

SYSTEMATICS OF THE NORTH AMERICAN *CYPHON COLLARIS*
SPECIES COMPLEX WITH THE DESCRIPTION OF A
NEW SPECIES (COLEOPTERA: SCIRTIDAE)

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Abstract.—North American species of the *Cyphon collaris* complex are revised. Four species are recognized, all from eastern United States, east of the Mississippi River. *Cyphon drymophilous* is described as new; *C. dieckmanni* Klausnitzer is synonymized with *C. bicolor* (LeConte), and *C. horioni* Klausnitzer is synonymized with *C. confusus* Brown. Standardized dissection and clearing methods are proposed for studying *Cyphon* genitalia. Salient genitalic characters are illustrated and a key is presented to facilitate identification of adult males.

Key Words: Scirtidae, *Cyphon*

On 19 June 1985, a single specimen of *Cyphon* was collected by the senior author near the eastern boundary of Pine Hollow, a 144 acre State Natural Area in southwestern Wisconsin which is owned and managed by the Nature Conservancy. The specimen, which attracted attention because of its coloration, was collected from a *Rubus* leaf in an upland oak-hickory woodland. Unlike most *Cyphon* which are unicolorous, this specimen had a red-orange prothorax contrasting with an otherwise black body.

Thinking that the color of this specimen might be diagnostic, an attempt was made to determine the species. Upon dissection, what appeared superficially to be *Cyphon collaris* (Guérin-Méneville) turned out to be the male of an undescribed species. In an effort to acquire additional material for examination, subsequent visits to Pine Hollow were made during June and July of 1987. Likewise, loan requests for specimens of *Cy-*

phon having the *collaris*-like red-orange prothorax were made.

METHODS

Measurements.—Using a Wild M5A dissecting microscope with an ocular reticule, specimens were measured for total length (L), measured dorsally along the meson, and humeral width. If the elytra were separated, length was measured along the sutural margin from the anterior mesoscutellar margin to elytral apex. Total length was determined in the following manner: head, pronotum, and elytra were measured separately and recorded. Thus, a value for L was obtained by adding the three measurements (head + pronotum + elytra). This procedure was used due to the considerable variation observed in the distance between the posterior margin of the head and the anterior pronotal margin (i.e. cervical distention) as well as variation in the distention of soft tissue between the prothorax and the elytral bases.

Size range for each species represents the smallest and largest individuals.

Dissection and clearing.—Because of similarity in external appearance it was necessary to dissect all specimens. Since genitalic dissections are generally required for all species determinations of *Cyphon* and standardized techniques have not been established, a detailed account of our procedures is offered: (1) Specimens were boiled in distilled water to rehydrate soft tissues and to remove them from the point or card-mount; (2) the entire abdomen was removed with #5 jeweler's forceps, (3) cleared in hot KOH for 2–4 minutes, (4) rinsed in distilled water, and (5) transferred to a microscope depression slide [with a drop of glycerine]. (6) Genitalia were removed by separating abdominal terga and sterna on one side, laying open the abdomen, and dissecting the aedeagus (male) or prehensor (female).

If genitalic clearing was sufficient at this point, the species determination was made, recorded, and the specimen was transferred to a polyethylene microvial or temporary glycerine storage dish for subsequent examination and comparison with other specimens. If clearing was insufficient, steps 3–5 were repeated.

Specimen preparation for illustration.—The following technique bypasses the need for a heating element to liquefy glycerine jelly and resolves the frustration of having the specimen drift when using pure glycerine. Materials required include: (a) one tube of K-Y Lubricating Jelly *TM—Johnson and Johnson [this is a clear, water soluble semi-liquid jelly]; (b) glycerine; (c) depression slides; and (d) microdissection probes [minuten pins mounted on wooden splints].

Procedural steps.—(1) The glycerine-stored specimen was transferred to a depression slide. [Only the glycerine adhering to the specimen is necessary at this point.] (2) With forceps or the end of a splint, a drop of K-Y gel was placed on the specimen in

the depression slide. (3) The specimen was positioned with a minuten (or, very small insect pin) as desired for illustrating. (4) Dehydration [2–3 minutes for the water soluble K-Y gel to lose moisture and specimen to set]. (5) Next, a drop of glycerine was applied over the K-Y (and specimen) to completely cover it [this prevents further loss of moisture]. (6) After waiting 2–3 minutes for K-Y/glycerine interface to stabilize, the specimen was ready for illustration.

Adjusting the specimen to a different view, e.g. dorsal to lateral, often merely requires trial-and-error specimen manipulation. If it is necessary to repeat the procedure, place the specimen with the K-Y gel in warm water. This will dissolve the gel in a matter of minutes. [NOTE: The more time spent during Step 4 before covering with glycerine, the longer gel removal will take.]

Collection acronyms.—For the most part, we have followed the 4-letter entomological collection acronyms proposed by Arnett and Samuelson (1969). Most of these are identified in the acknowledgments but a few exceptions need be noted here. We used the acronym UNHC for the collection at the University of New Hampshire. This slight modification of UNH, which was proposed in Heppner and Lamas (1982), provides uniformity with the 4-letter code recommended by Arnett and Samuelson. Secondly, several of the collections which will receive type material associated with our new species were not sources of specimen loans and are, therefore, not identified in the acknowledgments. These include: the British Museum of Natural History (BMNH), the California Academy of Sciences (CASC), the collections of Daniel K. Young (DYCC) and James B. Stribling (JBSC), and the United States National Museum of Natural History (NMNH).

