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# BULLETIN OF THE CALIFORNIA INSECT SURVEY

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## THE RHIPIPHORIDAE OF CALIFORNIA

(*Coleoptera*)

BY

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# THE RHIPIPHORIDAE OF CALIFORNIA

(Coleoptera)

The Rhipiphoridae are a small family of beetles with only a few hundred species known from the entire world. The group is of special interest because of its remarkable biology. The species are parasitic in the larval stage, spending the early part of their development as internal parasites, their later development as external parasites, a habit otherwise almost unknown in the Coleoptera. The genus *Rhipiphorus* is parasitic on the larvae of bees, the California species, so far as known, mainly on gregarious species of *Nomia* (Halictidae) and *Diadasia* (Anthophoridae) (Linsley and MacSwain, 1950). *Macrosiagon*, elsewhere reported as parasitic on the larvae of wasps of the families Bembicidae, Tiphidae and Scoliidae, has not been studied biologically in California. For a summary of the published information on the habits of rhipiphorids see Balduf (1935) and Clausen (1940).

Horn (1875) and LeConte (1880) in their revisions of *Macrosiagon* and *Rhipiphorus*, record two species of the former, one of the latter from California. More recently Rivnay (1929) in his revision of the North and Central American Rhipiphoridae, reports two species of *Rhipiphorus* and five species of *Macrosiagon* from this state. In the following pages we have recorded ten species of *Rhipiphorus* and six species of *Macrosiagon* from California and have included in the keys a few additional species which are likely to occur in the state.

As in previous publications in this series we have reported the location of the specimens from which records have been taken. We have used the following abbreviations for institutional

collections: California Insect Survey, University of California, Berkeley (C.I.S.); California Academy of Sciences (C.A.S.); United States National Museum (U.S.N.M.); Museum of Comparative Zoology, Harvard (M.C.Z.); American Museum of Natural History (A.M.N.H.); University of California, College of Agriculture, Davis (U.C.D.); University of California, Citrus Experiment Station, Riverside (U.C.R.); and State Department of Agriculture, Sacramento (C.S.D.A.). We are indebted to the authorities of the above institutions, as well as to certain individuals whose records are separately acknowledged, for permission to study the specimens which have formed the basis of this report.

Because of the rarity of most species in collections, the distributional records include both new and published information derived from specimens which have been seen by the authors. In order to avoid confusion as to the source of each record, those reported here for the first time are indicated by an asterisk. Since adults of both *Rhipiphorus* and *Macrosiagon* oviposit on flowers which provide a source of infestation for host bees and wasps, flower records are important and we have reported them in detail where such information was available. Male records, especially in *Rhipiphorus*, are much less numerous than those of females, since in many species the males live only one day frequenting the nesting site of the host, and are not found on flowers. Although the females, too, are short-lived they have a long season of emergence (two or three months). Series of females may be taken by examining the same flowers day after day.

## Keys to California Rhipiphoridae

### Genera of Rhipiphoridae

- Elytra elongate, attenuate, dehiscent; claws bifid . . . . . *Macrosiagon* (p.79)  
Elytra short, scale-like, not extending beyond second abdominal segment; claws pectinate or multidentate . . . . . *Rhipiphorus* (p.80)

### Species of Macrosiagon

1. Pronotum with a distinct process on posterior median lobe; vertex with distinct concavity on front of elevation. . . . . 2

Pronotum without a process on posterior median lobe or with a small cup-like concavity; vertex without a distinct frontal concavity . . . . . 3

- 2 (1). Head and thorax brown; tibial spines truncate; wings yellowish-hyaline; antennal rami of female bifurcate. 7-11 mm.  
Central and southern California . . . . . *fernaldum* (p.83)  
Head and thorax black; tibial spines acute; wings brown; antennal rami of female acute or truncate. 7-11 mm.  
Atlantic coast to southern California . . . . . *flavipenne* (p.83)

