

A NEW SPECIES OF *CODATRACTUS* FROM WESTERN MEXICO (LEPIDOPTERA: HESPERIIDAE)

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ABSTRACT.— *Codatractus sallyae* n. sp., is described from twelve males from the states of Jalisco and Colima in western Mexico. Photographs of adult males and illustrations of male genitalia are presented for *C. sallyae* and the two most similar species in western Mexico, *C. arizonensis* (Skinner, 1905), and *C. melon* (Godman & Salvin, 1893). A discussion on the differentiation of the three species, and notes on the behavior and distribution of *Codatractus* in Mexico, are presented.

RESUMEN.— Se describe *Codatractus sallyae* sp. n., a partir de doce machos provenientes de los estados de Jalisco y Colima, del occidente de México. Se presentan fotografías de machos adultos e ilustraciones de los genitales masculinos para *C. sallyae* y las dos especies más similares del occidente de México: *C. arizonensis* (Skinner, 1905), and *C. melon* (Godman y Salvin, 1893). Se discute sobre la diferenciación de las tres especies, y se ofrecen notas sobre la conducta y distribución de *Codatractus* en México.

KEY WORDS: Central America, *Codatractus sallyae* n. sp., Colima, *Consul*, *Diaethria*, *Dismorphia*, Guatemala, Jalisco, *Melinaea*, Mesoamerica, Neotropical, Nymphalidae, Oaxaca, *Pereute*, *Phanus*, Pieridae, *Vacerra*.

Codatractus Lindsey is a primarily Central American, totally Neotropical genus of medium-sized pyrgine skipper butterflies that have a brownish ground color to the wings, frequently suffused basally with orange, gold, or light brown. On the forewing, they possess a series of hyaline spots forming a central band, and usually have four small subapical spots. Four described *Codatractus* species have tailed hindwings. When W. H. Evans was making his inventory of all the skippers in the British Museum of Natural History in the early 1950's, eight species currently placed in *Codatractus* had been described. In 1952, Evans added a ninth species to the genus, *Codatractus carlos* Evans. Freeman (1977) described the tenth species, *Codatractus yucatanus* Freeman. Since then, the genus has remained with 10 described species, nine of which occur in Mexico: *C. alcaeus* (Hewitson, 1867), *C. arizonensis*, *C. bryaxis* (Hewitson, 1867), *C. carlos*, *C. cyda* (Godman, 1901), *C. cyledis* (Dyar, 1912), *C. hyster* (Dyar, 1916), *C. melon*, and *C. yucatanus* (Freeman, 1977). The South American *Codatractus aminias* (Hewitson, 1867), is the only described *Codatractus* unknown from Mexico.

In Mexico, *Codatractus* species occur from sea level (*C. carlos* and *C. alcaeus* in Jalisco) to at least 1820m (*C. melon* in Sinaloa and *C. arizonensis* in Guerrero). Medium elevations, from about 600m to 900m, are especially favored by *Codatractus* in western Mexico (*C. hyster*, *C. bryaxis*, *C. arizonensis*, *C. melon*, and the new species, in Jalisco). As far as I know, only two species in the genus have been reared (by Roy O. Kendall), but details on their life histories or larval descriptions have not been published. Larval hostplants for two species in northeastern Mexico have been reported (Kendall and McGuire, 1975; Kendall, 1976): *Ichthyomethia communis* Blake for *C. alcaeus* and *C. hyster*, and *Amerimnon granadillo* Standley for *C. alcaeus* (both tree Leguminosae). Bailowitz and Brock (1991) reported *Eysenhardtia*

orthocarpa (Gray) Watson (also a tree Leguminosae) as the larval hostplant for *C. arizonensis* in Arizona. Kendall (1976) reported gregarious larvae of *C. hyster*. Adults of *Codatractus* in Mexico are most frequently encountered at mud along streams and rivers (males), or at flowers (males and females).

