

Two new species of Cleridae (Coleoptera) from a Costa Rican cloudforest

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Abstract: Two species of Clerini (Cleridae: Clerinae), *Colyphus hansonii* and *Enoclerus (E.) puravida*, are described from malaise trap samples collected in a patch of cloudforest at Zurquí de Moravia, San Jose Province, Costa Rica. *Colyphus hansonii* is compared to its congeners and to the sympatric *Enoclerus (Coniferoclerus) subviolaceus* (Gorham). The new species is distinguishable from its congeners on the basis of color, setal pattern and elytral sculpturing. A sympatric, undescribed *Colyphus* species resembles *C. hansonii* in details of shape and sculpturing, and may prove to be its sister species. *Colyphus hansonii* has the elytra tricolorous (red, ivory and black) and thus is easily separated from the undescribed species which has the elytra strictly bicolorous (stramineous and black). The generic status of the latter is discussed in relation to *Colyphus*. The presence of sexually dimorphic tarsal claws in *Colyphus* is noted for the first time. *Enoclerus (E.) puravida* is characterized as part of a complex of several similar and possibly related species distributed in Panama and Costa Rica. It is similar to several other Mexican and Central American *Enoclerus* species that share small size, ant-like form, shining black or reddish elytral integument and distinctive sculpturing of the elytral base. This group, consisting of *E. (E.) tubercularis* (Gorham 1882), *E. (E.) gibbus* Ekis 1976, *E. (E.) albosignatus* Ekis 1976, *E. (E.) puravida* and some undescribed species, may eventually prove to form a clade—and thus warrant elevation to subgeneric or generic status. Among described species, *E. (E.) puravida* is most similar to the Panamanian *E. (E.) albosignatus*, from which it differs by having the base of each elytron coarsely alveolate-punctate and only incidentally and feebly costate, rather than smooth and "embossed" with three shallow carinae. The two species also differ in details of coloration and pronotal sculpturing. *E. (E.) puravida* may be mimicking ants.

Key words: Cleridae, *Colyphus*, *Enoclerus*, new species, Costa Rica, Zurquí, cloudforest.

The clerid fauna of Costa Rica was last surveyed by Wolcott (1927), who recorded approximately 50 species from within its borders. In a regional checklist, Barr (1975) lists a total of 53 Costa Rican species, but subsequently several more have been described from there, mostly in the genera *Enoclerus* Gahan (Ekis 1976), *Perilypus* Spinola (Ekis 1977a), and *Colyphus* Spinola (Ekis 1977b). Nevertheless, our knowledge of Costa Rica's clerids is still fragmentary, since many undescribed species reside in collections and new taxa are being turned up regularly. The discovery of new species is in great part the result of recent collecting in previously

neglected areas (ironically, often less remote from population centers than more intensively studied locations) as well as systematic use of malaise trapping. These investigations are altering our concept of clerid diversity, rarity and distribution in Costa Rica.

As part of an ongoing study of Costa Rican clerids, the present paper describes two new species from a cloudforest site at Zurquí de Moravia, located NNE of San José near the southern border of the Parque Nacional Braulio Carrillo.

MATERIAL AND METHODS

This paper is based on study of specimens contained in the following institutional and private collections (abbreviations in parentheses): California Academy of Sciences, San Francisco, California, USA (CASC); Natural History Museum of Los Angeles County, Los Angeles, California, USA (LACM); Museo de Insectos, Universidad de Costa Rica, San José, Costa Rica (UCRC); Instituto Nacional de Biodiversidad, Santo Domingo, Costa Rica (INBio); William F. Barr, Moscow, Idaho, USA (WFBC); and Jacques Rifkind, North Hollywood, California, USA (JNRC). Almost all specimens of the two new taxa described below were collected as part of the malaise trapping project conducted by Paul Hanson (Universidad de Costa Rica) and his associates.

Taxonomy

Colyphus hansonii Rifkind, new species

(Figs. 1-3)

HOLOTYPE MALE. Form medium sized, elongate.

Color: integument black except antennomeres 1-2, labrum, trochanters, bases of femora, tibiae and abdominal sternite 6 mahogany; basal 1/2 of elytra reddish; each elytron at middle with a narrow, sinuate, ivory colored fascia that attains the epipleural margin laterally but is interrupted well before the elytral suture medially (Fig. 1).