TAXONOMIC HISTORY AND PHYLOGENETIC CONSIDERATIONS

The species long known as “*collaris*” was described by Guérin-Méneville in 1843 un-

der the generic name *Elodes*. The type locality was listed as "Amer. Bor." In 1853, LeConte listed *collaris* from Georgia; he also described *bicolor* from two specimens collected in Georgia. Both were attributed to *Helodes*, following the emendation proposed by Agassiz (1846). Horn (1880) was first to attribute *collaris* to *Cyphon*; he also noted that, "... females seem to be very rare." The first recorded bionomical data came from Blatchley (1910). His specimens from Indiana were collected in early July by sweeping foliage at edges of woods and by beating tamarack. In his contribution to the Coleopterorum Catalogus, Pic (1914) listed *C. bicolor* (LeConte) as a synonym of *Cyphon collaris* (Guérin-Ménéville). A similar entry was provided in the catalog of North American Coleoptera (Leng 1920). The holotype male and two male paratypes of *C. confusus* were described from Knowlton, Quebec (Brown 1930). The last two names under consideration were proposed by Klausnitzer (1976). *Cyphon dieckmanni* and *C. horioni* were each described by single males labelled "Alleghany Mt."

As presently understood, the *Cyphon collaris* complex consists of four North American species. It is possible that the two Japanese species, *C. ainu* Nakane and *C. hasegawai* Nakane (Sasagawa 1985), together with these four species constitute a monophyletic group. However, we have not yet examined the Japanese *Cyphon* and we will not consider them further at this time. Like other *Cyphon*, those of the *collaris* complex are extremely similar in external appearance, with distinct and constant variation expressed primarily in the genitalia.

Since we are unable at this point to propose a hypothesis of monophyly for the genus *Cyphon*, we can not propose a phylogeny for the *collaris* complex. However, the species in question do appear to be more closely related to one another than to any species outside the complex. Males of all species have a pair of apically acute, rod-like structures, one on either side of the ae-

deagus. These have been described collectively as a modified ninth tergum which has become divided and each half rod-shaped (Fig. 14, see also Klausnitzer 1976: fig. 14). [Sexing individuals is readily accomplished since these structures commonly protrude from the end of the abdomen.] The basally bispatulate penis (Figs. 1-10) may be synapomorphic for this group, but such a hypothesis would be premature at this time.

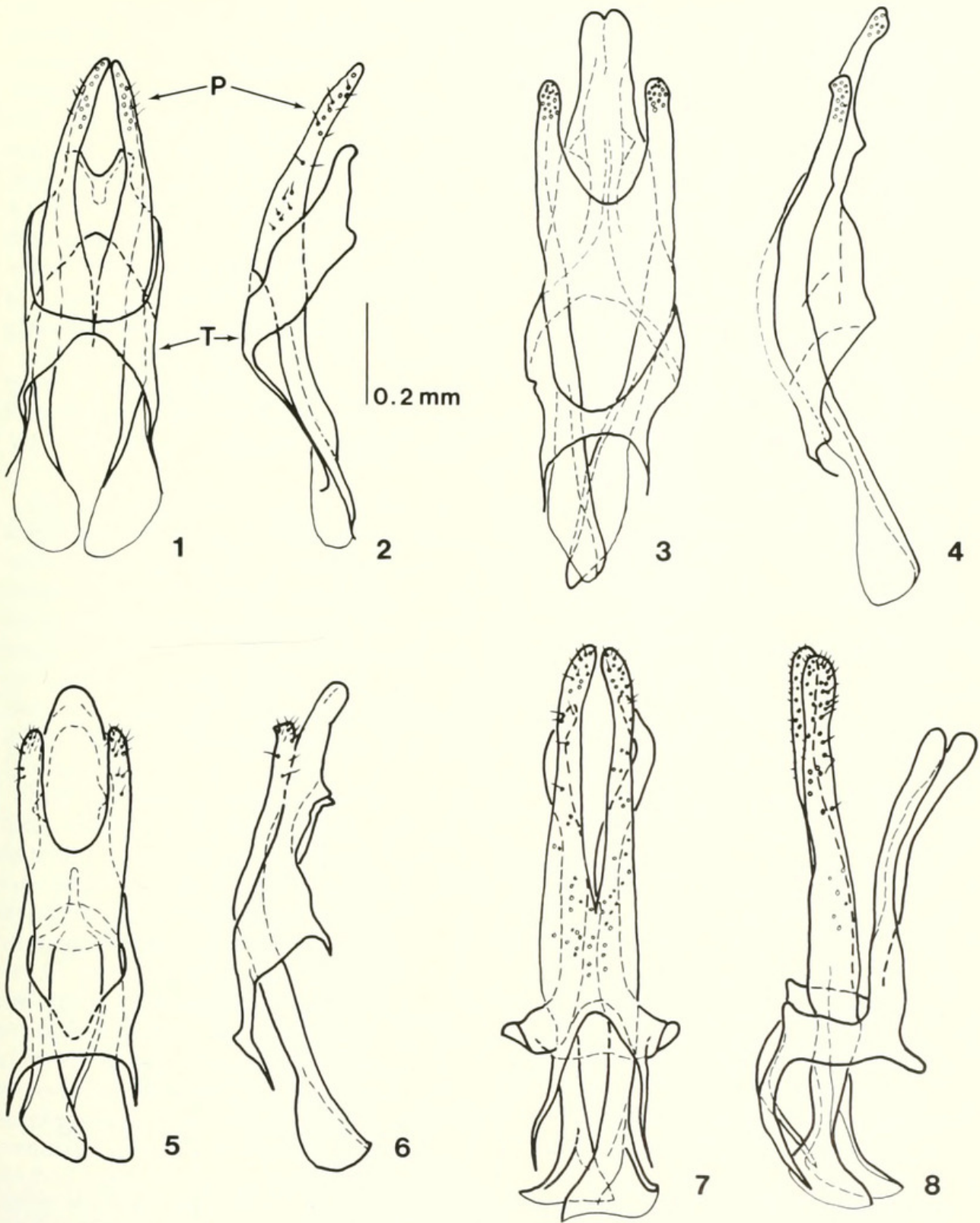
Females of this group appear to be quite rare as Horn perceptively noted over 100 years ago. Of 230 *collaris* group specimens examined in the course of this study, only 36 females were seen. We have been unable to detect any consistent external variation. However, many scirtid females do possess a highly modified and complex sclerotized structure, the prehensor, associated with the internal sack of the reproductive system (e.g. Figs. 11, 13; see also Nyholm 1969 and Klausnitzer 1976). Although the prehensor of females belonging to the *collaris* complex (Fig. 11) is distinct from any examined outside the group, the paucity of females precluded associating the sexes for any species. Thus, while possession of this type of symmetrical, tubular prehensor may be diagnostic for the *collaris* complex, we have not yet been able to use the structure for species-level identification of females.