While doing fieldwork in Jalisco and Colima in June, 1994, several specimens in the *melon* group of *Codatractus* were collected, including *C. arizonensis*, *C. melon*, and *C. bryaxis*. Preparation and genitalic examination of all the specimens yielded a previously undescribed species.

Codatractus sallyae Warren, new sp.

Diagnosis.— This species can easily be distinguished from the two most similar species, *C. arizonensis* and *C. melon*, through genitalic examination. The short lobes of the uncus, which are squared off at the ends, and the width of the gnathos relative to the uncus should easily distinguish this species from all other *Codatractus* species (see discussion of genitalia under Remarks).

Description.— MALE. Forewing length (from base to apex): 21.1-24.0mm (holotype 22.8mm). *Upperside:* Forewing without costal fold. Upperside ground color brownish black, basal 1/4 of wing with chocolate colored overscaling (most obvious in fresh specimens) that extends along the inner margin to within 2.5mm of the tornus; forewing with central band of 5 hyaline spots from just proximad of mid-costa, directed toward tornus; consisting of two conjoined narrow spots at the costa in costal cell and Sc-R1; one large, more or less square-shaped spot, with distal and proximal margins usually more or less excavate, in discal cell; another similarly-shaped spot in CuA1-CuA2; one smaller, more or less square-shaped spot in CuA2-1A, shifted proximally, slightly out of line with the other four spots in the central band; a medium sized quadrate spot in M3-CuA1, separate from the main central band, having its slightly excavate distal margin slightly longer than the proximal margin;

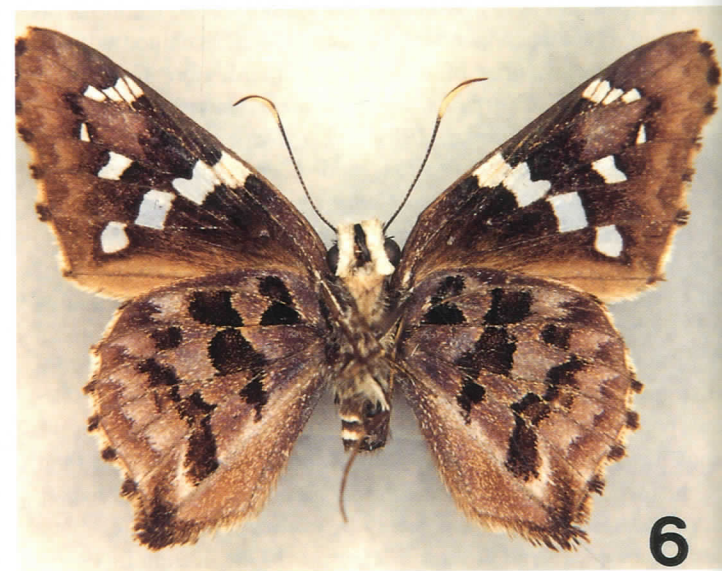
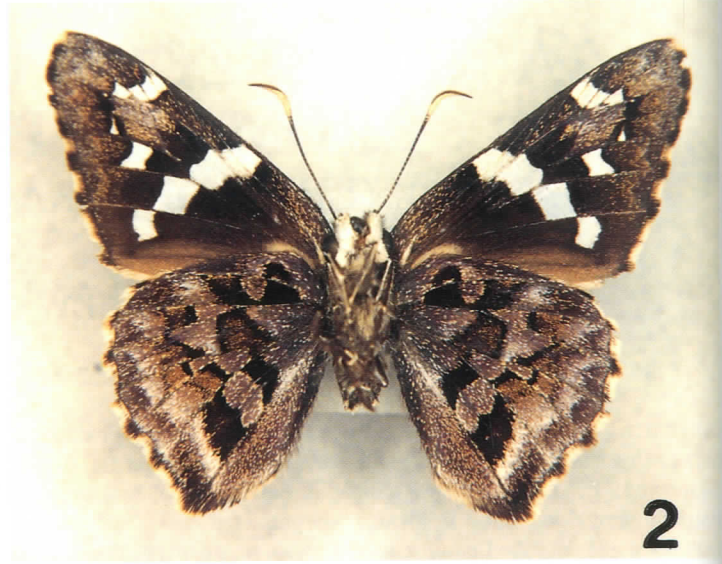


