner, J. M. Swearingen collectors / In dry rotten wood of recently fallen dead branch of oak” (3 L);

“CALIFORNIA: Napa Co., Soda Canyon Road at ravine, NE of Napa, 38°23'06"N, 122°16'51"W, 22 June 2012, In rotten dry wood of fallen oak branch, roadside in open forest” (1 P, partially eaten, larval exuvia not found);

“CALIFORNIA: Napa Co., Soda Springs Road NE of Napa, 38°23'28"N, 122°17'07"W, 22 June 2012, coll. W. E. Steiner & J. M. Swearingen, In rotten dry wood of fallen oak branch, roadside in open forest” (1 L); same data except “28 June 2012” (1 L);

“CALIFORNIA: Napa Co., Spanish Flat, near Lake Berryessa, 11 April 2008 / pupated 21 April, preserved 29 April 2008 / W. E. Steiner, J. M. Swearingen collectors, In rotten wood of fallen branch of oak on ground (larva)” (1 P);

“CALIFORNIA: Napa Co., Yountville, 38°24'N, 122°22'W / 9 Feb. 2003, W. E. Steiner, J. M. Swearingen collectors / In rotten dry wood of fallen branch of *Quercus garryana* among vineyards” (1 L); same data except “In rotten dry wood of recently fallen dead branch of *Quercus garryana* / Reared from larva found 9 Feb. 2003, pupated 23 May (found), preserved 1 June 2003” (1 P);

“CALIFORNIA: Napa Co., 3 km NW Yountville, 38°25'01"N, 122°23'58"W, 21 October 2010, coll. W. E. Steiner & J. M. Swearingen / In rotten dry wood of fallen branch *Quercus garryana* among vineyards” (1 L); same data except “38°25'05"N, 122°23'52"W, 25 June 2012 / Found in pupal cell in rotten dry wood of fallen branch *Quercus garryana* among vineyards; (1 P); same data except “preserved 19 July 2012” (3 teneral adults pinned with associated larval and pupal exuvia in gelatin capsule).

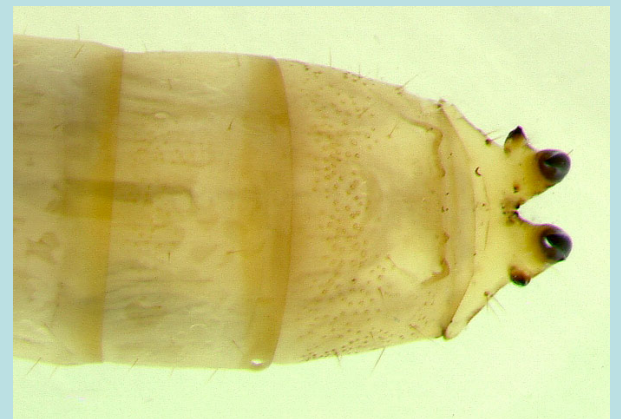
“CALIFORNIA: Sonoma Co., 1 km N Wikiup, 38°31'33"N, 122°45'41"W, 15 October 2009, coll. W. E. Steiner & J. M. Swearingen / In dry rotten wood of recently fallen dead branch of oak” (5 L)