SYSTEMATICS

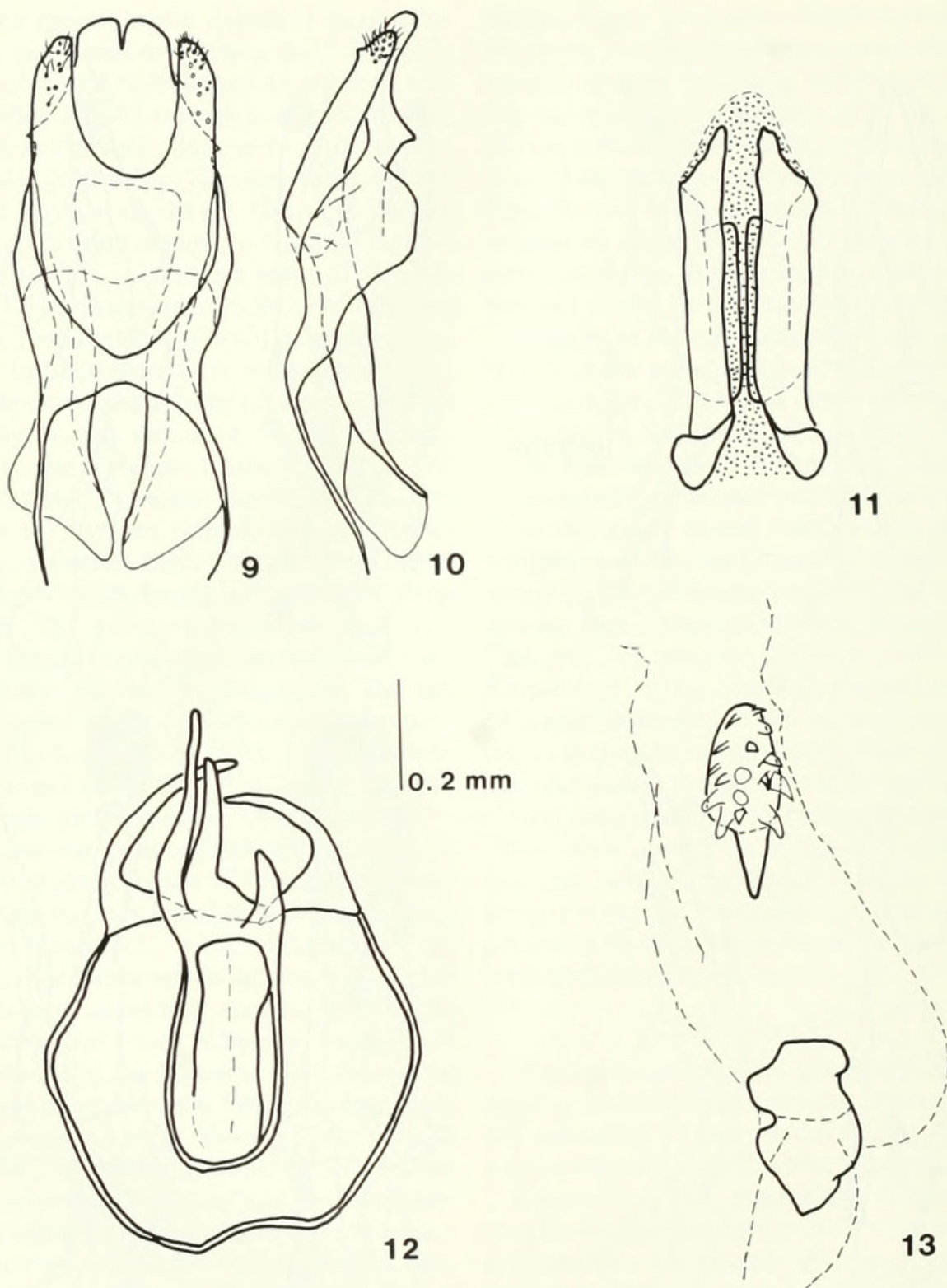
Characters described in the following diagnosis and description are not repeated in the treatment of each species; only diagnostic characters are described therein.