Fig. 1-6. 1) *Codatractus sallyae*, holotype ♂, dorsal surface; 2) ventral surface, data in text; 3) *Codatractus arizonensis* ♂, dorsal surface; 4) ventral surface (MEXICO: JALISCO: Ahuacapán, SSE of Autlán, 900m, 7 Jun 1994); 5) *Codatractus melon* ♂, dorsal surface; 6) ventral surface (MEXICO: JALISCO: La Calera, SW Autlán on Hwy. 80, 600m, 5 Jun 1994).

a very small spot in M2-M3; four small apical spots in a band from R2 to M1, the spot in R5-M1 offset distally from spot in R4-R5, and spot in R4-R5, slightly offset distally from spot in R3-R4. In three paratypes and the holotype, there is a trace of a spot in line with the apical band of spots in M1-M2. Fringe checkered white and brown. Dorsal hindwing appears lighter due to heavier overscaling of chocolate colored scales from base to within about 1mm of margin, below about M1; ground color brownish black; otherwise unmarked; fringe checkered. Palpi, antennae, head, thorax, and abdomen brown, except for a narrow band of white scales around the eye, and a few white scales forming a hazy, often incomplete, ring just below the club on the antennae. *Underside:* Forewing ground color as above, but paler along inner margin; spot pattern same as above; Heavy brown-gray overscaling present on distal 1/3 of wing (best seen in fresh specimens), heaviest apically; overscaling grayer at apex, browner along outer margin; a trace of brownish overscaling at wing base, as well as a small, cream-colored area at wing base along inner margin; a short, whitish streak in center of wing at base. Hindwing heavily mottled in brown-black, whitish, gray, and brownish scaling in an irregular pattern similar to that in other *melon* group species; whitish scaling concentrated in a submarginal band; some steel gray scales near wing base. Body brown, with white scales at posterior edge of each sternal segment; legs brown with some cream and white scales; palpi gray to white; white scaling around eye; antennal shaft checkered brown and white; underside of antennal club yellowish cream; antennal nudum of 26 segments in holotype, grayish brown in color. *Genitalia:* See discussion of genitalia under Remarks.

FEMALE: Unknown.

Types.—*Holotype* ♂ (Fig. 1-2): with the following labels: white (printed) MEXICO.— JALISCO: / Ahuacapán, SSE of / Autlán, 900m / 7-VI-1994 / Andrew D. Warren; white (printed and handprinted) Genitalia Vial / # 94-77 / Andrew D. Warren; red (handprinted) HOLOTYPE / *Codatractus sallyae* / Warren.

Paratypes (11♂, all from Mexico): same data as holotype (3♂); same locality as holotype, 9 Jun 1994, Isabel Vargas-Fernandez and Armando Luis-Martinez (2♂). JALISCO: La Calera, SW of Autlán on Hwy. 80, 600m, 5 Jun 1994, Andrew D. Warren (2♂); 9 Jun 1994, Andrew D. Warren (3♂). COLIMA: Agua Dulce, NW of Cd. Colima (on Rd. to Minatitlán), 250m, 10 Jun 1994, Andrew D. Warren (1♂).

Deposition of types.—The holotype and 7 paratypes are deposited in the Cornell University Insect Collection (CUIC), Cornell University, Ithaca, NY. One paratype will be deposited in each of the following institutions: National Museum of Natural History, Smithsonian Institution (USNM); American Museum of Natural History (AMNH); Allyn Museum of Entomology (AME); and the Museo de Zoología, Facultad de Ciencias, Universidad Nacional Autónoma de México (MZFC).

