

A NEW SPECIES OF *HALECIA* FROM COCOS ISLAND,  
COSTA RICA, WITH A REVIEW OF THE NEOTROPICAL  
GENERA OF THE TRIBE CHALCOPHORINI  
(COLEOPTERA: BUPRESTIDAE)

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ABSTRACT

*Halecia cocosae* sp. n. from Cocos Island, Costa Rica, is described, illustrated and discussed in context with others from Central and northern South America. A short discussion, diagnosis and key to the related genera in the tribe Chalcophorini is included.

*Halecia cocosae* sp. n. was the first buprestid to be recorded from Cocos Island, Costa Rica (Hogue and Miller 1981, as *Halecia* sp. n.). Its apparent relationship with a mainland species would seem to be in line with the view of Hertlein (1963) [following work by Schmidt (1930), Stewart (1912), and Vinton (1951)], who stated that "the biota of Cocos Island was derived chiefly from the mainland and arrived by chance agencies of wind, ocean currents, birds and pelagic mammals." The presence of *H. cocosae* would support Erwin's (1979) argument in favor of "dispersal to the islands by air or wood drift" and is another case against the specific vicariance model of Rosen (1975), who proposed an eastern Pacific—Caribbean track. *Halecia cocosae* is not close to its Antillean "relatives" and the fact that it is recorded from a species of *Cecropia*, a genus of pioneer species (Janzen 1983), would support the rafting hypothesis used to explain the presence of cerambycids and buprestids on various eastern Pacific islands (Kuschel 1963; Linsley and Chemsak 1966). Heatwole and Levins (1972) seemingly proved the rafting argument by demonstrating that some buprestid larvae are able to survive for long periods with their hosts afloat in a marine environment.

*Halecia cocosae* Bellamy, sp. nov.

Figs. 1-3

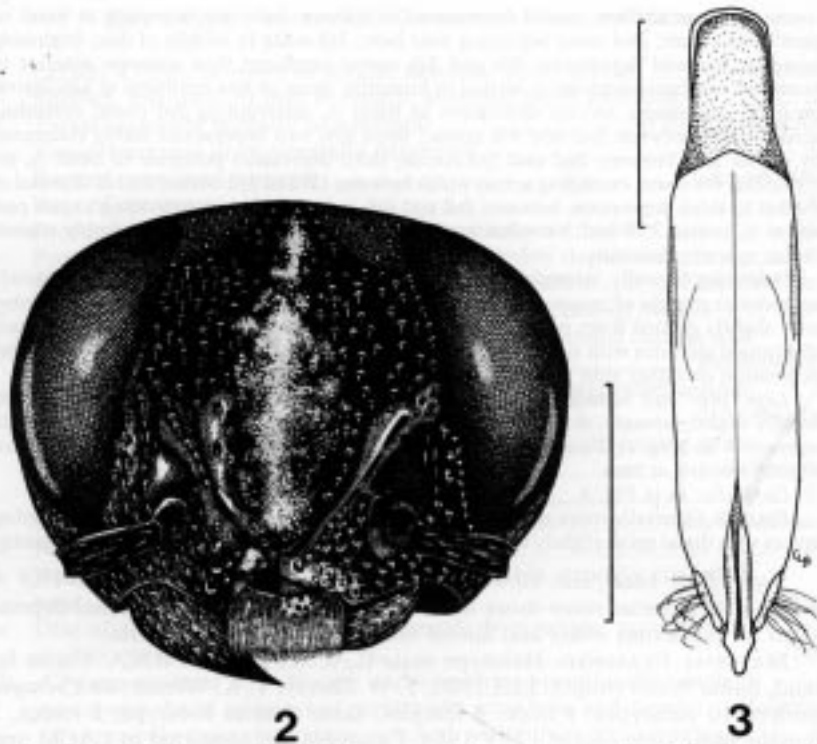
**HOLOTYPE MALE.** Size moderate, 12.7 × 4.4 mm; elongate, oval, moderately convex; dorsally dark olive in color with golden cupreous reflection; ventrally bright green with cupreous reflections, legs green with slight cupreous reflection, tarsi bluish green; irregularly covered with yellow pulverulence, especially in frontal depression, basal and lateral depressions of the pronotum, shallow depressions of elytral disc, intercostal area connecting first two depressions and sutural depression in apical ¼, and in lateral depressions on abdominal sternites.

**Head** (Fig. 2): slightly produced between eyes; strongly, longitudinally grooved on vertex, groove widening on frons to dorsally wider, bilobate depression; eyes large, convex, closer together on vertex; frons with two oblique, narrow grooves extending

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Fig. 1. Holotype male, *Halecia cocosae* Bellamy, new species, dorsal habitus. Line equals 1 mm.