Diagnosis.—This assemblage of species may be distinguished from other *Cyphon* by the moderate size (length 3.9 mm–5.3 mm, humeral width 1.2 mm–1.7 mm), oblong-oval body shape, red-orange to rufotestaceous pronotum and dark brown or black elytra, and genitalic structures. Males possess paired, rod-shaped ninth tergal derivatives, or hemitergites (Fig. 14), and females have a relatively simple prehensor (Fig. 11).

One common species from eastern North



Figs. 1-8. *Cyphon collaris* group, male aedeagus: tegmen (= T) + penis (= P). Figs. 1-2, *C. collaris* (Guérin-Méneville). 1, dorsal view. 2, left lateral view. Figs. 3-6, *C. confusus* Brown. 3 & 5, dorsal view (note variation in apex of tegmen). 4 & 6, left lateral view. Figs. 7-8, *C. bicolor* (LeConte). 7, dorsal view. 8, left lateral view.



Figs. 9–10. *C. dryophilous* n. sp., male aedeagus. 9, dorsal view. 10, left lateral view. Fig. 11, *C. collaris* group female, prehensor (ventral view, caudal end down). Figs. 12–13, *C. ruficollis* (Say). 12, male aedeagus (dorsal view). 13, female prehensor (ventral view, caudal end down).

America which is easily confused with members of the *collaris* complex is *Cyphon ruficollis* LeConte. This species has a similar distribution and coloration, but lacks the rod-shaped ninth abdominal hemitergites and has a very distinctive, asymmetrical aedeagus (Fig. 12) and prehensor (Fig. 13). *Cyphon spinulosus* Klausnitzer (1976) also has a light-colored pronotum. In this species, which is indigenous to California, males lack rod-like ninth abdominal hemitergites; the genitalia are also quite different.

Description.—Head and elytra dark brown or black, pronotum red-orange to rufotestaceous, very rarely brownish. Length 3.9 mm–5.3 mm, humeral width 1.2 mm–1.7 mm.

Head: Usually not visible in dorsal view; antennae with 11 antennomeres; eyes somewhat projecting, interocular distance 3–4 × diameter of eye; labrum movable, transverse, basal width approximately 2 × mesal length; labial palpi with 3 palpomeres, linear (3rd palpomere arising from apex of 2nd); maxillary palpi with 4 palpomeres, apical palpomere conical; broadly concave ventrally.

Thorax: Pronotal lateral carinae complete, smooth; punctures irregular, separated by more than diameter of a single puncture, each puncture bearing a semi-erect seta; elytra instriate, punctate, slightly rugose with punctures in depressions, each also bearing a semi-erect seta; epipleura complete to elytral apices; prosternum short, intercoxal process thin and blade-like, contacting anterior margin of mesosternum; pro-, meso-, and metathoracic tibiae externally, longitudinally bicarinate, carinae minutely crenulate; tarsi pentamerous, tarsomere 4 bilobed, ungues simple; mesosternal intercoxal process contacting metasternum; metasternum with discrimen complete, transverse suture small, visible only at discrimen near posterior border of metasternum; metathoracic coxae grooved for reception of non-saltatorial femora.

Abdomen: With five visible sterna, 5th

entire (males) or emarginate (females); females with cylindrical prehensor (Fig. 11), sclerotized portions divided into 2 longitudinal halves; aedeagus of males (Figs. 1–10) with penis (= median lobe) proximally and distally paired (H-shaped), basally bispatulate, distal arms usually parallel, occasionally convergent (Figs. 1, 7).