Type Locality.—Ahuacapán, about 10km SSE of Autlán, 900m elev., Jalisco, Mexico. The area where the holotype and 5 paratypes were collected was at the southern edge of the small town of Ahuacapán. The Autlán Valley meets the Sierra de Manatlán at the south edge of Ahuacapán, which is at the mouth of a small canyon. The hills surrounding Ahuacapán are covered in subtropical deciduous forest, but almost all the trees were without leaves when the types were collected, for June is the height of the dry season in the area (it had not rained in over 6 months at the time).

At Ahuacapán (as well as at La Calera, and Agua Dulce in Colima), all the *Codatractus* (except *C. hyster*, found at La Calera and Ahuacapán, which were perching about 0.5m above the water on small branches) were collected at mud along small creeks. While feeding at mud, the skippers were very nervous, and hard to approach without scaring them off. Once started, though, they would usually circle the area a few times, and return to a nearby

spot. The Sierra de Manatlán, as well as adjacent ranges to the north, host species and subspecies (including the pierids *Dismorphia amphiona lupita* Lamas, 1979 and *Pereute charops leonilae* Llorente, 1986, and the nymphalids *Diaetheria asteria* (Godman & Salvin, 1894), *Consul electra castanea* Llorente & Luis, 1992, and *Melinaea ethra flavicans* Hoffmann, 1924, to name a few of the described butterflies) endemic to the Nueva Galicia submontane island group stretching from southern Sinaloa to northern Colima (Llorente and Escalante, 1992). Other taxa endemic to this region are currently being described by J. Llorente-B. (pers. comm.).

Distribution.—Thus far, the new species is known from the Sierra de Manatlán, in the western Mexican states of Jalisco and Colima, from 250-900m elevation, and from Dept. Progreso, Guatemala (1♂: Río Morazan, Tre. 17, 14 Aug 1980, D. Mullins). Due to its similarity other *Codatractus*, this species will most likely be found to be more widespread in Mexico than these type specimens suggest, once museum specimens of *C. melon* and *C. arizonensis* are examined more carefully, and more collecting is done in western and southern Mexico.

Etymology.—I am pleased to name this species in honor of my mother, Sally June Warren, who first introduced me to the world of entomology at the age of three, and who has wholeheartedly supported all my entomological endeavours in every way possible.

Remarks.—*Codatractus sallyae* (Fig. 1-2) can usually be distinguished from *C. arizonensis* (Fig. 3-4) by its slightly larger size and by having less white scaling in the marginal area of the ventral hindwing. *Codatractus sallyae* can usually be told apart from *C. melon* (Fig. 5-6) by its slightly smaller size, slightly larger forewing hyaline spots, and its slightly more mottled ventral hindwing. However, both size and ventral hindwing maculation are somewhat variable in all three species, so the genitalia should always be checked for a positive determination.

Using genitalic characters, *C. sallyae* (Fig. 7) can always be separated from both *C. arizonensis* (Fig. 8), and *C. melon* (Fig. 9) by the shape of the uncus, and the positioning of the gnathos. On the uncus of *C. sallyae* (Fig. 7C-D), both lobes are squared off at the posterior ends, and are about as long as they are wide. The gnathos can barely (or occasionally cannot) be seen from the dorsal view of the uncus (Fig. 7D). In *C. arizonensis*, both lobes on the uncus (Fig. 8C-D) are twice as long as they are wide, and are not squared off at the ends. The gnathos can easily be seen from the dorsal view of the uncus in *C. arizonensis* (Fig. 8D). In *C. melon*, the lobes of the uncus (Fig. 9C-D) are short, rather pointed, and almost twice as long as wide. The uncus is much wider in *C. melon* than in either *C. sallyae* or *C. arizonensis*. The gnathos can barely (or occasionally cannot) be seen from the dorsal view of the uncus in *C. melon* (Fig. 9D). The upturned process of the harpe of *C. sallyae* (Fig. 7B) is fairly straight, or slightly bent inward, with a few spines near the tip, while in *C. arizonensis* (Fig. 8B), the process is always noticeably bent inward, and has many spines near the tip. In *C. melon*, the process of the harpe is more or less as in *C. sallyae*: fairly straight, only slightly bent inward, and with few spines at the tip. The cornutus of *C. sallyae* (Fig. 7G) has nine to ten branches and is twisted; compared to eight branches in *C. arizonensis* (Fig. 8G) and six in *C. melon* (Fig. 9G), both not twisted. The penis (Fig.

