

GUIDE TO THE SCAPHINOTUS  
OF ANGELO COAST RANGE RESERVE

Genus *Scaphinotus* Dejean, 1826

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Photographs by Ivonne Liang

The Northern California Coast Range is home to some of the most unique and enigmatic beetles of the genus *Scaphinotus*. The genus, which is in the family Carabidae, contains at least 60 species native to North America, primarily within forested areas and often in mountainous regions (Lindroth 1962). *Scaphinotus* are frequently encountered walking on the ground at night between March-November; most species hibernate as larvae, at least in part (Erwin 2007). The common name of the genus, Snail-eating Beetles, refers to their adaptations for feeding on snails. The genus *Scaphinotus* has a characteristically elongated head, which is most marked in the rare northern Californian species *Scaphinotus longiceps*. Subgenera of *Scaphinotus* have been frequently revised. At Angelo Coast Range Reserve, multiple species of *Scaphinotus* are commonly encountered at night. This guide is intended to provide methods for identifying the different species found in and around Angelo Coast Range Reserve. Species marked with an asterisk have not been collected at Angelo, but have been found in analogous nearby areas.

Subgenus *Brennus*: Notched genae, hair between teeth of maxillae (Gidaspow 1973). Includes the species *Scaphinotus cristatus*, *interruptus*, *striatopunctatus*, *ventricosus*.

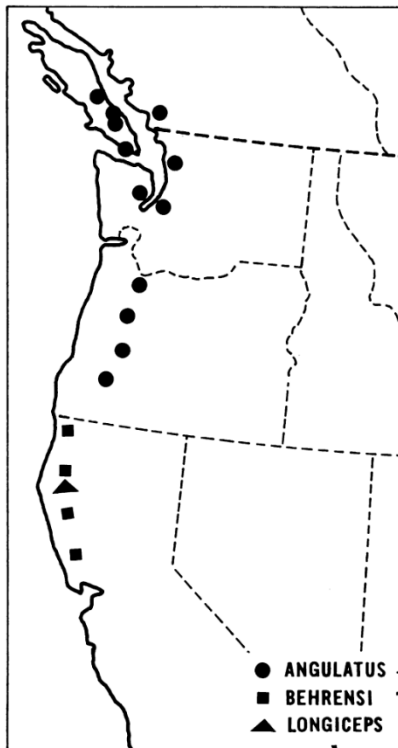


FIG. 1. Distribution of *Scaphinotus* (*Neocyclus*) *angulatus* Harris, *S. (N.) behrensi* Roeschke, and *S. (N.) longiceps* Van Dyke.

Subgenus *Neocyclus*: Three species in this subgenus are known from dense coastal forest, from the North Coast of California through the region around the Salish Sea. Lacks notched genae, and lacks hair between teeth of maxillae (Gidaspow 1973). *Scaphinotus longiceps* is known from Angelo Coast Range Reserve. *Scaphinotus behrensi*\* is known from as far south as Sonoma Co., but Van Dyke (1924) did not believe it occurred in Mendocino.

From Gidaspow 1973.



*Scaphinotus longiceps* Van Dyke 1924(photographed)

#### Long-headed Snail-eating Beetle

Ecology: Known from few localities, up to 182 meters altitude, in coastal temperate rainforest. Apparent restriction to old growth forests of coast redwood, *Sequoia sempervirens* (Cupressaceae), or Douglas-fir, *Pseudotsuga menziesii* (Pinaceae) (Weber & Kavanaugh 1992). Often, though not exclusively, associated with perennially moist conditions and streams. The fourth specimen of this species was collected at the Northern California Coast Range Preserve when it was in the possession of the Nature Conservancy, after the forests around the type locality in Orick, CA were logged. Morphological differences between the specimens from the population found at Angelo and the population found 125 km away in Orick were noted, but only 29 specimens are known, too few to make definitive assumptions (Weber and Kavanaugh). Nocturnal, uncommon, found in and around fallen logs.

Identification: The most pronounced feature of *Scaphinotus longiceps*, for which it is named, is its elongated head and tempora. Its eyes are unusually small and flattened relative to other members of the *Scaphinotus* (LaBonte). It has no carina on its head (Gidaspow 1973). The specimens in Angelo's collection are also larger than other congeners. To distinguish *S. longiceps* from the other species in California in the subgenus *Neocyclus*, *Scaphinotus behrensi*, note the smooth and relatively narrow pronotum, and glossy elytra with regular striae and small punctures.



*Scaphinotus ventricosus* (Dejean) 1831 (photographed)

#### Potbellied Snail-eating Beetle

Ecology: Found up to 515m in altitude in California and Oregon, in deciduous forests along the coast and in the Sierra Nevadas, in open grassy knolls, and the edges of reservoirs. Nocturnal, and strongly associated with fallen trees, logs, and bark.