SPECIES KEY FOR MALES OF THE
CYPHON COLLARIS COMPLEX

- 1. Abdomen with rod-like ninth hemitergites. . . (males, Fig. 14) 2
- 1'. Abdomen without tergal rods females
- 2. Tegmen apically divided or notched (Figs. 1, 3, 7, 9) 3
- 2'. Tegmen apically entire, rounded; with median, ventrolateral spines (Figs. 5, 6) *Cyphon confusus* Brown (part)
- 3. Tegmen with median, ventrolateral spines (Figs. 3–4, 9–10) 4
- 3'. Tegmen without median, ventrolateral spines (Figs. 1, 2, 7, 8) 5
- 4. Tegmen much narrower and longer than penis; apical notch shallow (Figs. 3, 4) *Cyphon confusus* Brown (part)
- 4'. Tegmen as broad as and but slightly longer than penis, apical notch deep (Figs. 9–10) *Cyphon drymophilous*, sp. nov.
- 5. Tegmen apically divided with each half truncate, much shorter than penis (Figs. 1, 2) *Cyphon collaris* (Guérin-Ménéville)
- 5'. Tegmen divided deeply to base, consisting of a pair of rod-like arms (Figs. 7, 8) *Cyphon bicolor* (LeConte)

SPECIES OF THE
CYPHON COLLARIS COMPLEX

- 1. *Cyphon collaris* (Guérin-Ménéville)
(Figs. 1–2, 11, 14)

Elodes collaris Guerin-Meneville, 1843: 4.
Helodes collaris Guerin-Meneville; LeConte, 1853: 355.
Cyphon collaris (Guerin-Meneville); Horn, 1880: 108; Blatchley, 1910: 696 (fig. 269); Pic, 1914: 31; Leng, 1920: 188.

Diagnosis.—Males of this species have the apex of the tegmen divergently bifid with each bifurcation truncate (Fig. 1).

Description.—Aedeagus (Figs. 1, 2). Pe-

nis H-shaped with distal arms parallel, sometimes convergent apically, tegmen shorter than penis, apex divergently bifid with each bifurcation truncate.

Remarks.—The width of the truncate bifurcation varies considerably. The specimen illustrated (Figs. 1, 2) is representative of the majority of males examined in this study. Nyholm (1972: 94, fig. 5F) illustrated a specimen exhibiting wider bifurcations.

Material examined.—*Canada*: Quebec: Knowlton, Que., 29-VI-1930, L. J. Milne, L. J. Milne Collection, 9697 Det. 1934, L. J. Milne (1 male, UNHC). *United States*: Connecticut: Cornwall Ct., 14.VI.1920, K. F. Chamberlain, *Cyphon collaris* Gu., Chamberlain Collection, Cornell University Insect Collections (1 male, CUIC); Greenwich, Audobon Center, June 12, 1964, David Miller (1 male, AMNH). Delaware: Del. Water Gap, Collection of, Mrs. A. T. Slosson, AC. 26226 (1 male, AMNH). Maine: Dover—Foxcroft, Maine, July 13, 1947, on fir, 9697 (1 male, UNHC); Lincoln, Maine, July 4 (1 male, UNHC); C. A. Frost, Monmouth 26 Je'10 Me., *Cyphon collaris* Guer, *Cyphon collaris* Guer Edith W. Mank Collection, Cornell University Insect Collections (4 males, CUIC); Monmouth, VI-26-10 Me., *Cyphon collaris* Guer., Edith W. Mank Collection, Cornell University Insect Collections (1 male, CUIC); Bar Harbor, Me., 7 Jy 36, Edith W. Mank Collection, Cornell University Insect Collections (1 male, CUIC). Massachusetts: Mass, *Cyphon collaris* (Guer.), Det. R. Tetrault 1965 (8 males, MSUC); Ashland, Mass., VI-7-25, C. A. Frost, *Cyphon collaris* Guer., Edith W. Mank Collection, Cornell University Insect Collections (1 male, CUIC); Petersham, Mass., 3-VII-1935, Milne & Green (5 males, UNHC); Boston, Massachusetts, No., Hy. Edwards Collection (1 male, AMNH); Lenox, Mass., July 1, 1891, Bradford Coll. (1 male, AMNH). New Hampshire: A. & G. Acad. Grant, NH, VI-24-75, malaise (1 male, UNHC); Academy Grant, N.H., VI-12-1974, Atkinson and