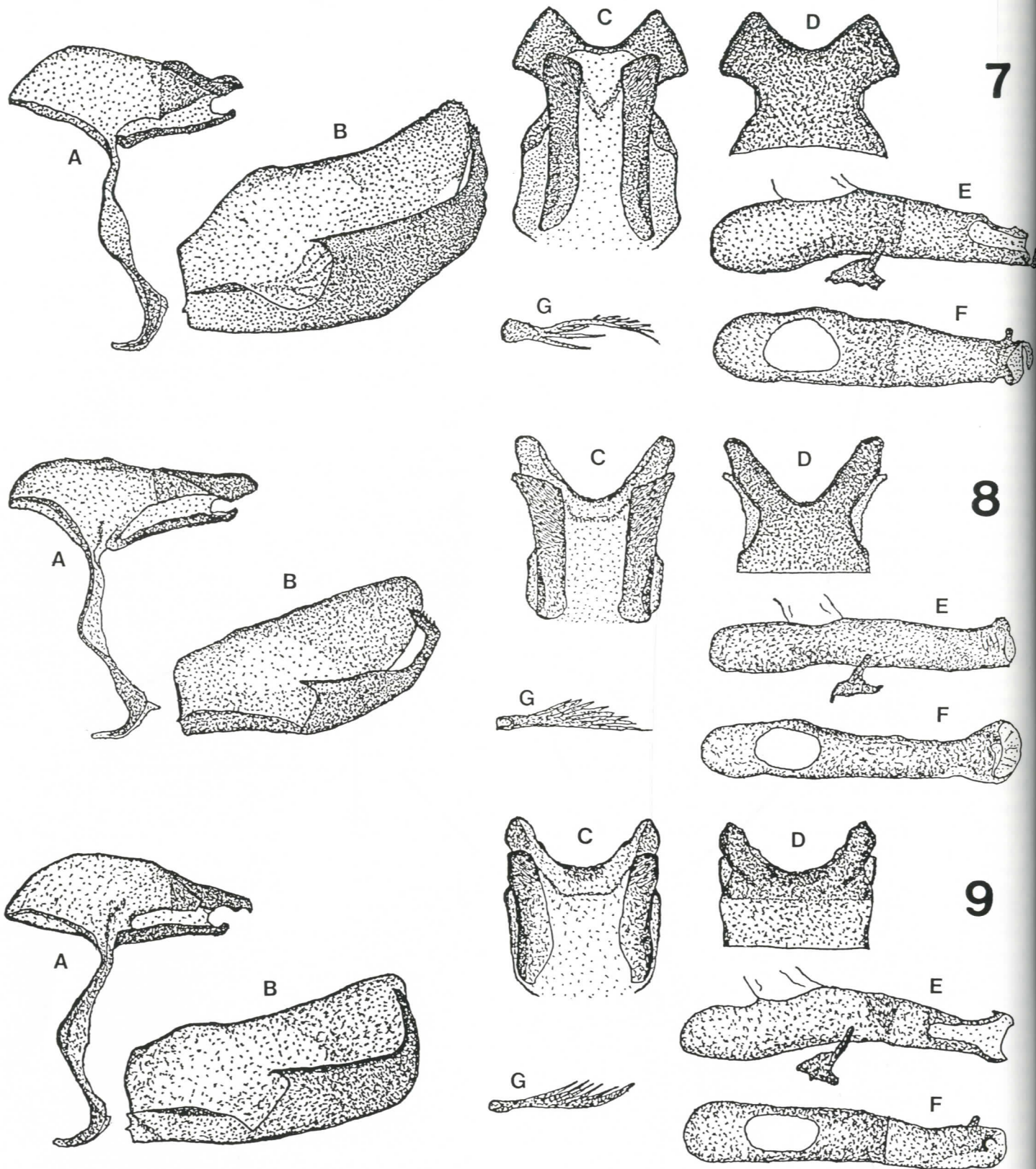


Fig. 7-9. 7) Genitalia of *Codatractus sallyae* holotype ♂: (A) tegumen, gnathos, uncus, and associated structures (lateral); (B) left valva (lateral-interior); (C) tegumen, gnathos, uncus, and associated structures (ventral); (D) uncus and gnathos (dorsal); (E) penis, transtilla, juxta (lateral); (F) same (dorsal); (G) cornutus. 8) Genitalia of *Codatractus arizonensis* ♂ (same data as Fig. 3-4), Andrew D. Warren genitalia vial # 94-73: (A) tegumen, gnathos, uncus, and associated structures (lateral); (B) left valva (lateral-interior); (C) tegumen, gnathos, uncus, and associated structures (ventral); (D) uncus and gnathos (dorsal); (E) penis, transtilla, juxta (lateral); (F) same (dorsal); (G) cornutus. 9) *Codatractus melon* ♂ (same data as Fig. 4-5), Andrew D. Warren genitalia vial # 94-69: (A) tegumen, gnathos, uncus, and associated structures (lateral); (B) left valva (lateral-interior); (C) tegumen, gnathos, uncus, and associated structures (ventral); (D) uncus, gnathos, and part of tegumen (dorsal); (E) penis, transtilla, juxta (lateral); (F) same (dorsal); (G) cornutus.

7E-F, 8E-F, 9E-F) of all three species is about the same length, but the configuration of the structures at the distal end differs. Shapes of the vinculum (Fig. 7-9: A) vary slightly between the three species.