Figs. 2, 3. Holotype male, *Halecia cocosae* Bellamy, new species. 2, head, frontal view. 3, genitalia, dorsal view. Lines equal 1 mm.

from below middle of eyes to inside and even with antennal foveae; antennal foveae separated by  $2\times$  width; epistoma angularly emarginate, medially with truncate and slightly anteriorly projecting lobe; genae with very shallow, broad depressions lateroventrad to antennal foveae; labrum coriaceous, distally emarginate and densely clothed with recumbent setae; mandibles robust, green on basal  $\frac{1}{2}$ , black distally; antenna with segment 1 geniculate, widening distally, 2 short, oblong, 3 almost  $2\times$  as long as 2, subserrate distally, 4-10 with lateral serrate lobe rounded, width subequal to length, 11 oblong; 4-11 bicolorous, sparsely clothed with semi-erect setae; surface of head irregularly covered with large, shallow punctures and short, white recurved setae, except on epistomal lobe and small frontal area directly dorsad to antennal foveae.

*Pronotum*:  $1.5\times$  as wide as long, widest at middle; longitudinally grooved in middle, from apical  $\frac{1}{2}$  to base; disc with three longitudinal green bands, one in middle from base to apex, one on either side, halfway between median groove and lateral margin, slightly oblique, wider apart at base; surface sparsely, shallowly punctate; apical margin slightly arcuate anteriorly, with wide, rounded carina across entire width; basal margin bisinuate; lateral margin arcuate, carinate almost to apex; basolateral angles slightly acute; disc laterally, steeply declivous to narrow premarginal longitudinal depression; base with one broad depression on each side, at lateral  $\frac{1}{2}$ , and one small, obovate fovea near base anterior to scutellum; scutellum trapezoidal, widest distally, green, slightly rugose.

*Elytra*: wider than pronotum, widest past middle; sides bisinuate in basal  $\frac{1}{2}$ , attenuate to apices; lateral margin a rounded carina in basal  $\frac{1}{2}$ , thereafter explanate and strongly serrate to separately angulate apices; humeri oblique, convex; each elytron with five

costae and four shallow, round depressions as follows: 1st costa beginning at basal  $\frac{1}{4}$ , parallel to suture; 2nd costa beginning near base; 3rd costa in middle of disc, beginning posterior to basal depression; 4th and 5th costae confluent then separate anterior to humerus; one basal depression medial to humerus, more or less confluent to basolateral pronotal depression; second depression at basal  $\frac{1}{3}$ , interrupting 3rd costa, extending across width between 2nd and 4th costae; these first two depressions feebly connected by rugose area between 2nd and 3rd costae; third depression posterior to basal  $\frac{1}{2}$ , interrupting 4th costa, extending across width between 1st and 3rd costae; fourth depression medial to third depression, between 3rd and 4th costae; 2nd costa extending to just past apical  $\frac{1}{3}$ , costae 3, 4 and 5 confluent at about apical  $\frac{1}{5}$ ; intercostal area feebly rugose; costae sparsely punctate.

*Undersides*: laterally, strongly punctate and clothed with recumbent setae, disc sparsely so; anterior margin of prosternum slightly concave; prosternal process with lateral lobes only slightly dilated from parallel sides; metacoxal plate with posterior margin dilated; abdominal sternites with sutures arcuate; sternites 2-4 each with one laterobasal, rugose depression on either side; apex of sternite 5 concavely emarginate.

*Legs*: pro- and mesofemora fusiform; metafemur with sides subparallel; protibia basally slightly arcuate, distally dilated; tibiae with two short spines distally; tarsi with segment 1 as long as 2 and 3 together; 1-4 each with pulvillus; segment 5 with claw slightly swollen at base.

*Genitalia*: as in Fig. 3.

**FEMALE.** Generally more robust; lateral margin of elytra slightly more arcuate; elytral apices with distal spine slightly longer; apical margin of sternite 5 triangularly emarginate.

**VARIATION.** Male, size 10.9-12.4 × 3.6-4.2 mm; female, size 13.5-17.9 × 4.6-6.4 mm; dorsal color more uniform greenish; lateral longitudinal depressions on pronotum wider and lateral margin slightly more arcuate.

**MATERIAL EXAMINED.** Holotype male (LACM): COSTA RICA: Cocos Island, Bahía Wafer (ridge), 5.III.1980, T. W. Sherry, T. K. Werner, on *Cecropia pittieri*; 10 paratypes: 1 male, 6 females, same data as holotype; 2 males, 1 female, same data except 17.IV.1984. Paratypes are deposited in LACM and the collection of the author (CLBC).

**ETYMOLOGY.** The specific epithet is the genitive form of the name of the general type locality.

**REMARKS.** *Halecia cocosae* seems closest to *H. auropunctata* Kerremans and keys to this species in the last published key to the genus (Kerremans 1908). These two species differ with *H. auropunctata* being larger (22 × 7 mm), having the color a more somber green, punctuation on the head and underside being slightly denser and more regular, the pronotum being more constricted anteriorly, the elytra having six depressions on each side, with a different configuration of the elytral depressions and costae and the undersides being more heavily setose.