Identification: Large, with more than twenty irregular elytral striae. Pronotum wider than it is long, with evenly curved sides. In differentiating from the similar *S. interruptus* and *S. striatopunctatus*, note the size (*S. ventricosus* is usually larger, at 15-20 mm). In addition, compare the striae on the elytra; Gidaspow characterizes the striae of *S. interruptus* as wavier. The form of the elytra in *S. ventricosus* is noted by Kipling Will to be more rounded than *S. striatopunctatus*. However, the species is variable and may be more reliably distinguished from *S. striatopunctatus* under a microscope by the presence of a seta orbitalis and sexual characteristics.



*Scaphinotus striatopunctatus* (Chaudoir) 1844

Pore-winged Snail-eating Beetle

Ecology: Found up to 1524m in altitude, in deciduous forests, grassy knolls, and canyon environments, often on sandy substrate. Nocturnal, strongly associated with fallen trees and rotten logs.

Identification: Relatively large, averaging 19.7 mm, but with considerable variation in size. May be mistaken for *S. ventricosus*, but is more common, often smaller, and reliably lacks the seta orbitalis. Its elytra, in contrast to *S. ventricosus*, is elongate-ovoid rather than rounded. Pronotum wider than long. Elytral punctation is small, with rows of punctations between the elytral intervals.

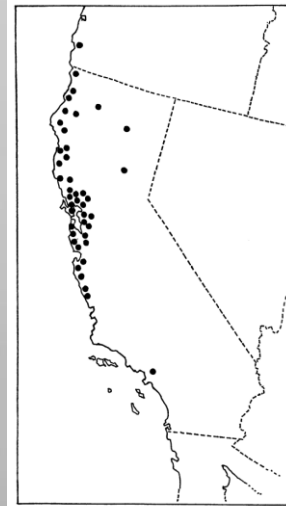


FIG. 2. Distribution of *Scaphinotus* (*Brennus*) *cristatus* (Harris).

*Scaphinotus cristatus* (T.W. Harris) 1839

Ridged Snail-eating Beetle

Ecology: Found up to 1150 m altitude. Found in Douglas-fir and mixed conifer forests.

Microhabitat includes shaded, moist areas. Nocturnal. Found throughout the year.

Identification: The head of *S. cristatus* is notably convoluted, with a strong furrow behind the eyes. They have an elevated crest at the front of the head that distinguishes them from all other co-occurring *Scaphinotus*. This feature, visible in the above image, is discernible with the naked eye. Their pronotum is more convex than others in the subgenus *Brennus*. Its genae are noted to project forward beneath the eyes.

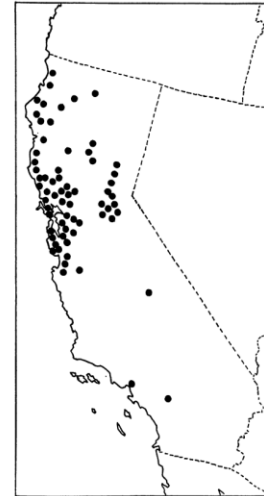


FIG. 6. Distribution of *Scaphinotus* (*Brennus*) *interruptus* (Ménétriés).

*Scaphinotus interruptus* (Ménétriés)1843

Ménétriés's Snail-eating Beetle

Ecology: Found in forests up to 1220 m in elevation. Microhabitat: Relatively generalist, on sandy ground, near streams and rivers, grassy areas, deciduous and coniferous forests, even in human landscapes and agricultural fields. Nocturnal. Found under rocks, earth, branches, under loose bark and in fallen trees, and prey on snails, slugs, and woodlice. (Erwin 2007).

Identification: In contrast with other congeners, *S. interruptus* has crossovers, or distinct interruptions, in the middle of the striae (Kipling Will, personal correspondence.) Sides of pronotum are parallel near the base. Elytra not metallic. In differentiating from the similar *S. ventricosus*, note the size (*S. interruptus* is usually smaller, at around 14 mm). In addition, compare the striae on the elytra; Gidaspow characterizes the striae of *S. interruptus* as wavier.

