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NINE NEW SPECIES AND 11 COUNTRY RECORDS OF
CYCLOCEPHALA (COLEOPTERA: SCARABAEIDAE:
DYNASTINAE) FROM PANAMA AND COSTA RICA

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ABSTRACT

Nine new species of *Cyclocephala* are described from Panama and/or Costa Rica. They are *C. dissimulata*, *C. isthmiensis*, *C. nigratarsis*, *C. nike*, *C. pan*, *C. rorschachoides*, *C. santaritae*, *C. williami*, and *C. zodion*. New country records for Panama and/or Costa Rica are given for *C. ampliata* Bates, *C. atripes* Bates, *C. brittoni* Endrödi, *C. castaniella* Bates, *C. confusa* Endrödi, *C. kaszabi* Endrödi, *C. macrophylla* Erichson, *C. nigerrima* Bates, *C. porioni* Dechambre, *C. prolongata* Arrow and *C. quadripunctata* Höhne.

"What's the use of their having names," the gnat said, "if they won't answer to them?" "No use to them," said Alice; "but it's useful to the people that name them, I suppose."

Lewis Carroll
Alice in Wonderland

During the course of my studies on the dynastine scarabs of the Neotropics, I have encountered numerous new species and records of distribution. Most of these are in genera in the tribe Cyclocephalini. This paper describes those species and records I have for Panama and Costa Rica. I have worked extensively there during the past 15 years with the goal of providing a detailed faunistic survey of the Dynastinae of Panama and Costa Rica. This paper represents the first result of that survey. A complete synopsis of all the dynastine fauna is in preparation.

Endrödi (1985) provided the most recent key to the genus *Cyclocephala*. The new species described here are all associated to that key in order that the reader will know where in the couplets each species will fall out. Appropriate notations can then be made for future reference.

Keeping current with new species in such a large genus can often prove frustrating. In my own system, I make notations of new species in the most recent key as mentioned above. Additionally, and perhaps most importantly, I also maintain a notebook arranged by genus with photocopies of diagnostic characters illustrated in every new publication describing new species. In this way, I note in the key that something has since been described, and I can immediately go to the illustrated notebook (and subsequently the paper itself) to confirm the status of the beetle before me. It is an eminently simple, yet workable, system.

In this paper I list several new country records. Although I and a few others have known of these occurrences for several years, they have never been formally placed in any publication with which I am familiar. The purpose of listing these records is to get them into the literature as well as to provide those

people identifying species of *Cyclocephala* with an enhanced level of reliability concerning identifications of taxa that fall outside of the previously published ranges.

Specimens have been either borrowed from or deposited in numerous collections. These collections are referred to by their four-letter acronyms as published in Arnett and Samuelson (1986) or as indicated here if not in Arnett and Samuelson.

AHCC	Alan Hardy, Sacramento, CA
AJRC	Alex Reifschneider, Los Angeles, CA
AMIC	Antonio Martinez, Salta, ARGENTINA
AVEC	Arthur Evans, Los Angeles, CA
BCRC	Brett C. Ratcliffe, Lincoln, NE
BDGC	Bruce Gill, Ottawa, CANADA
BMNH	British Museum of Natural History, London, ENGLAND
CASC	California Academy of Sciences, San Francisco, CA
CNCI	Canadian National Collection of Insects, Ottawa, CANADA
DBTC	Donald B. Thomas, Weslaco, TX
EGRC	Edward G. Riley, College Station, TX
FMNH	Field Museum of Natural History, Chicago, IL
HAHC	Henry and Anne Howden, Ottawa, CANADA
INBI	Instituto Nacional de Biodiversidad, Santo Domingo de Heredia, COSTA RICA
JEWC	James Wappes, Chaddsford, PA
MAMC	Miguel A. Morón, Xalapa, MEXICO
MCZC	Museum of Comparative Zoology, Cambridge, MA
MNHN	Museu National d'Histoire Naturelle, Paris, FRANCE
PKLC	Paul K. Lago, University, MS
RMYC	Ronald Young, Bryan, TX
TAMU	Texas A&M University, College Station, TX
UNSM	University of Nebraska State Museum, Lincoln, NE
USNM	United States National Museum, Washington, D.C.
WDWC	William Warner, Chandler, AZ
ZMHB	Museum für Naturkunde der Humboldt Universität, Berlin, GERMANY

Cyclocephala ampliata Bates

This species was previously known from Nicaragua and Panama (Blackwelder 1944; Endrödi 1985). Not surprisingly, it is here recorded from Costa Rica and constitutes a NEW COUNTRY RECORD.

COSTA RICA: Heredia Prov., La Selva Biological Station, V-1983, H. Young (1 male).

COSTA RICA: Heredia Prov., La Selva, VI-10-1986, R. Young (1 male).

Cyclocephala atripes Bates

Cyclocephala atripes was previously known from Nicaragua, Colombia, and Ecuador. The following represent NEW COUNTRY RECORDS.

COSTA RICA: Heredia Prov., La Selva Biological Station, from inflorescence of *Cyclanthus bipartitus*, IV-18-20 (13, unsexed), IV-21-79 (1 male, 3 females), V-6-1979 (5, unsexed), V-10-11-1979 (14, unsexed), J. H. Beach; same data but IV-1982, ex *Dieffenbachia* sp., H. Young (1 male).

PANAMA: Canal Zone, Skunk Hollow, V-21-1982, B. C. Ratcliffe (1 female).

PANAMA: Colon Prov., Santa Rita Ridge, V-24-1977, B. C. Ratcliffe (1 male); VI-18-21-1977, A. Thurman (1 male); V-7-1977, D. Engleman (1 female).

PANAMA: Bocas del Toro, Miramar, VII-1979, H. Wolda (1 female).

PANAMA: Chiriqui, Fortuna, VI-3-1979 (1 male, 1 female); VI-17-1979 (1 female), H. Wolda.

PANAMA: Panama, Cerro Azul, V-1981 (2 females).

Cyclocephala brittoni Endrödi

Endrödi described this species in 1964 based on specimens from Panama, Trinidad, Guyana, Surinam, and Colombia. The following specimens represent a NEW COUNTRY RECORD.

COSTA RICA: Heredia Prov., La Selva Biological Station, IV-7-1979, ex inflorescence of *Bactris wendlandiana*, S. H. Bullock (1 male); same data but VII-1983 and G. Schatz collector (1 male).

COSTA RICA: Limón Prov., Milas, II-1987, ex *Annona muricata*, coll. Corrales (3, unsexed).

COSTA RICA: Limón Prov., 9°33'N, 82°39'W, V-1985, ex *Rhodospatha* sp., G. Schatz (2 males, 3 females).

Cyclocephala castaniella Bates

Previously known from Costa Rica (Blackwelder 1944; Endrödi 1985), this species is recorded from Panama for the first time, which constitutes a NEW COUNTRY RECORD.

PANAMA: Chiriqui, Cerro Punta, V-1982, B. C. Ratcliffe (8 males, 50 females); same data but VI-2-1986 (10 males, 24 females); same data but V-1961 and C. Yunker collector (35, unsexed); same data but V-21-1977 and H. Howden collector (10 males, 39 females).

PANAMA: Chiriqui, Santa Clara (Hartmann's farm), V-21-1977, B. C. Ratcliffe (2 males, 8 females); same data but V-20-1977, H. Howden (4 males, 1 female).

Cyclocephala confusa Endrödi

Cyclocephala confusa was described from Colombia and Peru (Endrödi 1966). I have taken it abundantly in numerous localities in Panama which is a NEW COUNTRY RECORD. Nearly all the specimens were collected in April, May, or June from the Canal Zone (Madden Forest), Panama Province (Cerro Campana, Cerro Azul), Chiriqui Province (Fortuna, Santa Clara), Colón Province (Santa Rita Ridge), and Bocas del Toro Province (2 mi. N. of Divide on highway to Chiriqui Grande).

Considering that its occurrence in Chiriqui is so close to the Costa Rican border, I am convinced that it will also be found there.

Cyclocephala dissimulata Ratcliffe, new species

(Figs. 1-4)

TYPE MATERIAL. Holotype labeled "PANAMA: B. de T., Rio Changuinola, I-1980." Allotype labeled "PANAMA: Bocas d. Toro, Miramar, 9°N, 82°15'W, VII-1979, H. Wolda." Thirty-seven paratypes with the following data: as ho-

lotype (2 males, 1 female); as allotype (12 females); as allotype but date of II-15-1979 (1 female); as allotype but date of II-4-1979 (1 male); "PANAMA, Chiri., Fortuna, 2,900', 17-VIII-84; at light, Coll. D & L Engleman" (1 female); "COSTA RICA, Cartago, 5 km e. Turrialba, CATIE, VII-21/22-75, E.M. & J.L. Fischer" (1 male); "COSTA RICA, Cartago, IICA [Instituto Interamericano de Ciencias Agrícolas] nr. Turrialba, V-26/VI-4-1976, R. and A.R. Hardy" (3 males, 9 females); "COSTA RICA: Heredia, La Selva Biol. Sta., VI-10-12-1986, B.C. Ratcliffe & party" (1 male, 2 females); "COSTA RICA: Peralta, 24 Sept. 1979, D.B. Thomas coll." (1 male, 2 females).