Head: surface shining, finely, densely punctate; setation sparse, composed of mostly short, rather robust white setae, concentrated on the front, with a thin intermingling of longer, finer black setae; occiput nearly bare; front distinctly bi-impressed; eyes moderately convex, emargination shorter than length of antennal scape; antenna not reaching to base of pronotum; antennomeres 3-4 subcylindrical, subequal in length, 5-7 subconical, subequal in length, 8 conical, slightly more expanded apically than preceding, 9-11 forming a rather loose, gradually expanded club, 11 somewhat flattened at apical 2/5, its apex subacute; surface of scape and funicular antennomeres shining, sparsely punctate, club microgranularly sculptured, all antennomeres sparsely vested with rather coarse, erect, pale

setae, club bearing in addition a dense covering of microsetae. Gular process rectangular.

Pronotum: convex, about as wide as head measured across eyes, narrower than base of elytra (7:9); surface shining, anterior 1/4 coarsely, shallowly and densely punctate (especially at sides); basal 3/4 sparsely, indistinctly punctured and feebly, transversely rugulose above, more distinctly rugulose at sides; vestiture consisting of a rather sparse covering of long, erect black setae with a thin admixture of long, erect white setae laterally, basally on the disk, and on the collar; anterior transverse impression deeply incised across disk, broadly U-shaped at middle; lateral foveae shallow but clearly discernible; apical margin transverse, sides strongly constricted at anterior transverse impression, convexly expanded to maximum width just before middle, then arcuately narrowed to moderately prolonged, subparallel sides of basal collar; posterior pronotal slope acute. Scutellum rounded apically. surface roughened and set with pale setae.

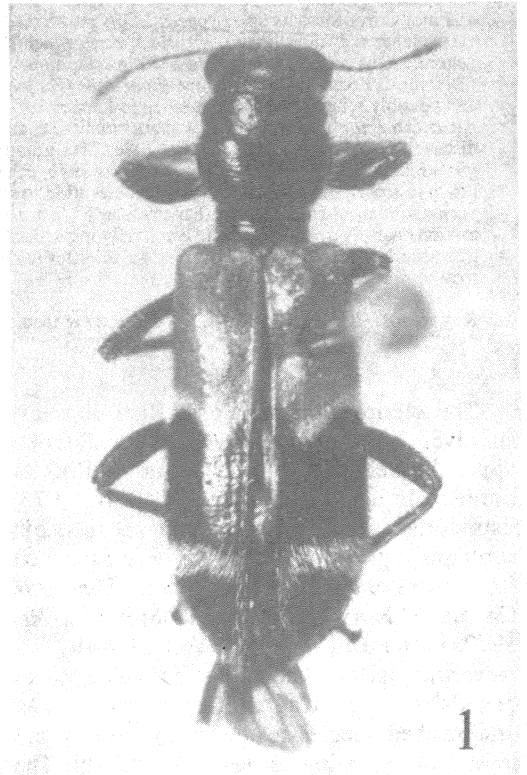
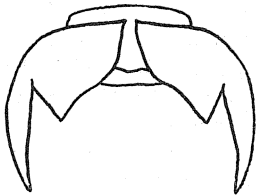


Fig. 1. *Colyphus hansonii*. Habitus.



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Figs. 2-3. *Colyphus hansonii*: 2, Male protarsal claw. 3, Female protarsal claw.

Elytra: more than 2x as long as wide (7: 3), widest at apical 1/3; surface shining, at base strongly dimpled and rather densely but shallowly punctate. punctures smaller, indistinct and almost confluent (and dimpling

shallow) on apical 4/5; vestiture as follows: basal area before mid-elytral fascia thinly covered with a mixture of short and long, pale and black, erect setae; pale mid-elytral fascia densely vested with short, reclinate, whitish setae; apical 1/2 moderately densely and uniformly arranged with short, suberect and occasional long erect black setae, interrupted by a more or less transverse subapical band of short, reclinate, silvery setae that extends from lateral margins to suture where it migrates apically as a thin line along the sutural bead and then expands into a small patch at the apical angles; disk convex. subbasal tumescences pronounced, tuberculate, with crests smooth and slightly longitudinally expanded. umbones prominent, slightly roughened. sides feebly sinuate just behind humeri, then slightly convergent to about basal 1/3, where they weakly, gradually diverge to about apical 1/3 and then arcuately converge to feebly dehiscent, subacute apices.