## IDENTIFICATION

Below, we have included a table of useful features for distinguishing between the listed species of *Scaphinotus*. Highlighted boxes feature the most reliable method for distinguishing each species, and reading from the top of the table down should narrow the identification. See the glossary at the end for definitions.

|                            | Head                                                   | Elytral striae features                                               | Seta orbitalis | Elytra shape (may be variable)                   |
|----------------------------|--------------------------------------------------------|-----------------------------------------------------------------------|----------------|--------------------------------------------------|
| <i>S. longiceps</i>        | Distinctly elongated behind the eyes, glossy.          | Regular striae, small, fine punctations.                              | Present        | Elongate, straight-sided. Glossy metallic shine. |
| <i>S. cristatus</i>        | Distinctly ridged, with crest                          | Small, straight punctations                                           | Present        | Ovoid                                            |
| <i>S. interruptus</i>      | Smooth, narrow.                                        | Interruptions in the striae create bumpy appearance, striae irregular | Present        | Ovoid                                            |
| <i>S. striatopunctatus</i> | Smooth, narrow, relatively large eyes                  | Small, straight punctations, with rows between elytral intervals      | Absent         | Elongate, ovoid                                  |
| <i>S. ventricosus</i>      | Smooth, may be broader than <i>S. striatopunctatus</i> | Small punctations, less regular towards sides                         | Present        | Rounded, broad towards pronotum.                 |



*Scaphinotus longiceps*



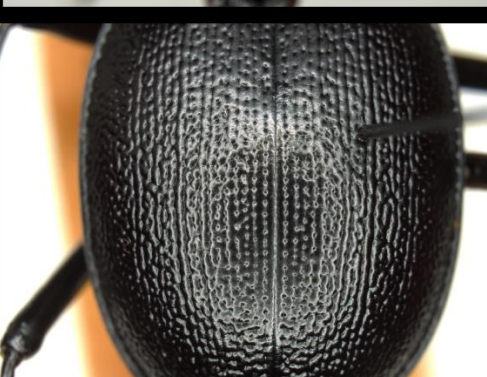
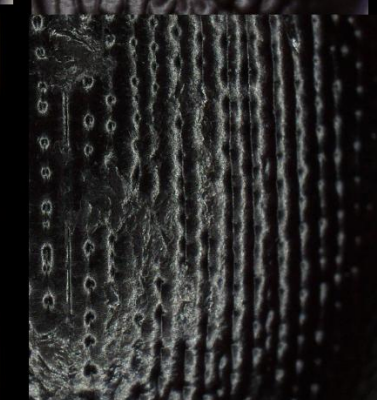
*Scaphinotus cristatus*



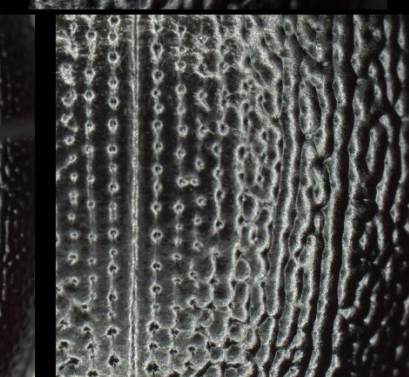
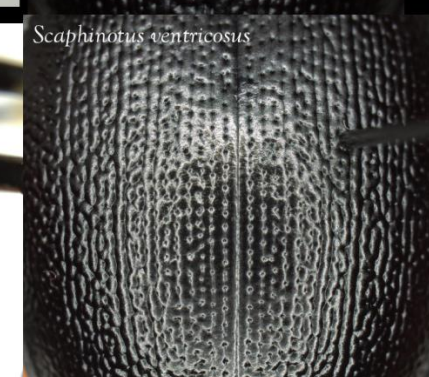
*Scaphinotus interruptus*



*Scaphinotus striatopunctatus*



*Scaphinotus ventricosus*



*Scaphinotus longiceps*



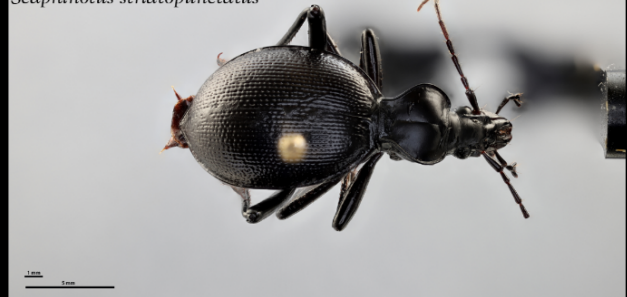
*Scaphinotus cristatus*



*Scaphinotus interruptus*



*Scaphinotus striatopunctatus*



*Scaphinotus ventricosus*



## GLOSSARY

Elytra: Hardened pair of wings that cover a beetle's hindwings and abdomen.

Genae: (singular: gena) The 'cheek', area of the head below the eyes.

Ovoid: Egg-shaped, narrowing toward the top.

Punctuation: Pit or indentation in an insect's exoskeleton.

Pronotum: Dorsal surface of the thorax.

Seta orbitalis: 'Seta'- a hairlike structure. Plural 'setae'. The seta orbitalis is a specific hair directly above the eye (indicated by orange arrow below)



Striae: (singular: stria) Parallel grooves or indentations running along the elytra

Tempora: (singular: tempus) Area of the head posterior to the eyes.

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