Holotype and allotype deposited at the University of Nebraska State Museum (Lincoln). Paratypes at INBI, USNM, CASC, CNCI, UNSM, MAMC, HAHC, AMIC, AHCC, DBTC, and BCRC.

HOLOTYPE. Male. Length 9.6 mm; width across humeri 4.5 mm. Color of clypeus, pronotum, scutellum, pygidium, and legs yellowish brown (dark testaceous); elytra testaceous; frons and anterior $\frac{2}{3}$ of sternites 2-5 black. *Head:* Frons moderately punctate, punctures moderate in size but becoming denser and larger anteromedially. Clypeus transversely, weakly rugose in basal half, roughened in apical half; clypeal shape subtrapezoidal, sides convergent, apex broadly subtruncate and weakly reflexed. Eyes large, interocular width equals 3.0 transverse eye diameters. Antenna with 10 segments, club subequal to segments 2-7. *Pronotum:* Surface moderately densely punctate; punctures moderate in size, most subequal to those of frons. Base unmarginated. *Elytra:* Surface moderately densely punctate; punctures larger than those of pronotum, shallow, rows discernible. *Pygidium:* Surface evenly convex, distinctly (basal half) rugopunctate to weakly (apical half) rugopunctate or roughened. *Legs:* Foretibia (Fig. 1) with 3 teeth, basal tooth far removed from others. Claw of foretarsus (Fig. 2) with larger ramus widely, unevenly split at apex. Posterior tarsus subequal in length to posterior tibia. *Parameres:* Figs. 3-4.

ALLOTYPE. Female. Length 9.1 mm; width across humeri 3.9 mm. As holotype except in the following respects: Sternites lacking black coloration. *Elytra:* Lateral margin slightly expanded just behind middle. *Pygidium:* Surface flatter. *Legs:* Foretibia with basal tooth not as far removed from anterior teeth. Claw of anterior tarsus not enlarged.

VARIATION. Males (6 paratypes). Length 8.3-9.6 mm; width across humeri 4.0-4.3 mm. The paratypes do not differ significantly from the holotype.

Females (23 paratypes). Length 8.8-11.0 mm; width across humeri 3.9-5.2 mm. Variation is slight. Some specimens have the sternites and/or clypeus darkened or black.

DISTRIBUTION. *Cyclocephala dissimulata* is known from the Atlantic slopes of the Cordillera Central in western Panama and southeastern Costa Rica. Label data indicate elevations ranging from sea level (Miramar) to 1,010 meters (Fortuna). All specimens except the holotype (January) were collected from May to August.

REMARKS. This small species will key only as far as couplet 370/371 in Endrödi (1985) because neither choice properly describes the character state. All the specimens were probably taken at lights.

ETYMOLOGY. From the Latin *dissimulo*, to feign, disguise, or hide. So named in reference to its overall similarity (hence, disguise) to other known species of *Cyclocephala*.

Cyclocephala isthmiensis Ratcliffe, new species
(Figs. 5-6)

TYPE MATERIAL. Holotype labeled "CENTRAL AMERICA, Canal Zone, Panama, Diablo Heights, Coll. W.R. Bivin, 4 May 1971." Allotype and one paratype with same data. Holotype and allotype deposited at the University of Nebraska State Museum (Lincoln, NE). Paratype deposited in EGRC.

HOLOTYPE. Male. Length 14.1 mm; width across humeri 6.9 mm. Color testaceous except for piceous frons and vertex. *Head:* Vertex moderately punctate. Frons and clypeus coarsely rugopunctate, setigerous; setae short, dense, testaceous. Clypeus nearly semi-circular, apex narrowly reflexed. Interocular width equals 2.3 transverse eye diameters. Antenna with 10 segments, club subequal to segments 2-7. *Pronotum:* Surface sparsely punctate along midline, becoming moderately dense at lateral margins; punctures moderate in size, setigerous; setae testaceous, short, not as dense as on head. Base without marginal line. Posterior angles broadly rounded. *Elytra:* Surface roughened, moderately densely punctate, punctures not in discernible rows, setigerous; setae testaceous, short, a little denser than those on pronotum, especially in apical fourth of elytra. *Pygidium:* Surface strongly convex in lateral view, moderately densely punctate; punctures moderate in size, setigerous; setae testaceous, moderate in length, subequal in density to those on apical fourth of elytra. *Legs:* Foretibia tridentate, basal tooth only slightly more removed from median tooth than median tooth is from apical. Claw of anterior tarsus with large ramus finely, unequally split. Posterior tarsus about $\frac{1}{3}$ longer than posterior femur. *Parameres:* Figs. 5-6.

ALLOTYPE. Female. Length 12.3 mm; width across humeri 6.0 mm. As holotype except in the following respects: *Head:* Vertex sparsely punctate, frons moderately punctate (not rugopunctate); punctures moderate in size; setae less dense than in holotype. Interocular width equals 2.5 transverse eye diameters. *Pronotum:* Surface with very few setae. *Elytra:* Lateral margin expanded slightly just before middle. *Pygidium:* In lateral view, surface weakly convex. *Legs:* Foretarsus with claw not enlarged.

VARIATION. Females (1 paratype). Length 13.0 mm; width across humerus 6.4 mm. The single paratype does not differ appreciably from the allotype.

DISTRIBUTION. *Cyclocephala isthmiensis* is known only from the type locality. Diablo Heights is a residential area in the former Canal Zone just inside the Pacific entrance to the canal. It is at sea level.

REMARKS. This species will go as far as couplet 245 (*C. setosa* Burm., southern Brazil) in Endrödi's (1985) key to species. The parameres (Figs. 5-6), vaguely reminiscent of those of *C. sparsa* Arrow (Fig. 7), do not have acute apices nor are they widest in the basal fifth as in *C. sparsa*. Moreover, the basal tooth of the foretibia is not strongly removed as it is in *C. landini*. The distinctive parameres, lack of any pattern, and vestiture will serve to easily distinguish *C. isthmiensis* from its congeners.

ETYMOLOGY. From the Greek *isthmos*, a narrow portion of land. Used here in reference to the isthmus of Panama.