Legs: profemora considerably more expanded at middle than meso- and metafemora, surface of femora shining, indistinctly punctate and feebly roughened; surface of tibiae more densely punctate and irregular, tibiae with well developed carinae; setation sparse, composed of short suberect and longer erect, pale yellow setae, erect setae more prominent on tibiae. tarsal pulvilli well developed; tarsal claws as follows: first pair with each claw bearing a rather long, recurved, chisel shaped tooth (Fig. 2); second pair with teeth similar but somewhat reduced; third pair with teeth stout and triangular.

Mesosternum: surface densely granulate-punctate except for a shining glabrous area on either side of middle, moderately densely covered with long, reclinate silvery setae; anterior median process rather small, triangular. base of process somewhat swollen; posterior median process narrow, elongate, moderately elevated apically.

Metasternum: surface densely, minutely punctate and roughened, and moderately densely vested with reclinate silvery setae at middle anteriorly and at sides, reflective and almost glabrous posteriorly; anterior median process not elevated.

Abdomen: visible sternites 1-5 sparsely, irregularly set with large shallow punctures and

scattered fine, short and long, silvery setae; sternite 6 smooth; sternite 5 with sides slightly convergent posteriorly and hind margin very feebly, broadly arcuately emarginate; hind margin of sternite 6 deeply, triangularly emarginate, hind angles rounded. tergite 6 with apex rounded, projecting well past hind margin of sternite 6.

Genitalia: subapical region of the tegmen feebly sagittate.

Length 7.20 mm.

TYPE SERIES. Holotype ♂ (LACM), COSTA RICA, San José Province, Zurquí de Moravia, 10°03' N, 84°01' W, 1600 m, Cloudforest, VII-1992, Malaise trap (at forest edge), P. Hanson, coll. Paratypes: 24 specimens, same data as holotype except: 1 ♂, 3 ♀♀, V-1992. 2 ♀♀, V-1994; 1 ♂, VII-1990; 1 ♀, I-VI-1993; 1 ♂, III-IV-1993; 1 ♂, VI-VII-1993; 1 ♂, 2 ♀♀, IV-1995; 5 ♂♂, 2 ♀♀, V-1995; 2 ♂♂, 2 ♀♀, VI-1995; COSTA RICA. 1 ♂, San José Province, 1 km SW Casamata (village 9 km NW of Empalme, on Pan-American Hwy.), ca. 2000 m, beating arborescent epiphyte (Ericaceae), May 21, 1995, J. Rifkind coll. Paratypes are deposited in LACM, UCRC, JNRC and WFBC.

VARIATION. Females differ from males in having all tarsal claws with stout, triangular teeth (Fig. 3), and by the shape of the terminal abdominal sclerites: sternite 5 with sides oblique, apex transverse and narrower than in males; sternite 6 short, and rounded at apex where it conforms with rounded apex of tergite 6. Individuals in the type series are relatively uniform in color and markings, with the exception that in some specimens the transverse subapical elytral band of pale setae is underlain by a narrow, ivory colored integumental fascia. In some specimens the surface of the base of the elytra bears several shallow pustules in addition to punctation and irregular dimpling. Length of males ranges from 7.10 mm — 8.40 mm. length of females ranges from 7.00 mm — 9.25 mm.

DIAGNOSIS. *Colyphus hansonii* is distinguishable from its congeners on the basis of color, setal pattern and elytral sculpturing. A sympatric, undescribed *Colyphus* species resembles *C. hansonii* in details of shape and sculpturing, and may prove to be its sister

species. *Colyphus hansonii* has the elytra tricolorous (red, ivory and black) and thus is easily separated from the undescribed species which has the elytra strictly bicolorous (stramineous and black).

RELATIONSHIPS. Although Ekis (1977b) attempted to delineate species groups within *Colyphus*, I have been less than consistently successful at using his key to reach confident assignment of questionable specimens to either species group or species. For this reason, and because the subbasal elytral tubercles of *C. hansonii* should warrant its placement in a separate infrageneric group, I have decided not to present a modified version of Ekis' key in this paper to include the new taxon. In any case, a fully usable key is impossible at this time because it would have to include several other known Mexican and Central American *Colyphus* species that have yet to be described.