- 3 (1). Posterior tarsus with second segment shorter than or subequal to third . . . . . 5  
 Posterior tarsus with second segment longer than third . . . . . 4
- 4 (3). Male with at least head and pronotum black; female with head and pronotum usually black, less commonly reddish-yellow (var. *rufum*), sternum black.  
 5-8 mm. North America . . . . .  
 . . . . . *cruentum cruentum* (p.81)  
 Male with at least head and pronotum pale yellow-brown; female with head and pronotum pale yellow-brown, sternum wholly or partly yellow-brown. 6-8 mm.  
 Utah to California (desert areas) . . . . .  
 . . . . . *cruentum flumineum* (p.82)
- 5 (3). Posterior tarsus with second segment, shorter and thicker than third . . . . . 6  
 Posterior tarsus with second segment subequal to third, slightly thicker, flattened above; vertex much elevated; body black, elytra yellow with apices black or brown. 5-11 mm. North America . . . . . *dimidiatum* (p.83)
- 6 (5). Vertex truncate, flattened or slightly concave in front; occiput with a distinct suture . . . . . 7  
 Vertex rounded, convex in front; occiput without a distinct suture. 3.5-8 mm.  
 North America . . . . . *pectinatum* (p.84)
- 7 (6). Pronotum red, elytra yellow; posterior tarsus with apex of first two segments produced. 7-11 mm. Eastern U.S. to southern California . . . . . *sayi* (p.84)  
 Pronotum and elytra concolorous; posterior tarsus with apex of first two segments not produced. 5-12 mm. Florida to southern California *octomaculatum* (p.83)

#### Species of *Rhipiphorus*

- Antennae pectinate, the segments bearing a single ramus . . . . . females  
 Antennae biflabellate, the segments bearing two rami . . . . . males

#### FEMALES

1. First segment of posterior tarsus obliquely truncate at apex, usually elevated and shorter than following segments combined . . . . . 2  
 First segment of posterior tarsus not obliquely truncate at apex, not or scarcely elevated, about as long as following segments combined . . . . . 10
- 2 (1). Head, thorax and abdomen concolorous black
- or piceous . . . . . 3  
 Head and thorax dark, abdomen wholly or partially reddish or yellow . . . . . 6
- 3 (2). Antennae ten-segmented . . . . . 4  
 Antennae eleven-segmented . . . . . 5
- 4 (3). Pygidium subtriangular, about as long as broad; posterior tarsal claw with eleven teeth on inner margin. 4.5-8 mm. Eastern California . . . . .  
 . . . . . *luteipennis hurdi* (p.85)  
 Pygidium nearly twice as long as broad. 4-7 mm. Nevada . . . . . *nevadicus* (p.85)
- 5 (3). Pygidium but little longer than broad with disk transversely rugose or striate; posterior tarsal claw with ten inner teeth. 8-9 mm. California . . . . . *diadasiae* (p.84)  
 Pygidium one and one-half times as long as broad with disk smooth; posterior tarsal claw with six inner teeth. 6.5 mm. Southern California to Washington . . . . . *sexdens* (p.85)
- 6 (2). Antennae eleven-segmented . . . . . 7  
 Antennae ten-segmented; pronotum, except smooth areas, very densely punctate; posterior tarsal claw with seven inner teeth. 5-8 mm. Southern California . . . . . *epinomiae* (p.84)
- 7 (6). Pronotum almost impunctate; abdomen wholly or predominantly reddish-yellow; posterior tarsal claw with four or five inner teeth; length 4-7 mm. . . . . 8  
 Pronotum distinctly punctate; abdomen straw-yellow with tergites and sternites largely black; posterior tarsal claw with seven inner teeth. 9-11 mm. New Mexico and Utah to southern California . . . . . *vierecki* (p.86)
- 8 (7). First antennal ramus about one-fourth as long as antenna; wings clear at base and apex, infuscated at middle; posterior tarsus with second segment only one and one-half times as long as third . . . . . 9  
 First antennal ramus half as long as antenna; wings infuscated from base to apical third; posterior tarsus with second segment twice as long as third. 5.5-6 mm. Texas to Arizona (Yuma) . . . . .  
 . . . . . *eremicola* (p.85)
- 9 (8). Pygidium entirely yellow; posterior tarsal claw evenly rounded, with four inner teeth. 5 mm. Southern California . . . . . *dammersi* (p.84)