Gilmanton, W. J. Morse, collr (1 male, UNHC); Dover, N.H., VI-15-1934, Basil G. Markos (1 male, UNHC); Dover, N.H., 6-22-1936, B. G. Markos, *Cyphon collaris* (Guer.), Det. R. Tetrault 1965 (1 male, UNHC); Durham NH, 2460, W&F, Wickham det. 4015 Hensh list (1 male); Lee, N.H., VI-19-'26, P. Lowry, collr., *Cyphon collaris* (Guer.), Det. R. Tetrault 1965 (1 male, UNHC); S. Albert Shaw, Hampton, N.H., VI-6-1903 (1 male); USA: NH: Coos Co., Norton Pool, 3 mi. NE East Inlet Dam, VI-23-1986, D. S. Chandler, sweep (2 males, UNHC); USA: NH: Coos Co., Norton Pool, 3 mi. NE East Inlet Dam, VI-24-1986, D. S. Chandler, sweep (3 males, UNHC); USA: NH: Rock Co., Newcastle Common, VI-29-1977, TA Glennon, ex: wrack (1 male, UNHC); USA: NH: Straf. Co., 1 mi. SW Durham, V-27/VI-10-1987, D. S. Chandler, FIT (9 males, UNHC); USA: NH: Straf. Co., 1 mi. SW Durham, VI-11/18-1987, D. S. Chandler, FIT (22 males, 1 female, UNHC); USA: NH: Straf. Co., 1 mi. SW Durham, VI-19/VII-1-1987, D. S. Chandler, FIT (4 males, 1 female, UNHC); USA: NH: Straf. Co., 1 mi. SW Durham, VII-2/9-1987, D. S. Chandler, FIT (2 males, UNHC); USA: NH: Straf. Co., Durham, VI-18-'87, W. J. Morse (1 male, UNHC); New Jersey: Anglesea, NJ, H. W. Wenzel, Collection, *Cyphon Collaris* (Guer.), Det. R. Tetrault 1965 (6 males, OSUC); Chatsworth, N.J., June 15, 1923, J. C. Bradley Coll., Cornell University Insect Collections (1 male, CUIC); Ramsey, N.J., VI.8.1921 (1 male, AMNH); Bergen Co., N.J. (5 males, AMNH). New York: Slide Mt. N.Y., Ulster Co., 6.15-16.1940, H. Dietrich, Cornell University Insect Collections (3 males, CUIC); N. Rhelle, N.Y., VI-15-30, Cornell University Insect Collections (1 male, CUIC); Artist's Brook, Essex Co., 6.19.36 N.Y., H. Dietrich, Cornell University Insect Collections (8 males, CUIC); Orient LI, Aug. '62 N.Y., Roy Latham, Cornell University Insect Collections (3 males, CUIC); Orient, L.I., April 26-39 Roy Latham, Cornell

University Insect Collections (1 male, CUIC); Orient, L.I., July 23, Roy Latham, Cornell University Insect Collections (1 male, CUIC); Darts, N.Y. VIII, Cornell U., Lot 908, Sub 9, Schaeffer Coll., Cornell University Insect Collections (1 male, CUIC); 6.19.1912, Bellport, L.I., Coll. A. Nicolay, Cornell U., Lot 908, Sub 9, Schaeffer Coll., Cornell University Insect Collections (1 male, CUIC); Greenport, L.I. VI-7-1940, Roy Latham, *Cyphon ruficollis*, Cornell University Insect Collections (1 male, CUIC); 3-Mile Har., L.I., IX-2-39, Roy Latham, *Cyphon collaris* Guer., Det. Chamberlain, *Cyphon collaris*, Cornell University Collections (1 male, CUIC); Moloshu, VI.18 N.Y. (4 males, AMNH). North Carolina: Black Mts., V.25 N.C. (1 male, AMNH); Black Mts., V. 31 N.C. (2 males, AMNH); Cranberry, June 9-19 NC (3 male, OSUC); Cranberry, June 9-19 NC, H. W. Wenzel, Collection, *Cyphon collaris* (Guer.), Det. R. Tetrault 1965 (5 males, OSUC). Pennsylvania: Penn., No., Hy. Edwards Collection, 4399 (1 male, AMNH); Arundtsville, Pa., V-22-1922, S. W. Frost Coll., *Cyphon collaris* Guer., det. A. B. Wolcott, Cornell University Insect Collections (1 male, CUIC); Bear Meadows, Centre Co., Pa., 2-VI-1975, D. J. Shetlar (1 male, UWEM); USA: PA: Centre Co., Rothrock St. For., Seeger Nat. Area, 900', VII-9-1984, DS Chandler, sweep (1 male, UNHC); Mt. Pocono, VII.3.30 Pa, JW Green, A. T. McClay, Collection (55 males, UCDC); Tamarack Bog, Tamarack, Clinton Co., PA, 3-VI-1975, D. J. Shetlar (3 males, UWEM). Tennessee: Mt. LeConte, Gt. Smoky Mts., N. Park Tenn., June 13, 1947, H. Dietrich, Cornell University Insect Collections (1 male, CUIC).

2. *Cyphon bicolor* (LeConte) (Figs. 7-8)

Helodes bicolor LeConte, 1853: 355. (Holotype male [MCZC]. Label data: [orange disk], *H. bicolor*, Ga., Lec., Type, 2351, *collaris* 15.) Abdomen and genitalia dis-

sected, cleared, and stored in polyethylene microvial with glycerine.

Cyphon dieckmanni Klausnitzer, 1976: 445. (Holotype male [Naturhistorisches Museum Wein]. Label data: Allegheny Mt., Spaeth, 1902); not examined. **NEW SYNONYM**

The aedeagus of LeConte's type of *C. bicolor* agrees with Klausnitzer's illustration of *C. dieckmanni* (1976: 444, fig. 15) except for the complete dorsal tegmen ring illustrated by Klausnitzer. It appears that he illustrated the tegmen in three-quarters view, possibly giving an illusion of the presence of the ring connection.

Diagnosis.—*Cyphon bicolor* males may be easily distinguished by the aedeagus (Figs. 7, 8). Distally, the tegmen consists of paired, rod-like arms which nearly reach the apex of the penis.

Description.—Aedeagus (Figs. 7, 8). Penis H-shaped with distal arms apically convergent, tegmen somewhat shorter than penis, consisting of paired, rod-like arms.

Material examined.—Only two other specimens in addition to LeConte's type were examined.