Adult *Glyptotus* 12-15 mm long



Larvae 25-30 mm long





Glyptotus pupa 14 mm long





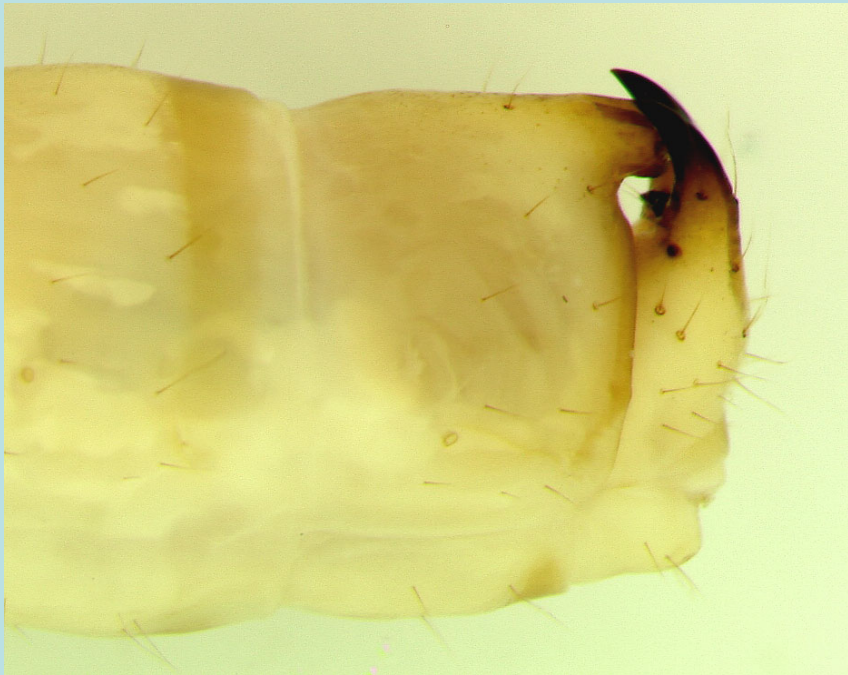
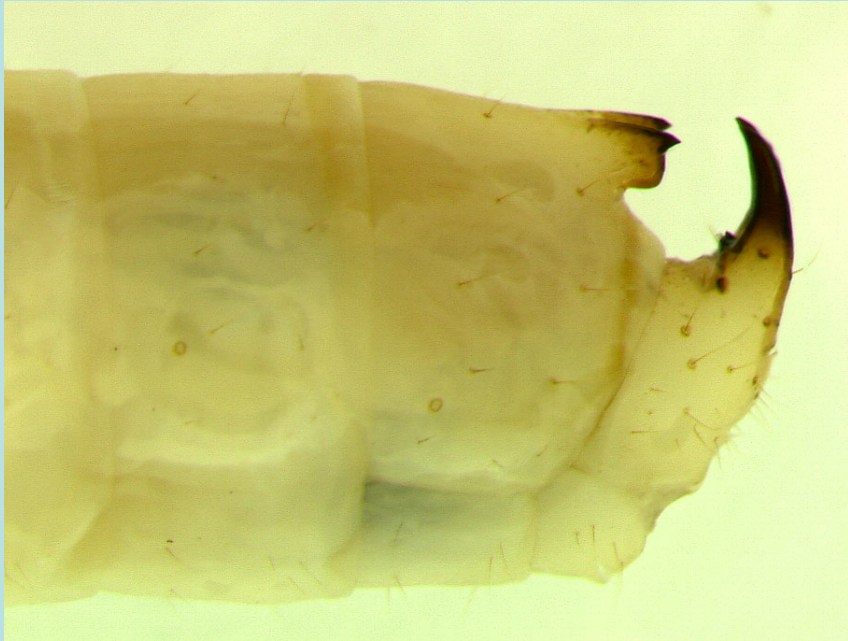
Adult *Cibdelis* 13-17 mm long



Larvae 24-29 mm long



Antipredator defense??

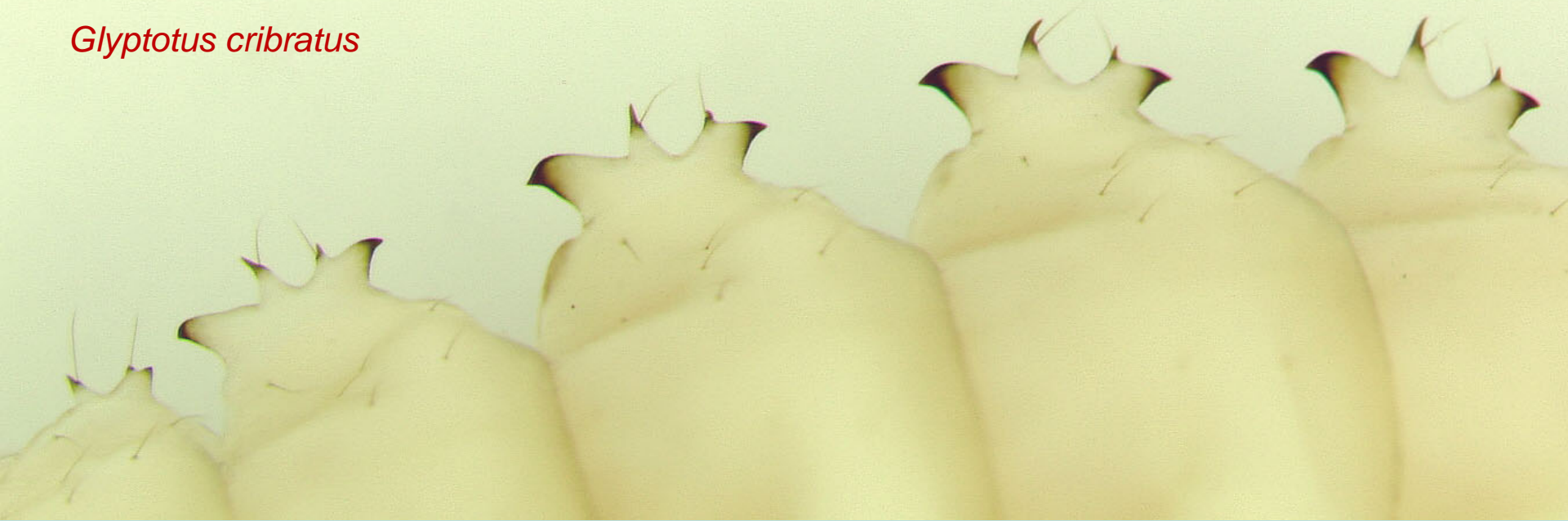




Cibdélis pupae 13-17 mm long



Glyptotus cribratus



Cibdelis blaschkei





Photo: Jil M. Swearingen



Some acknowledgments...

Assistance in fieldwork over many years...

Jil Swearingen, Rolf Aalbu, Jan Ciegler, Andy Gerberich, Will Dix, Elaine Nakash,
Don Whitehead, Bruce Gill, Mark Deyrup, Butch & Beth Norden

Images...

Jil Swearingen, Gino Nearn