- Pygidium brown, except at base; posterior tarsal claw rounded beyond middle, with five inner teeth. 4-6 mm. Central California . . . . . *smithi* (p.85)
- 10 (1). Pronotum with distinct smooth areas; posterior tarsus with second segment less than three times as long as third . . . . . 11  
Pronotum without distinct smooth areas; posterior tarsus with second segment nearly four times as long as third. 8 mm. Southern California . . . . . *blaisdelli* (p.84)
- 11 (10). Abdomen predominantly brown; posterior tarsus with first segment between three and four times as long as broad. 3.4-5.5 mm. Utah, Idaho and Washington to northern California . . . . . *californicus* (p.84)  
Abdomen predominantly red; posterior tarsus with first segment five or six times as long as broad. 5-7 mm. Utah and British Columbia to California (Sierra Nevada) *mutchleri* (p.85)
- punctate; posterior tarsi with about seventeen teeth on tarsal claw. 6 mm. So. California *epinomiae* (p.84)
- 4 (3). Tarsal claw with ten inner teeth; antennae distinctly darker toward apex. 8.5-10 mm. California . . . . . *diadasiae* (p.84)  
Tarsal claw with seven or eight inner teeth; antennae concolorous from base to apex. 6-7 mm. Southern California to Washington. . . . . *sexdens* (p.85)
- 5 (2). Pronotum almost impunctate; abdomen wholly or partially reddish or reddish-yellow; posterior tarsal claw with six or eight inner teeth; length 4.5-7 mm. . . . . 6  
Pronotum distinctly punctate; abdomen straw-yellow with tergites and sternites largely black; posterior tarsal claw with nine inner teeth. 8.5-10 mm. New Mexico and Utah to southern California *vierecki* (p.86)

## MALES

1. First segment of posterior tarsus obliquely truncate at apex, usually elevated and shorter than following segments combined . . . . . 2  
First segment of posterior tarsus not obliquely truncate at apex, not or scarcely elevated, about as long as following segments combined . . . . . 6
- 2 (1). Head and thorax dark, abdomen at least partially reddish or yellowish . . . . . 4  
Head, thorax and abdomen concolorous black . . . . . 3
- 3 (2). Antennae reddish-yellow to brown; pronotum almost impunctate; posterior tarsi with at most ten teeth on tarsal claw . . . . . 4  
Antennae straw-yellow; pronotum densely

- 6 (5). Eighth tergite entirely yellow; posterior tarsal claw evenly rounded, with six inner teeth. 4.5-6 mm. Southern California . . . . . *dammersi* (p.84)  
Eighth tergite almost wholly brown; posterior tarsal claw rounded beyond middle, with eight inner teeth. 5-7 mm. Central California *smithi* (p.85)
- 7 (1). Wings hyaline or lightly infuscated at middle; posterior tarsal claw with from eleven to thirteen inner teeth. 4-5 mm. Utah, Idaho and Washington to northern California . . . . . *californicus* (p.84)  
Wings distinctly infuscated at middle; posterior tarsal claw with from nineteen to twenty inner teeth. 6.5-7.5 mm. Utah and British Columbia to California (Sierra Nevada) . . . . . *mutchleri* (p.85)

## Discussion of Species

Genus *Macrosiagon* Hentz*Macrosiagon cruentum cruentum* (Germar)

*Rhipiphorus cruentus* Germar, 1824, Ins. Spec.  
Nov., 1:168.

## Discussion:

This subspecies varies in color, especially in the female. A small percentage of the females in most localities in western North America have the head and pronotum reddish-yellow rather than

the usual black. These are the variety *rufum* LeConte, 1854. We have seen no males with this color character.

## States recorded from:

Va., N.C., Fla., \*Ala., La., \*Tenn., Ark., \*Kans., Tex., Ariz., \*Idaho, Utah, \*Ore., Calif., Mex.

## \*California records:

ALAMEDA CO.: Niles Canyon, ♂, IX-9-38

(E. C. VanDyke, C.A.S.).

BUTTE CO.: Yankee Hill, ♀, IV-12-49, flowers Compositae (J. W. MacSwain, C.I.S.).

CALAVERAS CO.: Mokelumne Hill, ♀, V; ♀, VIII; ♀, IX; 3 ♀, VIII-6-07; ♀, VII-15-10; ♀, VII-20-10 (F. E. Blaisdell, C.A.S.).

DEL NORTE CO.: Klamath, ♀, VII-18-34 (E. P. VanDuzee, C.A.S.).

EILDORADO CO.: Chile Bar, ♀, VII-5-40 (W. E. Kelson, C.I.S.).

FRESNO CO.: Coalinga, 5 ♀, V-11-30 (R. Hopping, C.A.S.).

INYO CO.: Big Pine, 2 ♀, VI-18-29 (E. P. VanDuzee, C.A.S.); Owens Lake, ♀, VII-27-11, flowers *Asclepias* (J. M. Aldrich, C.A.S.); 5 ♀, VII-27-11, flowers *Asclepias* (J. M. Aldrich, U.C.R.). Lone Pine Creek, ♀, VI-6-39, flowers *Eriogonum* (R. M. Bohart, C.A.S.); ♂, VI-6-39, flowers *Eriogonum fasciculatum* (R. M. Bohart, U.C.D.). Lone Pine, ♀, ♂, VI-20-37 (N. W. Frazier, C.I.S.). Olancha 10 mi. S., ♀, VIII-6-48 (P. D. Hurd & J. W. MacSwain, C.I.S.). Independence, ♂, VII-17 (Wickham, U.S.N.M.).