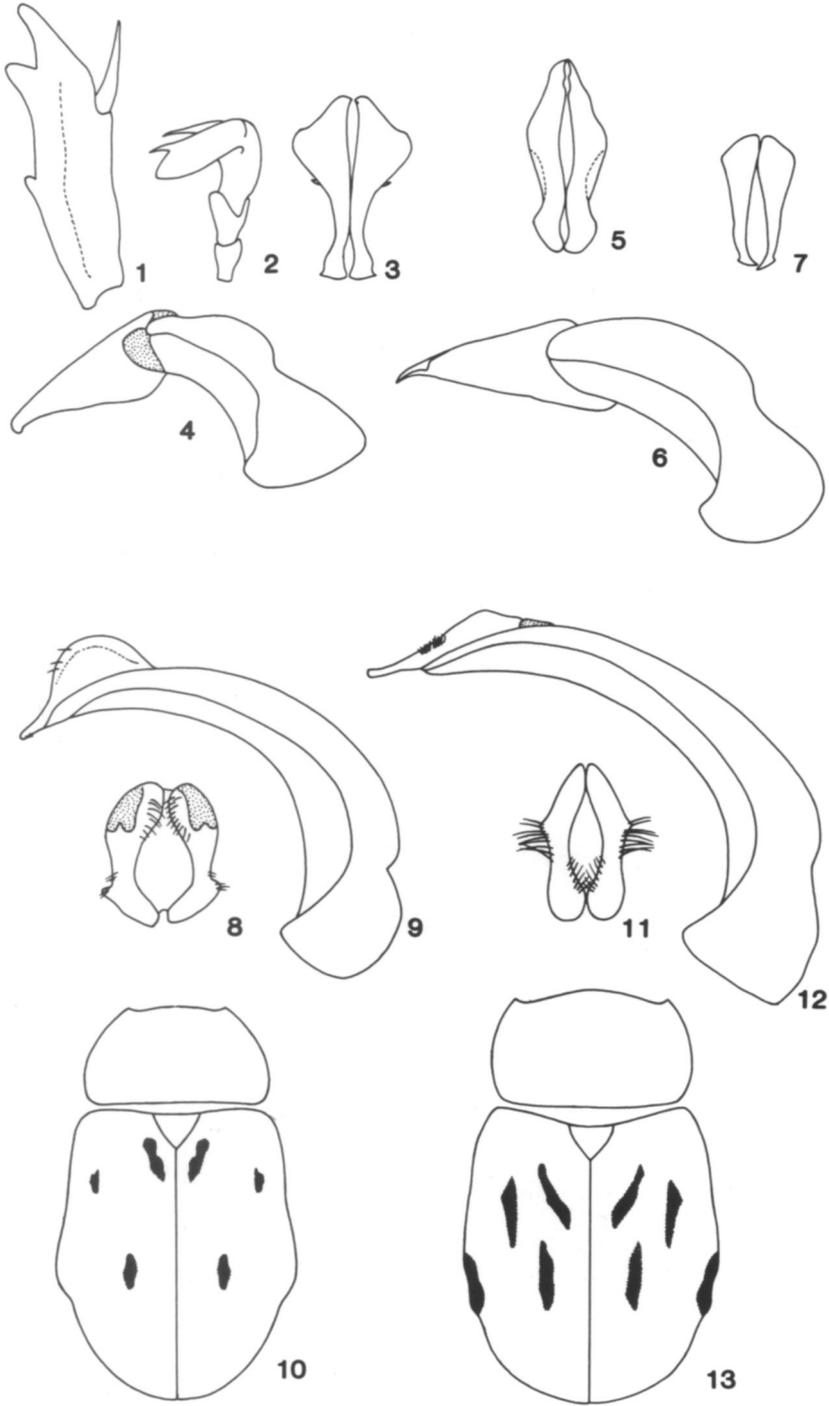
Cyclocephala kaszabi Endrödi

This black species was described from Ecuador (Endrödi 1964). In a significant extension of range, the following constitute NEW COUNTRY RECORDS.

COSTA RICA: Heredia Prov., La Selva Biological Station, VI-10-12-1986, B.C. Ratcliffe (2 males, 3 females); same data but II-17-1980 and H. & A. Howden collectors (1 male).

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Figs. 1-13. Figs. 1-4. *Cyclocephala dissimulata*: (1) left anterior femur, (2) anterodorsal view of right foretarsus, (3-4) caudal and lateral view of parameres. Figs. 5-6. *Cyclocephala isthmiensis*: (5-6) caudal and lateral view of parameres. Fig. 7. *Cyclocephala sparsa*: caudal view of parameres. Figs. 8-10. *Cyclocephala nigritarsis*: (8-9) caudal and lateral view of parameres, (10) elytra of female. Figs. 11-13. *Cyclocephala herteli*: (11-12) caudal and lateral view of parameres, (13) elytra of female.



COSTA RICA: Heredia Prov., La Selva Biological Station, V-1983, H. Young, ex *Dieffenbachia* sp. (1 male).

COSTA RICA: Limón Prov., 9°33'N, 82°39'W, V-3-1985, G.E. Schatz (1 male).

PANAMA: Colón Prov., Santa Rita Ridge, V-1977 (1 female), V-1982 (1 female), VI-1979 (1 male), B.C. Ratcliffe.

PANAMA: Bocas del Toro Prov., 2 mi. N. of Divide on hwy to Chiriqui Grande, VI-1-1986, B.C. Ratcliffe (2 males, 3 females).

PANAMA: Bocas del Toro Prov., Miramar, VIII-3-1979, H. Wolda (1 male).

PANAMA: Canal Zone, Barro Colorado Island, VII-1969, J. Lawrence (1 male).

Cyclocephala macrophylla Erichson

Known from Costa Rica, Peru, Ecuador, Bolivia, and the Antilles, the following is a NEW COUNTRY RECORD.

PANAMA: Bocas del Toro, Miramar, H. Wolda, I-1979 (1 male), IV-1979 (1 male), VII-1979 (12 males, 22 females), XI-1979 (1 male, 2 females), XII-1978 (3 males, 1 female).

PANAMA: Chiriqui, Fortuna, IX-19-1976, D. Engleman (1 female).

PANAMA: Canal Zone, Escobal Rd., VI-1976, D. Engleman (1 female).

Cyclocephala nigerrima Bates

Formerly recorded only from Costa Rica, the following constitute a NEW COUNTRY RECORD.

PANAMA: Chiriqui, Fortuna, VII-7-1977, H. Wolda (1 male, 1 female), VII-8-1979 (2 males); same data but VIII-1984, D. Engleman (1 female); same data but VI-1985, E. Riley (1 male).

Cyclocephala nigritarsis Ratcliffe, new species

(Figs. 8–10)

TYPE MATERIAL. Holotype and allotype labeled "PANAMA: Panama, Cerro Campana, V-31-1986, B.C. Ratcliffe." Eighty-seven paratypes with the following data: as holotype (10); "PANAMA: C.Z., Skunk Hollow, 6 mi. NW Gatun Locks, V-21-1982, B.C. Ratcliffe & C. & K. Messenger" (1); "PANAMA: Colón Prov., Santa Rita Ridge, 9°22'N, 79°44'W, 13 June 76, E.G. Riley" (20); "PANAMA: Coclé, Cerro Gaital, VI-10-12-1985, E. Riley & D. Rider" (11); "PANAMA: Panama, Cerro Campana, VI-20-1985, E. Riley & D. Rider" (5); "PANAMA: Coclé, El Valle, VI-10-13-1985, E. Riley & D. Rider" (1); "Cerro Campana, 800 m, Panama Prov., R.P., 30 May 70, H.P. Stockwell" (1); "PANAMA: Colón Prov., Santa Rita Ridge, VI-18-21-1976, at lights, Engleman" (5); "PANAMA: Colón, Santa Rita Ridge, V-24-1977, B.C. Ratcliffe" (1); same data except VI-10-11-1977 and H. & A. Howden collectors (4); same data except VI-18-21-1977 and no collector (6); "Alajuela, Costa Rica, Reserva de San Ramon, Rio San Lorencito, 850 m, 1 Abril 1987, Angel Solís" (13); same data except II-28-1987 (6); "Limón, Costa Rica, Suretka, Rio Vatsi, 25 Marzo 1987, 60 m, Angel Solís" (1); "San Jose, Costa Rica, Est. Carrillo, 750 MNSM, Q. Sanguijuela, 28 Marzo 1987, Angel Solís" (1); "Puerto Viejo, 10°26'N, Heredia Province, Costa Rica, Feb. 24, 1970, light trap, A.M. Young" (1).

Holotype, allotype and ten paratypes deposited at the University of Ne-

braska State Museum (Lincoln, NE). Remaining paratypes deposited in INBI, BMNH, MNHN, TAMU, FMNH, CNCI, USNM, CASC, HAHC, BDGC, MAMC, AMIC, EGRC, WDWC, AJRC, PKLC, and BCRC.

HOLOTYPE. Male. Length 11.0 mm; width across humeri 4.7 mm. Color testaceous with piceous to black in a band across vertex between eyes, as a small spot in center of each elytron, on lateral thirds of pygidium, on apices of all femora, on tarsomeres, meso-, meta- and abdominal sternites. *Head:* Surface densely, finely rugopunctate. Clypeus with apex strongly parabolic, slightly reflexed. Interocular width equals 3.0 transverse eye diameters. Antenna with 10 segments, club a little longer than segments 2-7. *Pronotum:* Surface moderately densely punctate; punctures moderate in size, equally dense on disc and sides. Base completely margined. *Elytra:* Surface with punctures about twice as large as those on pronotum, punctures weakly umbilicate. *Pygidium:* Surface strongly convex in lateral view, alutaceous, with sparse, small punctures. *Legs:* Foretibia bidentate. Foretarsus with larger ramus of claw entire, not split. Posterior tarsus about twice as long as posterior tibia. *Parameres:* Figs. 8-9. Parameres relatively small, surrounded laterally by basal piece.

ALLOTYPE. Female. Length 11.0 mm; width across humeri 4.5 mm. As holotype except in the following respects: In addition to elongated discal spot of elytra, there is an elongated, oblique spot behind scutellum and a linear stripe (about twice as long as discal spots) on lateral edge of disc; pygidium and sternites totally testaceous. *Head:* Surface more distinctly punctate on frons. *Elytra:* Lateral margin just behind middle enlarged outward into prominent, explanate flange. *Pygidium:* Surface in lateral view weakly convex. *Legs:* Foretibia tridentate. Foretarsus with claw not enlarged. Posterior tarsus only about 1/3 longer than posterior tibia.

VARIATION. Males (33 paratypes). Length 9.2-11.1 mm; width across humeri 4.0-4.5 mm. Variation is slight, consisting primarily of variable expression of the elytral markings. A single discal smudge, as in the holotype, is most common. A few specimens possess a post-scutellar and/or post-humeral smudge, and one had 3 elytral spots as in the allotype.

Females (49 paratypes). Length 9.5-11.0 mm; width across humeri 4.4-5.0 mm. Variation in the females is slight and consists of variable marking of the elytra from one discal spot to two discal spots with one post-scutellar and one post-humeral smudge.