Colyphus hansonii and its undescribed congener from Zurquí share a similar facies, and prominent subbasal tumescences with the enigmatic species *Enoclerus (Coniferoclerus) subviolaceus* (Gorham 1882). This beetle was originally described as a *Thanasimus* by Gorham (1882: 148), who expressed doubts about the accuracy of that assignment. later Barr (1976: 19) placed it tentatively in *Enoclerus*, subgenus *Coniferoclerus*. Heretofore extremely rare in collections, this species has recently been collected in moderate series in malaise traps, thus permitting dissection and a more confident assessment of its status. It shares similarities with *Colyphus* (antennal composition, pronotal and elytral shape and sculpturing, sexually dimorphic tarsal claws), but differs from the concept of the genus given by Ekis (1977b) by having the gular process narrow and elongate, rather than quadrate or transverse, and in lacking the sagittate condition of the apical region of the tegmen. Based on this combination of characters, which do not fit with any of the described clerine genera as currently conceived, this species should probably be assigned its own genus. Differences in the shape of the gular process and the male genitalia are often not easily observable in pinned specimens, but *E. (C.) subviolaceus* has the integumental ground color uniformly atropurpureus (except for ivory midelytral and

subapical fasciae) and the whole elytral surface strongly pustulate, and hence is not likely to be confused with *C. hansonii*.

The presence of sexually dimorphic tarsal claws has not been previously reported for *Colyphus*, although it is known for some species in other New World clerine genera (e.g. *Aulicus* Spinola 1841 and *Perilypus* Spinola 1841). A cursory examination indicates that this condition is present in some other *Colyphus* species as well (e.g. *C. strongylioides* Ekiş 1977). Sexual dimorphism in tarsal claws may prove to be a good character for subsequent analysis of intrageneric relationships within *Colyphus*.

DISTRIBUTION. All specimens but one were collected in a malaise trap located on the edge of a patch of primary cloudforest at Zurquí de Moravia in the Cordillera Central. The remaining specimen was taken near Empalme, SE of San José, in the northwestern part of the Cordillera de Talamanca.

ETYMOLOGY. It is with great pleasure that I dedicate this species to its discoverer, Paul Hanson, whose intelligent, practical and magnanimous efforts have done so much to advance our knowledge of Costa Rican insect diversity.

Enoclerus (E.) puravida Rifkind, new species
(Fig. 4)

HOLOTYPE MALE. Form small, elongate.

Color: Integument black except antennomeres 1-2, terminal maxillary and labial palpomeres, pronotal collar laterobasally, and coxae and trochanters flavo-testaceous; legs and tarsomeres 4-5 reddish orange; elytra (Fig. 4) at middle with a smooth, raised eburneous transverse fascia on each side; fascia somewhat expanded posteriorly at lateral margin, interrupted well before elytral suture on disk.

Head: measured across eyes about as wide as maximum width of pronotum. surface very densely, coarsely and rather deeply punctate, front rugose; vestiture moderately dense but inconspicuous, consisting of short, reclinate, posteriorly directed pale setae, commixed with fewer long, erect, pale and dark setae; front deeply bi-impressed. impressions oblique, forming between them a triangular frontal umbo with its apex oriented toward the vertex;

eyes medium sized, emargination only about 2/3 as long as antennal scape; antennae long, attaining humeri when laid alongside pronotum; composition of antennomeres as follows: scape elongate, expanded distally, 2 subglobular, less than 1/2 as long as scape, 3-5 elongate, subconical, subequal in length, 6-8 elongate conical, subequal in length, 9-11 forming a loose club with 9 serrate, 10 more transverse and broader apically but slightly shorter than 9, 11 ovoid, one side feebly sinuate, apex subacute. antennomeres sparsely set with rather coarse, suberect pale setae, club bearing, in addition, a denser covering of shorter, fine, reclinate pale setae.

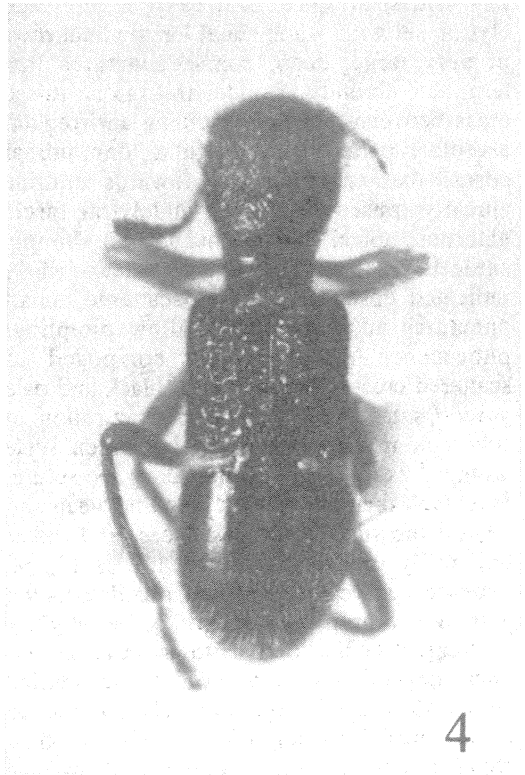


Fig. 4. *Enoclerus (E.) puravida*. Habitus.