Georgia.—[the type]. Ohio: Delaware VI-4 Co., O., D. J. & J. N. Knull Collrs., *Cyphon collaris* (Guer.) Det R. Tetrault 1965 (1 male, OSUC); Franklin Co., VI-2-52, O., D. J. & J. N. Knull Collrs (1 male, OSUC).

3. *Cyphon confusus* Brown (Figs. 3-6)

Cyphon confusus Brown, 1930: 91. (Holotype male [CNCI]. Label data: Knowlton, Que., 11-VII-1929, L. J. Milne, HOLOTYPE, *Cyphon*, *confusus*, Brown, No. 3108).

Cyphon horioni Klausnitzer, 1976: 495. (Holotype male [Naturhistorisches Museum Wein]. Label data: Allegheny Mt., Spaeth, 1902); not examined. **NEW SYNONYM**

The aedeagus of the holotype of *C. confusus* matches Klausnitzer's illustrations of

C. horioni (1976: 446, figs. 17–18), except for the position of slight dentations associated with the distal arms of the penis. Klausnitzer's illustration (fig. 18) shows the dentations as being lateral; in specimens we have seen, the dentations are dorsal (Fig. 10).

Diagnosis.—Males of this species may be distinguished by the aedeagus (Figs. 3–6). The apex of the tegmen is shallowly notched (Fig. 3) or entire (Fig. 5), and has a pair of ventral, mediolateral spines.

Description.—Aedeagus (Figs. 3–6). Penis H-shaped, distal arms parallel, tegmen shallowly notched or entire distally, longer than penis, with paired, mediolateral spines directed ventrally.

Material examined.—Twenty specimens, in addition to Brown's type, were examined.

Canada: Ontario: Scotia Jct, Ontario, VII-27-30, Wenzel, H. W. Wenzel Collection, *Cyphon collaris* (Guer.), Det. R. Tetrault 1965 (1 male, OSUC). Quebec: [the type]. **United States:** Michigan: Chippewa Co., Mich. 6-25-60, R. and K. Driesbach (2 males, MSUC). New Hampshire: Dover, N.H., VII-7-34, B. G. Markos/*Cyphon collaris* (Guer.), Det. R. Tetrault 1965 (1 male, UNHC); S. A. Shaw, Hampton, N.H., VI-14-1934, (1 male, UNHC); S. A. Shaw, Hampton, N.H., VI-18-1934, *Cyphon collaris*, 9697, Guer (1 male, UNHC); USA: NH: Rock Co., Odiorne Pt., VI-18/21-1983, DS Chandler, window trap (1 male, UNHC); USA: NH: Rock Co., 1 mi. W Odiorne Pt., VI-25/VII-1-1983 D. S. Chandler, malaise trap (1 male, UNHC); USA: NH: Rock Co., 1 mi. W Odiorne Pt., VI-26/28-1983, DS Chandler, malaise trap (1 male, UNHC). New York: Slide Mt., N.Y., Ulster Co., 6.24.1934, H. Dietrich, Cornell University Insect Collections (4 males, CUIC). Ohio: Hocking Co., VI-2 O./J. N. Knull Collr. (2 males, OSUC); Hocking Co., VI-12, O., D. J. & J. N. Knull Collrs. (1 male, OSUC); Hocking Co., V-26-38, O., D. J. & J. N. Knull Collrs., *Cyphon collaris* (Guer.) Det. Knull '43 (1 male, OSUC). Pennsylvania:

Pennsylvania, before Oct. 1897, F. Rauterberg Coll., 13382 (1 male, MCPM); Cowan's Gap St. Pk., Fulton Co., Pa., 29-V-1975, D. J. Shetlar (3 male, UWEM); Oakmont, VI-5-'37, Pa., A. C. Miller, Coll., A. C. Miller Collection (3 males, OSUC).

Distribution.—Label data indicate that this species is distributed primarily in the northeastern U.S.

4. *Cyphon drymophilous*, NEW SPECIES (Figs. 9–10, 15)

Type information.—Holotype male (USNM): [Wisconsin]: WISC: Sauk Co., Pine Hollow, T10N, R5E, Sec. 04, 19-VI-1985 Daniel K. Young. Paratopotypes (16 males): 10-VI-1987 Daniel K. Young (2 males); 12-VI-1987 Daniel K. Young (3 males); 16-VI-1987 Daniel K. Young (4 males); 24-VI-1987 Kurt Kaiser (3 males); 6-VII-1987 Daniel K. Young (3 males); 6-VII-1987 Rick Ness (1 male). Paratypes (12 males): Wisconsin: WISC: Sauk Co., Baxter's Hollow, T11N, R6E, Sec. 32, 22-VII-1987 Daniel K. Young (1 male); Wis. Milwaukee Co., Before Oct. 1897, F. Rauterberg Coll., 13382 (2 males); Ohio: Delaware Co., VI-21-50 O., D. J. & J. N. Knull Collrs (1 male); Delaware Co., VI-21, O., D. J. & J. N. Knull Collrs (2 males); Delaware Co., VI-2 O., D. J. & J. N. Knull Collrs., *Cyphon collaris* Guer. Det. Knull '55 (1 male); Delaware Co., VI-2 O., D. J. & J. N. Knull Collrs. (2 males); Delaware Co., VI-17 O., J. N. Knull Collr. (1 male); Greene Co., VI-2, O., D. J. & J. N. Knull, Collrs (1 male, OSUC). Illinois: 4225, June, Chicago, Ill. Blackwelder, Collection of Wm. S. Marshall, *Cyphon collaris* Guer., 4015 (1 male).