DISTRIBUTION. *Cyclocephala nigratarsis* is known from several spots in the Cordillera Central in Panama and Costa Rica. There is a relatively large gap in distribution between Cerro Campana in central Panama and San Ramon in central Costa Rica, but this may simply be a result of *C. nigratarsis* masquerading as *C. herteli* in most collections. *Cyclocephala nigratarsis* has been taken at elevations ranging from 300 m (Santa Rita Ridge) to 850 m (San Ramon). One specimen was taken in lowland forest (Skunk Hollow) near sea level.

REMARKS. This species resembles *C. herteli* very closely in external appearance. I suspect that many additional examples of *C. nigratarsis* will be found in identified series of *C. herteli*, especially if the parameres are examined. Males of this species will key to couplet 190 (*C. herteli*) in Endrödi (1985) except that the parameres are different; females will key to couplet 214. Those couplets may be modified as follows to separate these two species:

Males:

190. Head and tarsi completely testaceous. Parameres slender, lateral dilation at about middle [Fig. 11, this publication]; base of each paramere entire or weakly impressed *herteli* Endrödi
- 190a. Head with dark reddish brown 'band' on frons between eyes; tarsomeres piceous or black. Parameres more stout, lateral dilation well below middle [Fig. 8, this publication]; base of each paramere strongly depressed *nigratarsis* Ratcliffe

Females:

214. Head and tarsi testaceous. Elytra with marginal expansion bisinuate, narrow, extensively darkened [Fig. 13, this publication] *herteli* Endrödi
- 214a. Head with dark reddish brown 'band' on frons between eyes; tarsomeres piceous or black. Elytra with marginal expansion usually arcuate, wide, pale or weakly darkened near posterior margin only [Fig. 10, this publication] *nigritarsis* Ratcliffe

ETYMOLOGY. The name of this species is derived from the Latin *nigra* (black) and the Greek *tarsos* (flat of the foot between toes and heel) and used here in reference to the black tarsomeres.

Cyclocephala nike Ratcliffe, new species
(Figs. 14–15)

TYPE MATERIAL. Holotype and allotype labeled "PANAMA: Chiriqui, Dist. Renacimiento, Santa Clara, 4,000', V-20-1977, B.C. Ratcliffe, taken at black light." Types deposited at the University of Nebraska State Museum (Lincoln, NE).

HOLOTYPE. Male. Length 24.1 mm; width 11.2 mm. Color reddish brown with black head, pronotal margins, sutural line, base and epipleura of elytra, legs, and venter; mesad of umbone is a longitudinal, short, piceous smudge. *Head*: Surface of frons moderately punctate, punctures moderate in size. Clypeus punctate in basal half, becoming rugopunctate anteriorly; punctures moderately large; apex broad, weakly emarginate, narrowly reflexed. Interocular width equals 3.5 transverse eye diameters. Antenna 10-segmented, club a little shorter than segments 2–7. *Pronotum*: Surface sparsely punctate on disc, becoming moderately densely punctate on sides; punctures small on disc, gradually becoming large laterally. Base completely margined. *Elytra*: Surface with large, shallow punctures; double rows indistinct. *Pygidium*: Surface finely rugopunctate except near discal apex where punctate; punctures moderate to large, mixed with small punctures, setigerous; setae minute, tawny in color. In lateral view, surface weakly convex. *Legs*: Foretibia tridentate, basal tooth slightly removed from others. Foretarsus with large ramus of claw finely split just before apex. Posterior tarsus subequal in length to posterior tibia. *Parameres*: Figs. 14–15.

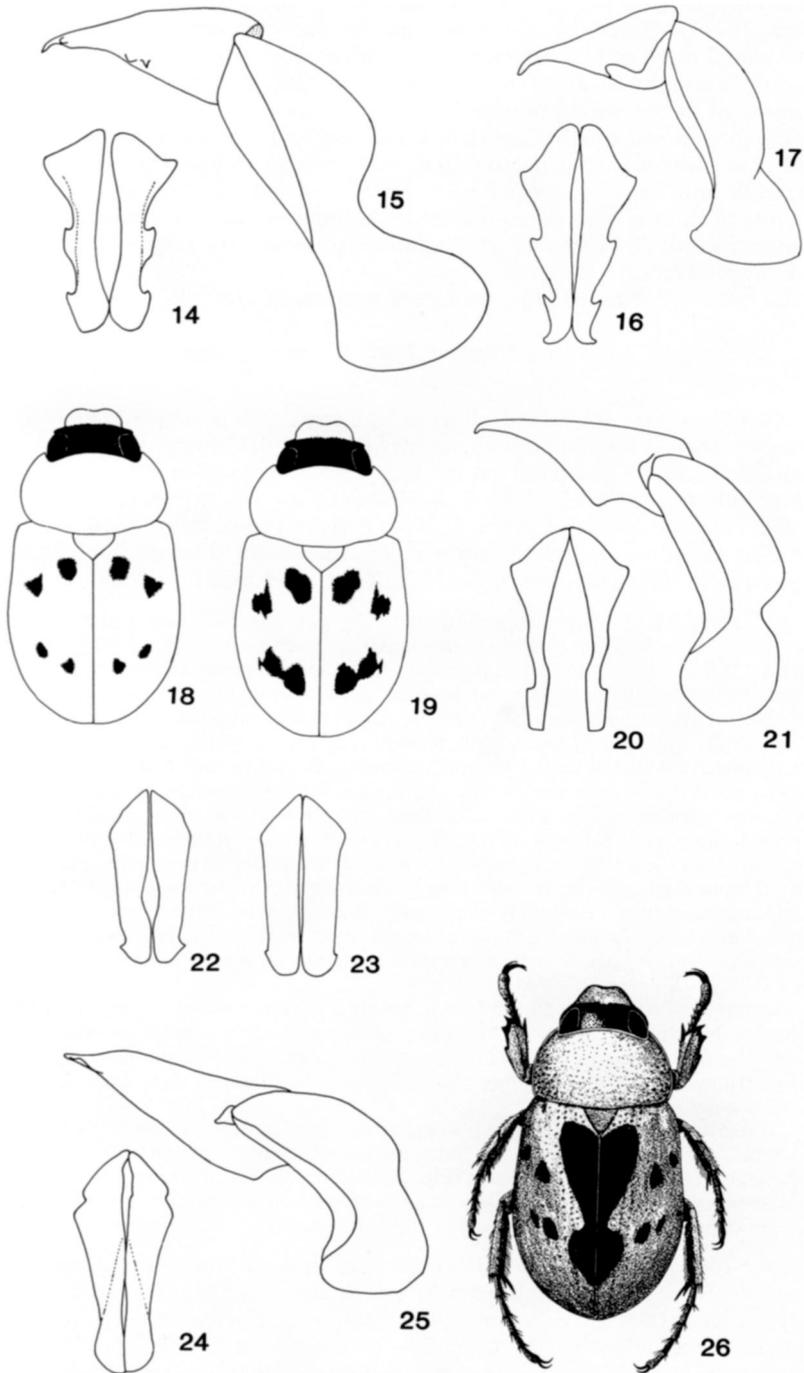
ALLOTYPE. Female. Length 23.0 mm; width across humeri 11.4 mm. As holotype except in the following respects: *Elytra*: Lateral margin with a small, expanded flange well behind middle. *Pygidium*: Surface nearly flat in lateral view. *Legs*: Claws of foretarsus not enlarged.

DISTRIBUTION. Known only from Ratibor Hartmann's coffee farm near Santa Clara in Chiriqui.

REMARKS. *Cyclocephala nike* is clearly a sister species with *C. melanae* Bates. In Endrödi's (1985) key to species, *C. nike* will go as far as couplet 12 if the body surface is considered dark reddish brown (couplet 1). *Cyclocephala melanae* (couplet 11) is bypassed because it has bidentate foretibiae, a smooth

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Figs. 14–26. Figs. 14–15. *Cyclocephala nike*: caudal and lateral view of parameres. Figs. 16–17. *Cyclocephala melanae*: caudal and lateral view of parameres. Figs. 18–21. *Cyclocephala pan*: (18–19) elytral pattern of holotype and paratype respectively, (20–21) caudal and lateral view of parameres. Figs. 22–23. Caudal view of parameres of (20) *C. porioni* and (21) *C. fulvipennis*. Figs. 24–26. *Cyclocephala rorschachoides*: (24–25) caudal and lateral view of parameres, (26) habitus of holotype.



pygidial apex, and parameres of a different configuration (especially apically) (Figs. 16–17). Otherwise, these two species are very similar. If the color is considered more or less extensively yellow (couplet 50), then this species will go only to couplet 88. It will not key to *C. mafaffa* (which it vaguely resembles) because of its bordered pronotum.