Pronotum: campanulate, narrower than elytra at base (9: 10); longer than broad (11: 9); surface coarsely, closely punctate-rugose except sides, posterior pronotal slope and basal collar glabrate and shining; disk moderately densely arrayed (more conspicuously so on apical 1/2) with short, coarse, anteriorly

directed, suberect whitish setae and fewer longer, erect black setae; a small oval area at middle, just anterior to pronotal slope, mostly depilated except for a few posteriorly directed, short, black suberect setae; anterior transverse impression obsolete above, feebly indicated at sides; disk with an indistinct, shallow, rounded boss subapically at middle, otherwise moderately flattened above; apical margin transverse; sides subparallel, slightly constricted at anterior transverse impression, broadest at middle, then obliquely narrowed to broad, parallel sided pronotal collar; posterior pronotal slope precipitous. Scutellum small, triangular, punctate, virtually denuded.

Elytra: more than 2x as long as wide (61:29), widest at apical 1/3; basal 1/2 of each elytron set with 5-6 unequal longitudinal rows of very large, deep, coarse punctures that terminate abruptly at midelytral fascia; raised areas between punctures forming an irregular alveolate pattern and irregular longitudinal costae that angle slightly towards midline apically; raised eburneous midelytral fascia glabrous; apical 1/2 (behind fascia) shining, smooth except for several very faintly indicated costae and a few scattered, small punctures and indistinct shallow dimpling; pubescence rather sparse, composed of scattered erect, long and short, black and pale golden setae, and a denser concentration of suberect, medium length, pale golden setae arranged as follows: in a line along the suture, in a small diamond shaped patch between and behind the subbasal tumescences, and rather uniformly covering apical 1/4; subbasal tumescences weakly produced, rounded above; umbones prominent, smooth; sides slightly convergent behind humeri to about basal 1/4, then subparallel to midelytral fascia, behind which they gradually, arcuately expand to about apical 1/3 (their widest point) and then arcuately converge to conjointly feebly sinuate apices; apices somewhat explanate; lateral margins rather strongly inflexed at middle, then deflexed apically; epipleural margins broad at basal 1/2.

Legs: moderately elongate; profemora more expanded at middle than meso- and metafemora; surface finely punctulate and vaguely transversely rugulose; protibial carinae obsolete at apical 1/5; meso- and metatibiae

with carinae complete; vestiture sparse, consisting of pale and dark, suberect and erect setae, ventral surface of tibiae arrayed somewhat more densely with pale reclinate setae; tarsi rather elongate; tarsal pulvillus 2 narrow, pulvilli 3-4 expanded.

Mesosternum: surface shining, roughened anteriorly and laterally, very sparsely set with pale setae except for a small setal concentration at sides; anterior median process rounded, not excavated above; posterior median process not elevated.

Metasternum: convex; surface shining, sparsely punctate, bearing a few long, pale setae and a moderately dense concentration of short, pale, reclinate setae posterolaterad to mesocoxae; anterior median process not elevated.

Abdomen: visible sternites 1-6 with surface shining and smooth, bearing a few scattered pale setae; sternite 5 with hind margin transverse; sternite 6 with sides arcuate, hind angles rounded and hind margin broadly rounded at middle; tergite 6 with surface densely but obscurely punctate, densely setose at hind margin, sides almost obliquely convergent to rather narrowly rounded hind margin, apex slightly thrust over sternite 6.

Length 4.15 mm.

TYPE SERIES. Holotype ♂ (LACM), COSTA RICA, San José Province, Zurquí de Moravia, 10°03' N, 84°01' W, 1600 m, Cloudforest, X-XII-1994, Malaise trap (at forest edge), P. Hanson, coll. Paratypes: 4 specimens, same data as holotype except: 1 ♂, X-XII-1990; 1 ♀, I-VI-1993; 1 ♀, IV-1994; and 1 ♂, 20-V-1995, Beating tangle of woody plants, J. Rifkind, coll. Paratypes are deposited in UCRC, JNRC and WFBC.