Paratopotypes and paratypes are distributed among the following collections: BMNH, CASC, DYCC, JBSC, MCZC, MCPM, OSUC, UWEM.

Diagnosis.—Males of this species (Fig. 15) may be distinguished from others in the *collaris* complex by the aedeagus (Figs. 9–10). The tegmen is notched at the apex with each

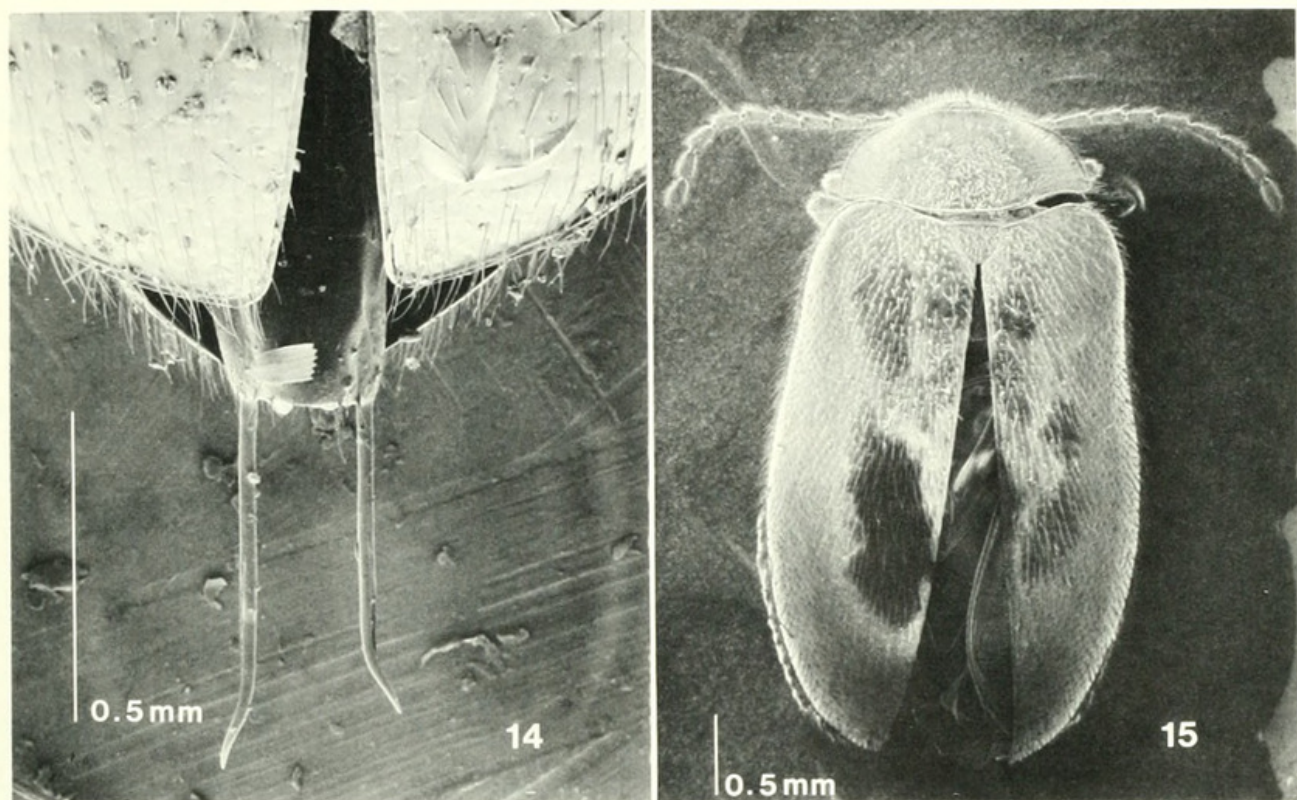


Fig. 14. *C. collaris* (Guerin-Meneville), abdominal apex illustrating rod-like 9th hemitergites. Fig. 15, *C. drymophilous* n. sp., habitus (apparent elytral maculations are artifactual; may represent electron "burning" in this uncoated sample).

side rounded, it has a pair of ventrally projecting, mediolateral spines, and is but slightly longer than the penis.

Description.—Aedeagus (Figs. 9–10). Penis H-shaped, distal arms parallel, tegmen but slightly longer than penis, apex deeply notched with each side rounded and with paired, ventrally directed mediolateral spines.

Remarks.—The species epithet is derived from the Greek "drymo-" meaning a forest or woodland, and "philo," to love. The species name refers to the fact that the type series was collected in a woodland community, unlike the marsh community which is more typically thought of as a *Cyphon* habitat.

Material examined.—As noted above, the type series consists of 29 male specimens.

Distribution.—Records show a distribution from southcentral Wisconsin eastward to central Ohio.

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