Cyclocephala deceptor (Casey), formerly placed in synonymy with *C. mafaffa* and possessing a bordered pronotum, was recently elevated to species status (Ratcliffe and Delgado 1990). *Cyclocephala nike* and the Mexican *C. deceptor*, in spite of sharing a bordered pronotum and the *gestalt* of *C. mafaffa*, are not conspecific due to differences in the male parameres, surface sculpturing, and habitat preference.

ETYMOLOGY. Named after the Greek goddess of victory.

Cyclocephala pan Ratcliffe, new species
(Figs. 18–21)

TYPE MATERIAL. Holotype, allotype, and one paratype labeled "PANAMA: Bocas d. Toro, 2 mi. N of Divide on hwy to Chiriqui Grande, VI-1-1986, B.C. Ratcliffe & party;" one paratype labeled "PANAMA: Colón Prov., Santa Rita Ridge, 300 m, 10-11.VI.77, H. & A. Howden;" two paratypes labeled "PANAMA: Panama, Cerro Jefe, June 7, 1985, E.G. and M.A. Riley." Holotype and allotype deposited at the University of Nebraska State Museum (Lincoln, NE). Paratypes in the collections of HAHC, EGRC, and BCRC.

HOLOTYPE. Male. Length 16.5 mm; width across humeri 7.1 mm. Color testaceous except for black frons and vertex and 4 small spots on each elytron (Fig. 18). *Head*: Surface of frons densely punctate; punctures large, most separated from one another by about ½ puncture diameter, setigerous; setae minute, pale. Frontoclypeal suture finely impressed. Clypeus with surface indistinctly rugopunctate, setigerous; setae minute, pale; apex broadly, moderately emarginate, reflexed. Interocular width equals 2.5 transverse eye diameters. Antenna with 10 segments, club subequal to segments 2–7. *Pronotum*: Surface moderately punctate on disc, becoming densely punctate on lateral fourths; punctures subequal in size to those on frons, setigerous; setae minute, pale. Posterior margin lacking marginal bead. *Elytra*: Surface with large, shallow punctures; punctures setigerous, double rows weakly indicated; setae short, moderate in density, pale. *Pygidium*: Surface finely roughened with small setigerous punctures; setae short (but longer than those on elytra), moderately dense, pale. In lateral view, surface normally convex. *Legs*: Foretibia tridentate, basal tooth far removed from others. Foretarsal claw with large ramus split at apex. Posterior tarsus a little longer than posterior tibia. *Parameres*: Figs. 20–21.

ALLOTYPE. Female. Length 15.5 mm; width across humeri 17.1 mm. As holotype except in the following respects: Center base of clypeus and marginal expansion of elytra black. *Head*: Clypeus more distinctly rugopunctate. *Elytra*: Lateral margin with a strong flange just behind middle. *Pygidium*: Surface nearly flat in lateral view. *Legs*: Foretarsus with claw not enlarged.

VARIATION. Males (3 paratypes). Length 15.7–16.0 mm; width across humeri 7.0–7.3 mm. As holotype except in the following respects: one specimen with elytral spots very large with posterior 2 coalesced (Fig. 19). *Head*: One specimen with a smooth area behind frontoclypeal suture, area equal in width to 1 frontal puncture. Otherwise, the two paratypes do not differ significantly from the type.

DISTRIBUTION. Known from central and western Panama and ranging in elevation from 300 m (Santa Rita Ridge) to about 1,000 m (Bocas del Toro).

REMARKS. In Endrödi's (1985) synopsis, male *Cyclocephala pan* will key only so far as couplets 270/271 (*C. sexpunctata* Cast./*pubescens* Burm.) or couplets 291/292 (*C. duodecimpunctata* Endrödi/*howdenannae* Endrödi) de-

pending on whether the elytra are partly setose or with very short setae (couplet 221); note that these two character states are not exactly opposite choices. In any event, the combination of characters (and especially the form of the parameres) is not accommodated by the existing key. While externally similar to *C. sexpunctata*, the form of the parameres will easily distinguish this species.

ETYMOLOGY. Named after the Greek god of hills and forests in reference to both the spectacular forests and hills of this portion of Panama.

Cyclocephala porioni Dechambre

This species was described by Dechambre (1979), based on three specimens from the eastern side of the Andes between Baeza and Tena in the state of Napo in Ecuador. It resembles closely Brazilian *C. fulvipennis* Burmeister in color, pattern, and the trilobed clypeal apex. It is significantly different from *C. fulvipennis* in the shape of the parameres (Figs. 22–23) and the unmargined base of the thorax.

Based on collecting I have done, *C. porioni* is found at mid-elevations throughout much of Panama (provinces of Colón, Panama, Chiriqui, Bocas del Toro) and Costa Rica (provinces of Cartago, Heredia). These specimens constitute NEW COUNTRY RECORDS. I believe that any specimens from Panama or Costa Rica that have been previously identified as *C. fulvipennis* are, in fact, *C. porioni*. Endrödi (1985) lists Honduras and Nicaragua in the distribution for *C. fulvipennis*, but I suspect these are also *C. porioni*. *Cyclocephala fulvipennis* is from Brazil and Bolivia whereas *C. porioni* is from Central America and Ecuador.

Further collecting in the Darien of Panama and along the western slopes of the Andes in Colombia and Ecuador may yet reveal populations living there. If so, the current distributions would be artificial disjunctions reflecting a lack of collecting between the two areas.

Cyclocephala prolongata Arrow

This species is known from Mexico, Nicaragua, Belize, Honduras, Colombia, and Peru (Blackwelder 1944; Endrödi 1985). A NEW COUNTRY RECORD is indicated by the following.

PANAMA: Bocas del Toro, Miramar, VII-1979, H. Wolda (12 females).

PANAMA: Canal Zone, Madden Dam, V-16-1976, B. C. Ratcliffe (1 male, 1 female).

Cyclocephala quadripunctata Höhne

This small species of *Cyclocephala* was previously recorded as being from South America only (Endrödi 1985). The following is a NEW COUNTRY RECORD.

PANAMA: Canal Zone, Albrook Forest, Hutton coll., I-1968 (1 female), II-1968 (2 males, 4 females), IV-1968 (1 male, 1 female), V-1967 (3 males, 6 females), VI-1967 (1 female), VIII-1967 (1 female), XI-1967 (1 female), XII-1967 (1 female).

Cyclocephala rorschachoides Ratcliffe, new species

(Figs. 24–26)

TYPE MATERIAL. Holotype and allotype labeled "PANAMA: Colón Prov., Santa Rita Ridge, V-18-21-1976, at lights, B.C. Ratcliffe." Fifty-seven para-

types with the following data: as holotype (21); as holotype but date of V-24-1977 (2); same locale but date of IV-21-1977 and collector Al Thurman (3); same locale but date of V-18-1976 and collector Al Thurman (1); same locale but date of VI-10-11-1977 and collector H. and A. Howden (1); same locale but date of VI-26-1976 and collector D. Engleman (1); "PANAMA: Panama Prov., Cerro Campana, 8°40'N, 79°56'W, V-22-1976, at BL, B.C. Ratcliffe" (5); same data but date of V-31-1986 (1); same data but with date of 11-15 May, 1980 and collectors E. G. Riley & D. LeDoux (1); same data but with date of V-10-20-1981, elevation of 2,600' and collector J. E. Wappes (1); "PANAMA: Panama, Cerro Jefe, V-30-1986, B.C. Ratcliffe" (1); "PANAMA: Canal Zone, Black Tank Rd NW Gatun Locks, V-17-31-1980, B.C. Ratcliffe" (2); "PANAMA: Canal Zone, Skunk Hollow, 6 mi. NW Gatun Locks, V-17-31-1980, B.C. Ratcliffe" (3); "PANAMA: Canal Zone, Barro Colorado Isl., VII-1977, H. Wolda" (1); "Barro Colorado, C.Z., lights: Weir/SM-1.III, 12-V-1976, Coll. H. Wolda" (1); same data but date of 22-5-1976 (3); same data but date of 15-5-1976 (1); "PANAMA: Barro Colorado Isl., 1-9.V.64, WD & SS Duckworth" (1); "Barro Colorado Isl., Canal Zone, R.P., VI-24-1962, H. Ruckes" (2); same data but date of IV-28-1962 (1); "Barro Colorado Isl., CANAL ZONE, July 1969, J. Lawrence, B. and T. Hlavac coll." (1); "PANAMA, Bocas d. T., Miramar; 9°N; 82°15'W, 27-XII-1978, H. Wolda" (1); "PANAMA: Canal Zone, base of Cerro Galera, VI-6-1985, E.G. & M.A. Riley" (2).

Holotype and allotype deposited at the University of Nebraska State Museum (Lincoln, NE). Paratypes deposited in the collections of USNM, CNCI, CASC, MCZC, UNSM, MNHN, ZMHB, BMNH, INBI, HAHC, BDGC, EGRC, MAMC, PKLC, WDWC, AMIC, AVEC, and BCRC.