VARIATION. Females differ from males in the shape of sternite 6 which is less broad than in the male, and most conspicuously in the shape of tergite 6 which has the hind margin broadly subtruncate and feebly, arcuately emarginate at middle, rather than narrowly rounded. The few specimens on hand are rather uniform in sculpturing, setation and coloration; three paratypes have the tibiae substantially darker than the femora.

DIAGNOSIS. *Enoclerus (E.) puravida* is similar to several other Mexican and Central

American *Enoclerus* species that share small size, ant-like form, shining black or reddish elytral integument and distinctive sculpturing of the elytral base. This group, consisting of *E. (E.) tubercularis* (Gorham 1882), *E. (E.) gibbus* Ekis 1976, *E. (E.) albosignatus* Ekis 1976, *E. (E.) puravida* and some undescribed species, may eventually prove to form a clade—and thus warrant elevation to subgeneric or generic status. Among described species, *E. (E.) puravida* is most similar to the Panamanian *E. (E.) albosignatus*, from which it differs by having the base of each elytron coarsely alveolate-punctate and only incidentally and feebly costate, rather than smooth and "embossed" (Ekis 1976: 162) with three shallow carinae. The two species also differ in details of coloration and pronotal sculpturing.

Two undescribed montane Costa Rican species are very similar to *E. (E.) puravida*. The first, known from a single specimen collected in Monteverde, is separated from *E. (E.) puravida* by the following characteristics: 1) surface of the head and pronotum shining and much more sparsely, finely, simply (not rugose) and indistinctly punctate; 2) pale elytral fascia situated at basal 2/5 rather than at midelytron as in *E. (E.) puravida*; and 3) legs black instead of reddish. The second species, known from two specimens collected at different localities in the Cordillera de Guanacaste, differs from *E. (E.) puravida* as follows: 1) eburneous midelytral fascia narrowly constricted ("pinched off") before terminus internally on the elytral disk; 2) elytra with an elongate-ovate patch of short, erect pale setae arrayed longitudinally posterior to the midelytral fascia; 3) legs black except bases of meso- and metafemora ivory colored; and 4) meso- and metafemora more expanded distally than in *E. (E.) puravida*. These taxa will be described when more specimens become available.

DISTRIBUTION. Known from the type locality.

BIOLOGY. This species has a very ant-like habitus, and possibly gains protection from predators by its resemblance to chemically protected ants (e.g. small black *Camponotus* ? sp.), many of which are common on vegetation at the type locality.

ETYMOLOGY. The specific epithet, a noun in apposition, refers to a delightful and uniquely Costa Rican idiom that unfortunately defies exact translation.

ACKNOWLEDGMENTS

I thank Paul Hanson (UCR) for allowing me to examine material in his care. I also thank him for help with the Spanish translation of the abstract and both him and his wife Carolina Godoy (INBio) for logistical support, stimulating discussion and companionship during my stays in San José. Jorge Arturo Lizano, the owner and protector of the Zurquí de Moravia forest site graciously allowed access to his property for research purposes. I thank him for his continuing support of visiting entomologists and for his excellent *casado*. I am indebted to H. Lezama (UCRC), and to A. Solís (INBio) for the loan of specimens. I am grateful to Brian V. Brown (LACM), Melvyn S. Rifkind and Patricia A. Gum for reading the typescript and suggesting useful changes. This paper benefited from my discussions with Weston Opitz (formerly Ginter Ekis) on the systematics of *Colyphus*, although conclusions presented are my responsibility alone.

RESUMEN

Se describen dos especies de Clerini (Cleridae: Clerinae), *Colyphus hansonii* y *Enoclerus (E.) puravida*, de bosque nuboso de Costa Rica. Los especímenes se extrajeron con trampas de Malaise en un resto de bosque nuboso de Zurquí de Moravia, San José, Costa Rica. *Colyphus hansonii* tiene parecido con *Enoclerus (Coniferoclerus) subviolaceus* (Gorham). Se anota por vez primera la presencia de garras tarsales sexualmente dimórficas en *Colyphus*. *Enoclerus (E.) puravida*, que podría ser imitador de hormigas (mimetismo) se caracteriza como parte de un complejo de especies morfológicamente semejantes en toda América Central.

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