KERN CO.: Isabella, 4 ♀, 1 ♂, VI-2-13; 5 ♀, 1 ♂, VI-1-13 (R. Hopping, C.A.S.). Havilah, ♀, VI-1-13 (C. R. Pilate, C.A.S.). Salt Lake, 2 ♀, VI-23-48 (A. T. McClay, U.C.D.).

LAKE CO.: Middletown, ♀, VII-22-34 (E. P. VanDuzee, C.A.S.). Hullville, ♂, VI-13-17 (F. E. Blaisdell, C.A.S.).

LASSEN CO.: Susanville, 3 ♀, VII-23-15 (R. Hopping, C.A.S.).

LOS ANGELES CO.: Cole, ♂, VII-2-04 (A. Fenyes, C.A.S.). Pasadena, ♂, V-1892, 4 ♀, 1 ♂, V-1897 (A. Fenyes, C.A.S.); ♀, IX-12-32 (A. T. McClay, U.C.D.). Tanbark Flat, San Dimas Experimental Forest, 2 ♀, VI-24-50, flowers *Eriogonum* (T. Haig, C.I.S.); 4 ♀, VI-24-50, flowers *Eriogonum* (R. O. Schuster, C.I.S.); ♀, VI-24-50, flowers *Eriogonum* (P. D. Hurd, C.I.S.); ♀, VI-25-50, flowers *Eriogonum* (J. W. MacSwain, C.I.S.).

MARIN CO.: ♀ (E. C. VanDyke, C.A.S.).

MENDOCINO CO.: Dos Rios, ♀, V-27-39 (W. F. Barr); ♂, V-28-39 (W. F. Barr).

MONTEREY CO.: Paraiso Springs, ♀, V-31-16; ♀, IX-1-24; ♀, VI-18-30; ♀, VII-16-33; ♀, VII-23-33 (L. S. Slevin, C.A.S.). Carmel, ♀, X-2-13 (L. S. Slevin, C.A.S.).

NEVADA CO.: 2 ♀ (E. O. Essig, C.S.D.A.). Truckee, ♂, VIII (Wickham, U.S.N.M.).

ORANGE CO.: Laguna Beach 3 ♀, 2 ♂, VIII-7-36, flowers *Eriogonum fasciculatum* (P. H. Timberlake, U.C.R.).

PLACER CO.: 2 ♀, 1 ♂, (H. S. Smith, U.C.R.). Applegate, ♂, VII-20-37 (A. T. McClay, U.C.D.).

RIVERSIDE CO.: Pinon Flat, ♂, V-27-39 (E.

S. Ross, C.A.S.); ♀, V-21-41 (E. C. VanDyke, C.A.S.); 2 ♀, 1 ♂, V-27-39 (E. S. Ross, C.I.S.); 3 ♀, V-30-39, flowers *Erigonum* (E. G. Linsley, C.I.S.); ♀, VII-29-46, flowers *Erigonum* (P. D. Hurd, C.I.S.). Soboba Springs, ♀, 2 ♂, VI-3-17; ♀, V-31-17; ♀, VI-5-17 (E. P. VanDuzee, C.A.S.). San Gorgonio Pass, ♀, V-28-41 (E. C. VanDyke, C.A.S.). Hemet, ♀, VII-23-46, flowers *Solidago* (J. W. MacSwain, C.I.S.). Riverside, ♀, V-18-25, flowers *Eriogonum fasciculatum*; ♀, V-21-25, flowers *Eriogonum fasciculatum*; ♀, V-27-29, flowers *Eriogonum fasciculatum*; 2 ♀, IV-23-34, flowers *Eriogonum fasciculatum*; ♀, V-17-34, flowers *Eriogonum fasciculatum*; ♀, IV-1-35, flowers *Pluchea camphorata*; ♀, X-20-37; ♀, V-13-29, flowers *Baccharis emoryi* (P. H. Timberlake, U.C.R.). Temecula, ♀, VII-4-50, flowers *Eriogonum* (E. G. Linsley & J. W. MacSwain, C.I.S.).