HOLOTYPE. Male. Length 17.8 mm; width across humeri 8.2 mm. Color testaceous with posterior half of clypeus and frons and vertex black; black pattern on elytra as in Fig. 26; pygidium with oval black spot near each lateral margin; abdominal segments 1-4 each with black spot at level of spiracles. *Head:* Surface densely punctate on frons, becoming rugopunctate on clypeus; punctures on frons moderately large, setae present on frons and clypeus; setae short, tawny in color, erect. Frontoclypeal line smooth, broad, distinct. Clypeus with apex broadly, moderately deeply emarginate. Interocular width equals 2.6 transverse eye diameters. Antenna 10-segmented, club subequal to segments 2-7. *Pronotum:* Surface moderately punctate in center, becoming moderately dense on sides; punctures small in center to moderate on sides, most much smaller than those on frons, setigerous; setae minute, testaceous. Base without marginal bead. *Elytra:* Surface roughened, with indistinct, shallow punctures, rows of punctures not distinct; punctures subequal in size to those of frons, setigerous; setae minute, becoming short apically, testaceous. *Pygidium:* Surface roughened, moderately densely punctate; punctures indistinct (due to surface roughness), setigerous; setae dense, moderately long, testaceous. In lateral view, surface feebly convex, a little more convex at apex. *Legs:* Foretibia tridentate, posterior tooth small, removed from anterior 2 teeth. Anterior claw with large ramus split at apex. Posterior tarsus $\frac{1}{3}$ longer than posterior tibia. *Parameres:* Figs. 24-25.

ALLOTYPE. Female. Length 16.9 mm; width across humeri 7.8 mm. As holotype except in the following respects. *Elytra:* Posterior pair of black spots fused. Surface with punctures more distinct, rows evident. Lateral margin at about middle enlarged into elongate flange. *Pygidium:* Surface flat in lateral view. *Legs:* Anterior claw not enlarged. Posterior tarsus only a little longer than posterior tibia.

VARIATION. Males (22 paratypes). Length 15.4-17.9 mm; width across humeri 7.6-9.0 mm. Black markings of elytra vary from as holotype (9 specimens) to sutural mark reduced to 2 separate spots, one a postscutellar triangle, the other an oval spot just posteromedial of discal spots (10 specimens). Aside from markings, the paratypes do not differ significantly from the holotype.

Females (35 paratypes). Length 15.3–16.4 mm; width across humeri 7.5–8.3 mm. Black markings on elytra vary from as holotype (20 specimens) to reduction of large sutural mark into 2 separate spots (12 specimens). The vestiture is denser and slightly longer in a few specimens, suggesting “fresher” specimens or more recent emergence from the pupa. Otherwise, the specimens do not differ significantly from the allotype.

DISTRIBUTION. *Cyclocephala rorschachoides* is known from several localities in central Panama and from a single specimen from Bocas del Toro province in western Panama. It ranges in elevation from near sea level (Skunk Hollow, BCI, Black Tank Road) to about 300 meters (Cerro Jefe, Santa Rita Ridge).

REMARKS. This species resembles *C. kuntzeniana* in the pattern of the elytra and in some general aspects of the male parameres. The pronotum in *C. kuntzeniana* is very distinctively patterned whereas it is not in *C. rorschachoides*. Moreover, the genitalia in *C. kuntzeniana* are asymmetrical while they are symmetrical in *C. rorschachoides*.

Cyclocephala kuntzeniana, which might be construed as a sister lineage, is known from the east side of the Andes in Colombia and Ecuador and in Amazonian Bolivia and Brazil (personal observation; Endrödi 1966). It is completely isolated by mountain barriers from Central American *C. rorschachoides*, although this may not have always been the case.

ETYMOLOGY. The Rorschach inkblot test, named after the Swiss psychiatrist Hermann Rorschach, is a personality and intelligence test in which a subject interprets inkblot designs in terms that reveal intellectual and emotional factors; so named because the pattern on the elytra of this species resembles the bilaterally symmetrical inkblots of the Rorschach test.

Cyclocephala santaritae Ratcliffe, **new species**

(Figs. 27–29)

TYPE MATERIAL. Holotype labeled “PANAMA, Colón Prov., Santa Rita Ridge, V-18-21-1977, at lights.” Deposited at the University of Nebraska State Museum (Lincoln, NE).

HOLOTYPE. Male. Length 12.7 mm; width across humeri 5.5 mm. Color testaceous, with 2 small, fuscous spots on each elytron, one behind scutellum and other on disc behind middle. *Head:* Surface completely, densely punctate; punctures small, separated from one another by 1–2 diameters. Clypeus parabolic, apex narrowly rounded and reflexed. Interocular width equals 3.8 transverse eye diameters. Antenna with 10 segments, club subequal to segments 2–7. *Pronotum:* Surface moderately densely punctate (a little less so along midline), punctures small. Base with marginal bead. Posterior angles broadly rounded. *Elytra:* Surface finely alutaceous, most punctures shallow, many effaced, double rows barely distinguishable. Sides and apical fifth with sparse, short, pale setae. *Pygidium:* Surface densely punctate; punctures small, setigerous; setae dense, long, pale. In lateral view, pygidium strongly convex. *Legs:* Foretibia bidentate. Foretarsus with large ramus entire, not split. Posterior tarsus about 1.6 times longer than posterior tibia. *Parameres:* Figs. 28–29.

DISTRIBUTION. Known only from Santa Rita Ridge near Colón in Panama. The elevation of this site is 300 m.

REMARKS. This species will key to couplets 179/180 in Endrödi (1985). Couplet 179 is *C. amazonica* (L.), but neither the clypeus (Figs. 27, 30) nor parameres of *C. santaritae* resemble those of *C. amazonica*. Couplet 180 leads to *C. goetzi* Endrödi and *C. cartwrighti* Endrödi, neither of which are conspecific with *C. santaritae* described here. In caudal view only, the parameres resemble just a little those of *C. nigratarsis* described here. The form of the parameres in lateral view is substantially different between the two species, as is the

vestiture of the pygidium. The parameres of *C. herteli* Endrödi and *C. barroensis* Endrödi are both more slender in form and differ in shape.

The specimen was taken at lights.

ETYMOLOGY. Named in reference to the type locality, Santa Rita Ridge.

Cyclocephala williami Ratcliffe, new species

(Figs. 31–36)

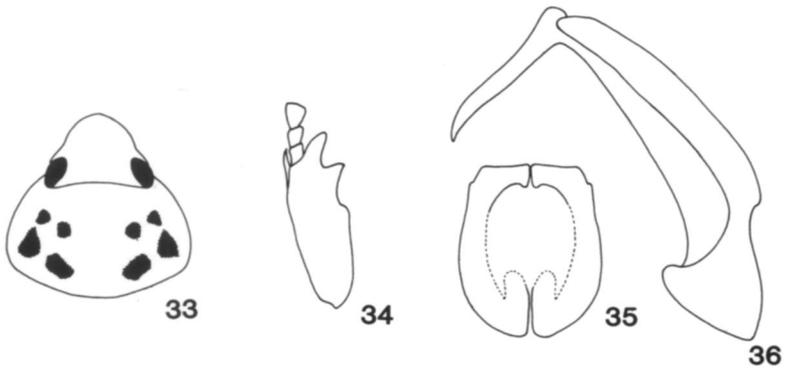
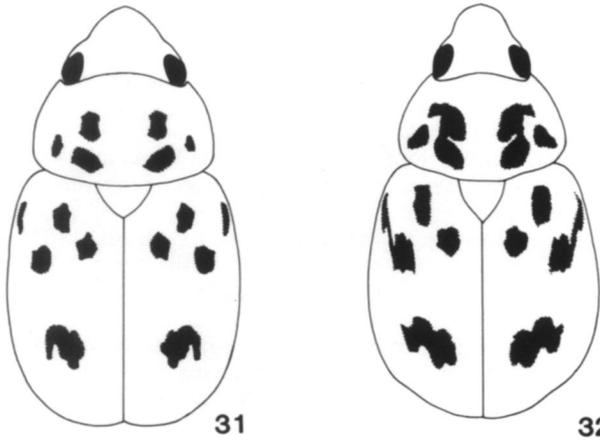
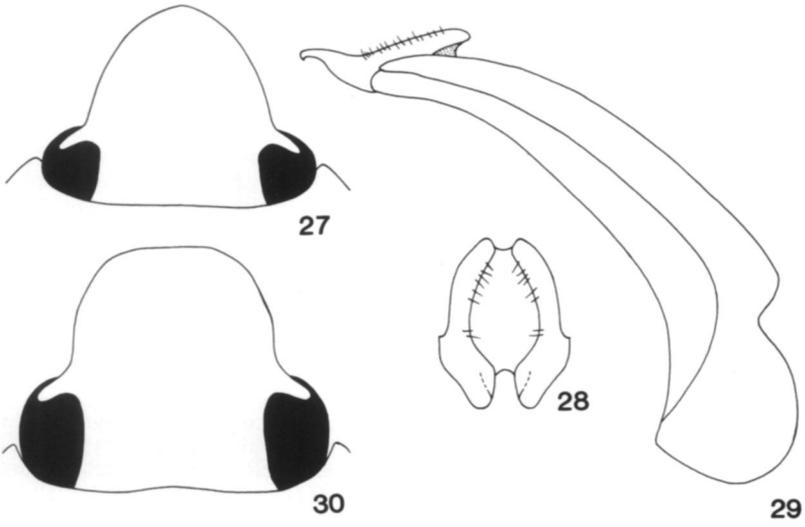
TYPE MATERIAL. Holotype labeled "COSTA RICA: Puntarenas, Monte Verde, VI-13-15-1986, B.C. Ratcliffe & party." Allotype labeled "COSTA RICA: Puntarenas, Monte Verde, Pens. Quetzal, V-22-1988, 1,380 m, B. Ratcliffe & M. Jameson." Seventy-one paratypes with the following data: "COSTA RICA: Puntarenas, Monte Verde Forest Res., V-19-21-1988, 1,500 m, B. Ratcliffe & M. Jameson" (1 male); "COSTA RICA, Punt., Monteverde, 1,400 m, 21 May 1979, H. & A. Howden" (3 females); same data but with date of 30 May 1979 (1 male); "COSTA RICA. Atlantic slope. 1,400 m, 6 km N. Santa Elena, Punt. 31.V.1979, H. & A. Howden" (1 male, 5 females); "COSTA RICA, Punta. Prov., Monte Verde, V-21/23-1976, R. & A.R. Hardy" (1 male, 1 female); "COSTA RICA, Guana. Prov., Monte Verde, V-24/26, 1976, A. & D. Lewis" (1 male, 1 female); "Costa Rica: Puntarenas, Reserva Biologica Bosque Nuboso de Monteverde, 1,500 m, V-22-1988, Coll. Alex Reifschneider" (2 females); "COSTA RICA: Puntarenas Prov., Cordillera de Tilaran, Pension Quetzal nr. Monte Verde Cloud Forest, VI-13/15-1986, on dying guava blossoms, ca. 5,000 ft elv., R.M. Young, Collector" (4 females); "COSTA RICA: Punt. Pr., Monteverde area, June 4–6, 1980, J.E. Wappes" (2 males, 1 female); "C.R., Puntarenas, Monteverde, V-26-VI-3-84, E. Riley, D. Rider and D. LeDoux" (18 males, 29 females).