Some genitalic characters of *C. arizonensis* and *C. melon* are more similar to each other than either is to *C. sallyae*, including shape and size of the uncus and positioning of the gnathos (Fig. 7-9: C-D), as well as non-twisted cornuti. However, the shape and size of the valvae (Fig. 7-9B) (which are symmetrical in the *melon* group), and penis (Fig. 7-9:E-F) of *C. sallyae* and *C. melon* are more similar to each other than either is to *C. arizonensis*.

In June, 1994, all four *Codatractus* species in the *melon* group known from Jalisco were found sympatrically: *C. sallyae* was found flying with *C. arizonensis* at Ahuacapán, and *C. sallyae* was found with *C. melon* and *C. bryaxis* at La Calera (Ahuacapán and La Calera are less than 12km apart, both in the Sierra de Manatlán). It is interesting, from an evolutionary point of view, that four species that are so similar all occur together. This same situation, of apparent sibling species of skippers occurring sympatrically and synchronically in western Mexico, can be seen within the tailed *Codatractus* (*C. carlos* and *C. alcaeus* fly together at Mismaloya and Boca de Tomatlán, Jalisco, and at Candelaria Loxicha, Oaxaca), as well as in several other pyrgine genera such as *Phanus*, and in hesperiine genera such as *Vacerra*. At Candelaria Loxicha, Oaxaca, *Phanus vitreus* (Stoll, 1781), *P. rilma* Evans, 1952, and *P. confusus* Austin (1993) all fly together, and *P. albiapicalis* Austin (1993) flies nearby (if not together with the other three). All four species usually require genitalic examination to be reliably differentiated (Austin, 1993).

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