*Halecia* Laporte & Gory (1837) is one of the historically older genera of the Buprestidae. Subsequent to the definition of *Halecia*, the description of a large number of species has led to the current four genera complex comprised of *Halecia*, *Pseudalecia* Théry, *Euplectalecia* Obenberger and *Eupodalecia* Obenberger. These genera form part of the large tribe Chalcophorini. The other strictly Neotropical genera that belong to this tribe are *Saundersina* Cobos (= *Pasiphae* Théry), *Hypopraxis* Fairmaire & Germain, *Baudonisia* Cobos, *Pelecopselaphus* Solier, *Chrysesthes* Solier, *Euchroma* Solier and *Hilarotes* Thomson. The only other New World members of the tribe, *Hippomelas* Laporte & Gory, *Nanularia* Casey, *Texania* Casey and *Chalcophora* Solier, are essentially Nearctic, with *Chalcophora* and *Hippomelas* each having only one or two species distributed in the Neotropical region. The strictly Neotropical genera of the Chalcophorini can be separated as follows.

## KEY TO THE NEOTROPICAL GENERA OF CHALCOPHORINI

1. Larger, 45 mm or more in length; antennal pores setose ..... *Euchroma*
- Smaller, less than 30 mm in length; antennal pores glabrous ..... 2
2. Tarsal segments laterally compressed ..... *Pelecopselaphus*
- Tarsal segments dorsoventrally depressed ..... 3
3. Base of pronotum truncate ..... *Chrysestes*
- Base of pronotum sinuate ..... 4
4. Prosternum longitudinally grooved or carinate on middle ..... 5
- Prosternum not grooved, carinate or even feebly depressed ..... 7
5. Anterior margin of prosternum projecting at middle ..... *Saundersina*
- Anterior margin of prosternum more or less notched in middle ..... 6
6. Elytra with a number of parallel, longitudinally rounded carinae and three irregular shallow depressions on each side ..... *Baudonisia*
- Each elytron with three slightly elevated, widely separated carinae and without shallow depressions ..... *Hypoprasis*
7. Posterior border of metacoxal plate with a strongly projecting spine near middle ..... *Hilarotes*
- Posterior border of metacoxal plate entire ..... 8
8. Posterolateral margin of elytra entire, not serrate ..... *Euplectalecia*
- Posterolateral margin of elytra serrate ..... 9
9. Disc of elytra strongly striatopunctate; protibia strongly curved at base ..... *Pseudalecia*
- Disc of elytra more or less finely, irregularly punctate; protibia only slightly curved ..... 10
10. Clypeus more or less strongly and sometimes profoundly notched or sinuate; basal segment of metatarsus very long and slender ..... *Halecia*
- Clypeus only feebly sinuate or notched, sometimes almost straight; basal segment of metatarsus very short and robust ..... *Eupodalecia*

*Halecia* and the three related genera are formed by a large complex of species within the Neotropical chalcophorine fauna. It is possible that the ancestral origin was somewhere in South America prior to the early Mesozoic separation of South America from Africa. This possibility is supported by the presence of a relatively few tribal relatives extant in the southern Ethiopian fauna, such as *Chalcoplia* Thomson and *Descarpentriensiola* Cobos, in comparison to the large number of Neotropical species that belong to the genera of the *Halecia* complex. Radiation to the north, into the Central American and Antillean areas, possibly occurred in line with the evolution of these areas as discussed by Malfait and Dinkelman (1972) and Rosen (1975).

Only *Halecia* and *Euplectalecia* currently have described species recorded from Central America. There are six species of *Euplectalecia* listed by Blackwelder (1944) and Obenberger (1958) from Central America: *E. belti* (Saunders) from Nicaragua, *E. guttata* (Waterhouse) from Nicaragua and Honduras, *E. semenovi* Obenberger (= *superba* Hoscheck) and *E. sordideornata* Obenberger from Costa Rica, and *E. pulverulenta* (Waterhouse) and *E. suffusa* (Waterhouse) from Panama.

There are eight species of *Halecia* recorded in the same works from Central America: *H. mexicana* Kerremans and *H. nigriventris* Théry from Mexico, *H. angustivertex* Obenberger and *H. debyi* Waterhouse from Guatemala, *H. chryso-demoides* Saunders and *H. cupreosignata* Waterhouse from Nicaragua, *H.*

*ignicollis* Théry from Costa Rica and *H. laticollis* Waterhouse from Panama. In addition to these species, Théry (1930) extended the range of *H. auropunctata* Kerremans, described from Colombia, by recording it additionally from Nicaragua and Peru.

In addition, Fisher (1925) considered the four West Indian species of *Halecia*, with a subsequent study by Obenberger (1958) redefining this fauna to include one species of *Halecia* and two *Euplectalecia* spp.

#### ACKNOWLEDGMENTS

I thank Roy Snelling, Entomology, Natural History Museum of Los Angeles County (LACM) for the loan of the type series and for providing some helpful literature; G. H. Nelson, College of Osteopathic Medicine of the Pacific, Pomona, California, for a critical review of the manuscript and suggestions for its improvement; E. R. Peacock, British Museum (Natural History), London, for the loan of comparative material of *Halecia auropunctata*; and S. Schwartz, National Collection of Insects, Pretoria, R.S.A., for her excellent illustrations of this new species.

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(Received 7 February 1986; accepted 2 May 1986)

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