Holotype and allotype deposited at the University of Nebraska State Museum (Lincoln, NE). Paratypes at CNCI, CASC, USNM, INBI, UNSM, HAHC, MAMC, AMIC, AHCC, AJRC, AVEC, RMYC, PKLC, JEW, WDW, and BCRC.

HOLOTYPE. Male. Length 9.3 mm; width across humeri 4.3 mm. Color testaceous, spots on pronotum and elytra black, most of pygidium and abdominal sternites piceous. *Head*: Frons and clypeus densely punctate; punctures small to moderate, those on clypeus a little smaller and denser. Clypeus with apex parabolic, slightly reflexed. Interocular width equals 3.0 transverse eye diameters. Antenna 10-segmented, club subequal in length to segments 2–7. *Pronotum*: Six black spots present: 4 in transverse arc in basal third, median spots twice as large as lateral spots; 2 additional spots anterior of and subequal to basal median spots (Fig. 31). Surface moderately densely punctate, becoming denser near lateral margins. Base completely margined. Prosternal process absent. *Elytra*: Each elytron with 5 spots as well as darkened margin behind scutellum: 4 spots in anterior third in roughly quadrangular pattern and fifth spot in center of elytron in apical half (Fig. 31). Surface punctate-striate; punctures moderately large, ocellate, striae not impressed. *Pygidium*: Surface evenly convex, roughened to feebly punctate near apex to weakly rugopunctate near base. *Legs*: Foretibia (Fig. 34) with 3 teeth, basal tooth weak,

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Figs. 27–36. Figs. 27–29. *Cyclocephala santaritae*: (27) dorsal view of head, (28–29) caudal and lateral view of parameres. Fig. 30. *Cyclocephala amazonica*: dorsal view of head. Figs. 31–36. *Cyclocephala williami*: (31–33) dorsal pattern of holotype and two paratypes respectively, (34) right anterior femur of male, (35–36) caudal and lateral view of parameres.



slightly removed from others. Claw of foretarsus with larger ramus finely, unevenly split at apex. Posterior tarsus a third longer than posterior tibia. *Parameres*: Figs. 35–36.

ALLOTYPE. Female. Length 9.8 mm; width across humeri 4.5 mm. As holotype except in the following respects: Color of pygidium and abdominal sternites testaceous, not piceous. *Pronotum*: Anterior "spot" on each side actually consists of 2 spots weakly connected. *Elytra*: Black margin behind scutellum absent as well as median spot (from basal 4). Lateral margin faintly expanded just behind middle. *Pygidium*: Color completely testaceous. Surface nearly flat in lateral view, more distinctly punctate; punctures small and moderate mixed. *Legs*: Foretibia with teeth equally spaced. Claw of foretarsus not enlarged.

VARIATION. Males (25 paratypes). Length 8.9–10.0 mm; width across humeri 4.3–4.8 mm. As holotype except in the following respects: *Pronotum*: Black spots completely absent (6 specimens) or 2 transverse arcs of 4 spots each (6 specimens) (Fig. 33) or median spots on each side joined to form longitudinal band (7 specimens) (Fig. 32). *Elytra*: Spots completely absent (4 specimens) or spots absent except for black streak on humerus and 2 reduced black spots posterolateral of scutellum (2 specimens) or 2 lateral spots weakly joined (7 specimens) (Fig. 32). *Pygidium*: Surface more distinctly punctate (3 specimens).

Females (46 paratypes). Length 9.2–10.6 mm; width across humeri 4.6–5.0 mm. As allotype except in the following respects: *Pronotum*: Black spots completely absent (2 specimens) or with 4 nearly obsolete lateral spots only (1 specimen) or with 4 small spots in basal transverse arc (3 specimens) or with 6 spots (4 in basal transverse arc and 2 above median basal spots) (1 specimen) or with 8 spots (2 transverse arcs of 4 spots each) (4 specimens). *Elytra*: Spots completely absent (10 specimens), or with only 1 posterolateral spot (from anterior group of 4) with 5th, most apical spot present (4 specimens) or absent (6 specimens), or with 2 spots (from anterior group of 4) (7 specimens), or with 3 spots (from anterior group of 4) (8 specimens), or with all 4 spots (8 specimens). *Pygidium* partially or completely piceous (23 specimens).

DISTRIBUTION. *Cyclocephala williami* is known only from the slopes of the Cordillera de Tilaran in the local vicinity of Santa Elena and Monte Verde at elevations ranging from 1,380–1,500 meters. All specimens were taken between mid-May and mid-June.

REMARKS. After allowing for the correction in Endrödi (1985) of couplets 135, 138, and 142 (see Ratcliffe 1989), males of this species will key as far as couplet 129 (pronotum with 6 spots) or couplet 158 (elytra without dark bands). It will not key past those points. *Cyclocephala williami* may have zero, four, six, or eight spots on the pronotum, and so it is not easily placed in Endrödi's key. Reliance should be placed on the form of the male genitalia in combination with the other characters to reliably identify this distinctive and attractive little species.

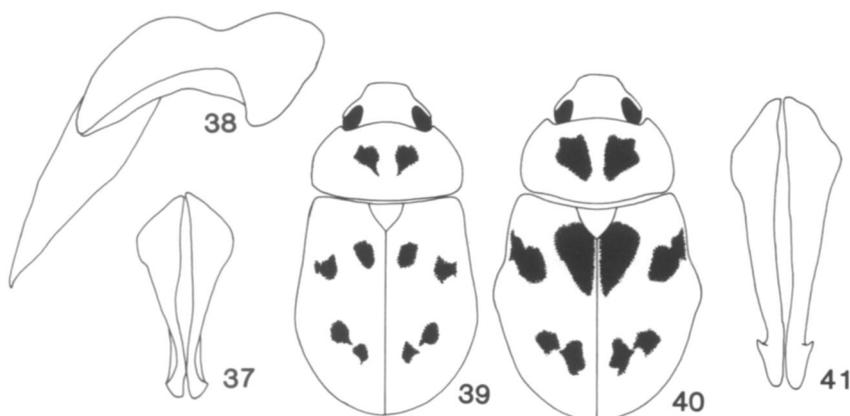
All the types were taken at lights or feeding at night on guava blossoms in an orchard behind the Pension Quetzal.

ETYMOLOGY. I take great pleasure in naming this species in honor of my father, who has been so supportive of my scientific endeavors through the years.

Cyclocephala zodion Ratcliffe, new species
(Figs. 37–40)

TYPE MATERIAL. Holotype and allotype labeled "PANAMA: Cocle, Cerro Gaital, VI-10-12-1985, E. Riley and D. Rider." Twenty-two paratypes with the following data: as holotype (19); "PANAMA: Cocle, El Valle, VI-10-13-1985, E. Riley and D. Rider" (2); "PANAMA: Bocas d. Toro, Miramar, 9°N, 82°15'W, VII-1973, H. Wolda" (1).

Holotype, allotype and one paratype deposited at the University of Nebraska



Figs. 37–41. Figs. 37–38. *Cyclocephala zodion*: Caudal and lateral views of parameres. Figs. 39–40. Dorsal pattern of holotype and allotype respectively. Fig. 41. *Cyclocephala pubescens*: caudal view of parameres.

State Museum (Lincoln, NE). Remaining paratypes at TAMU, EGRC, WDWC, and BCRC.

HOLOTYPE. Male. Length 14.7 mm; width across humeri 6.8 mm. Color testaceous with frons, pronotal and elytral spots, prepygidium, and posterolateral half of tergites 1–5 black. **Head:** Frons and base of clypeus with large punctures; punctures dense, setigerous; setae tawny, short, moderately dense; clypeus becoming rugopunctate apically. Frontoclypeal line distinct. Clypeal apex very feebly emarginate, distinctly reflexed. Interocular width equals 2.3 transverse eye diameters. Antenna with 10 segments, club subequal to segments 2–7. **Pronotum:** Large, black spot present in center either side of midline. Surface with large punctures; punctures moderate in density on disc, becoming denser laterally, setigerous; setae short, tawny, moderate in density. Base lacking marginal bead. **Elytra:** Four irregularly shaped black spots present in a semicircular arc on each elytron. Surface with moderately large punctures; punctures shallow, most weakly ocellate, double rows indistinct, setigerous; setae short, tawny, moderate in density. **Pygidium:** Surface weakly convex, finely alutaceous; punctate; punctures small, moderately dense, setigerous; setae about twice as long as those on elytra, tawny in color, moderate in density. **Legs:** Foretibia tridentate, basal tooth distinctly removed from others. Claw of foretarsus with large ramus finely split at apex. Posterior tarsus about $\frac{2}{3}$ longer than posterior tibia. **Parameres:** Figs. 37–38.

ALLOTYPE. Female. Length 15.3 mm; width across humeri 7.5 mm. As holotype except in the following respects: **Pronotum:** Spot either side of midline larger. **Elytra:** Anterior 2 spots larger: median spot about twice as large as scutellum, subtriangular, located behind scutellum; lateral spot obliquely transverse, subequal in overall size to median spot, located behind humerus. Lateral margin at about middle expanded into prominent lobe. **Pygidium:** In lateral view, surface nearly flat. Setae short, subequal in length to those of elytra. **Legs:** Protibia with lateral teeth subequally spaced. Anterior claw not enlarged. Posterior tarsus subequal in length to posterior tibia.

VARIATION. Males (13 paratypes). Length 14.3–15.8 mm; width across humeri 6.8–7.7 mm. As holotype except in the following respects: **Head:** 8 specimens with head all black or nearly so. **Pronotum:** Spots vary from as holotype to larger (as allotype) to presence of small, round dot laterad of principal spot (4 specimens) to anterolateral corner of main spot extended laterad into tapered extension (2 specimens); 1 specimen melanistic with entire pronotum dark brown and amorphous discal spots occupying more than half of pronotal surface. **Elytra:** Pattern as holotype to having spots as allotype (6 specimens) to posterior 2 spots fused (2 specimens) to presence of 3–5 small, faint,

amorphous black spots on lateral edge where abdominal spots are showing *through* translucent wing cover (5 specimens); 1 melanistic specimen with elytra darkened overall except for testaceous area in center of disc. *Pygidium*: Fuscous either side of middle (6 specimens).

Females (9 paratypes). Length 14.1–16.0 mm; width across humeri 6.9–7.5 mm. As allotype except in the following respects: *Head*: Slight variation in degree of darkness of clypeus. *Pronotum*: Slight variation in shape of discal spots. *Elytra*: Double rows of punctures distinct (3 specimens); spots vary a little in size and shape. *Pygidium*: Fuscous either side of middle (2 specimens). Setae minute, possibly abraded away (3 specimens).

DISTRIBUTION. *Cyclocephala zodion* is known only from Cerro Gaital above El Valle in Panama at an elevation of 500–900 meters, and a single specimen comes from Miramar in Bocas del Toro (sea level elevation).

REMARKS. Males of this species will key as far as couplet 269 in Endrödi (1985), which leads to either *C. sexpunctata* Cast. or *C. pubescens* Burm. Males of *C. zodion* can best be separated from *C. sexpunctata* and *C. pubescens* by the form of the parameres (Figs. 37–38, 41); *C. zodion* does not have the distinctly barbed apical tooth at the apex of the parameres as do the other two species. In addition, *C. zodion* has pronotal spots or maculae that are usually absent in the other two species, and it seems to be consistently smaller (14–16 mm versus 17–22 mm).

Females of *C. zodion* will key to couplet 113, which leads to *C. arrowiana* Martinez, *C. sexpunctata*, or *C. pubescens*. They differ from *C. arrowiana* in being smaller and lacking an acutely prolonged dilation on the lateral edge of the elytra (the parameres of the males are also vastly different). Both *C. sexpunctata* and *C. pubescens* females are characterized by having a dentiform dilation on the lateral edge of the elytra whereas it is large and obtuse in *C. zodion* (Fig. 40).

ETYMOLOGY. From the Greek *zodion*, a diminutive of *zoon* (animal), meaning a small animal.

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LITERATURE CITED

- ARNETT, R. H., JR., AND G. A. SAMUELSON. 1986. The Insect and Spider Collections of the World. E. J. Brill/Flora and Fauna Pubs., Gainesville. 220 pp.
- BLACKWELDER, R. E. 1944. Checklist of the coleopterous insects of Mexico, Central America, the West Indies, and South America, part 2. Bull. U.S.N.M. 185:189–341.
- ENDRÖDI. 1964. Eine Reihe von neuen *Cyclocephala*-Arten (Col., Melolonthidae, Dynastinae). Fol. Ent. Hungarica (new series) 17:433–469.
- . 1966. Monographie der Dynastinae (Coleoptera, Lamellicornia). I. Teil. Ent. Abh. Mus. Tierk. 33:1–460.
- . 1985. The Dynastinae of the World. Dr. W. Junk, Dordrecht. 800 pp., 46 plates.
- DECHAMBRE, R.-P. 1979. Une nouvelle espèce de *Cyclocephala* (Coleoptera Dynastidae). Nouv. Rev. Ent. 9:317–318.
- RATCLIFFE, B. C. 1989. Corrections and clarifications to Endrödi's The Dynastinae of the World (Coleoptera: Scarabaeidae). Coleopt. Bull. 43:275–278.
- , AND L. DELGADO. 1990. New species and notes of *Cyclocephala* from Mexico (Coleoptera: Scarabaeidae: Dynastinae). Fol. Ent. Mexicana No. 80:41–57.

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INTERNATIONAL COMMISSION ON ZOOLOGICAL NOMENCLATURE

The most recent issue of the Bulletin of Zoological Nomenclature (Vol. 49, Part 2, 25 June) contains the following notices affecting Coleoptera. Comments or advice on the applications are solicited for publication in that bulletin. Send to Executive Secretary, ICZN, % The Natural History Museum, Cromwell Road, London SW7 5BD, U.K.

Case 2772—*Chrysobothris* Eschscholtz 1829 and *Dicerca* Eschscholtz 1829 . . . : proposed conservation as the correct original spellings.

G. H. Nelson has proposed this conservation of names. The names originally appeared as *Chrysobotris* and *Dicerea*, but these names have not been used.

Case 2786—Tachinidae Fleming 1821 (Coleoptera) and Tachinidae Robineau-Desvoidy 1830 (Diptera): proposed removal of homonymy, and Tachyporidae MacLeay 1825 (Coleoptera) given precedence over Tachinusidae Fleming 1821 [edited, FGW].

Al Newton, Margaret Thayer and Curt Sabrosky have proposed this. The Coleoptera family-group name Tachinidae Fleming is the oldest of the lot and has precedence over the Diptera group of this name. This proposal would substitute the name Tachinusidae, based on the genus *Tachinus* Gravenhorst 1802, for the beetle group, in order to preserve the familiar name for flies. The disturbance of the family-group names of staphylinids would be prevented by conserving Tachyporinae MacLeay (a family-group name), which would have become a junior synonym of Tachinusidae.

There is also one decision that affects Coleoptera:

Opinion 1681—*Vatellus* [Aubé] 1837 conserved.