SAN BERNARDINO CO.: Forest Home ♀, VI-23-28 (E. C. VanDyke, C.A.S.). Yermo, 2 ♀, V-23-40 (G. E. Bohart, C.A.S.). Cronise, ♀, VII-7-38, flowers *Asclepias erosa* (P. H. Timberlake, U.C.R.). Kramer 15 mi. S.E., 5 ♀, V-30-50, flowers *Asclepias* (H. E. Cott & C. D. MacNeill, C.I.S.). Camp Baldy, ♀, ♂, VI-25-50, flowers *Eriogonum* (H. Hansen, C.I.S.); ♀, VII-11-50, flowers *Eriogonum* (J. W. MacSwain, C.I.S.). Cronise Valley, S.W. of Baker, ♀, V-27-50, flowers *Asclepias* (C. D. MacNeill, C.I.S.).

SAN DIEGO CO.: ♀, VIII-1913 (Leng, C.A.S.). Poway, ♀, II (C.A.S.). Jacumba, ♀, X-13-25 (J. D. Gunder, C.A.S.). San Diego, ♀, (Wickham, U.S.N.M.).

SAN LUIS OBISPO CO.: School Canyon, ♀, VI-10-17 (Hopping, C.A.S.).

SHASTA CO.: ♀, ♂, VII-3-21 (J. A. Kusche, C.A.S.). Castle Crags, ♀, ♂, VIII-2-98 (A. Fenyes, C.A.S.). Hat Creek, 5 mi. N., ♀, VI-25-47 (C. A. Hanson, C.I.S.).

SISKIYOU CO.: ♀, VIII (A. Koebele, C.A.S.). Dunsmuir, ♀, ♂, (Wickham, U.S.N.M., C.A.S.). Shasta Springs, ♀, ♂, VII-6-04 (A. Fenyes, C.A.S.). Yreka, 4 ♀, IX-10-37 (A. T. McClay, U.C.D.).

VENTURA CO.: ♀, V-9-13 (E. O. Essig, C.S.D.A.).

YOLO CO.: Davis, ♀, V-23-36 (R. M. Bohart, U.C.D.).

Host: unknown.

#### *Macrosiagon cruentum flumineum* Linsley and MacSwain

*Macrosiagon cruentum flumineum* Linsley and MacSwain, 1950, Wasmann Jour. Biol., 8:238. (Type, ♀, Imperial Valley, California, C.A.S.).

States recorded from:

Utah and Calif.

**California records:**

IMPERIAL CO.: ♀, VI-1910 (F. E. Blaisdell, C.A.S.); ♀, VI-1911 (E. C. VanDyke, C.A.S.).

RIVERSIDE CO.: Mecca, ♀, VII-13-35 (D. L. Tieman, C.A.S.). Blythe, ♀, VIII-31-46, flowers *Aster spinosus* (J. W. MacSwain, C.I.S.).

\*SAN BERNARDINO CO.: Cronise Valley, 17 mi. S.E. Baker, ♂, V-27-50, flowers *Asclepias* (H. E. Cott, C.I.S.). Kramer Junction, 15 mi. E., 2 ♀, VI-15-50, flowers *Asclepias* (J. W. MacSwain, C.I.S.).

Host: unknown.

*Macrosiagon dimidiatum* (Fabricius)

*Mordella dimidiata* Fabricius, 1781, Spec. Ins., 1:332. (Type locality unknown).

**States recorded from:**

N.H., N.Y., N.J., N.C., Va., Fla., Mo., Ark., \*Kan., \*Okla., \*N.M., Tex., \*Ariz., \*Nev., \*Idaho, \*Wash., \*Ore., and Calif.

**\*California records:**

CONTRA COSTA CO.: Antioch, ♀, VIII-10-41 (E. C. VanDyke, C.A.S.).

ELDORADO CO.: Camino 3 mi. S., ♂, VI-23-48, flowers Compositae (P. D. Hurd, C.I.S.).

FRESNO CO.: Firebaugh, ♀, VIII-4-47, flowers *Asclepias* (R. van den Bosch, C.I.S.).

INYO CO.: Big Pine, ♀, VI-18-29 (E. P. VanDuzee, C.A.S.).

LOS ANGELES CO.: ♀, VII-1937 (R. H. Smith, U.C.D.), Los Angeles, ♀, VI-15-22 (E. C. VanDyke, C.A.S.). Palmdale, ♀, X-6-35 (E. G. Linsley, C.I.S.); ♂, X-5-35 (A. T. McClay, U.C.D.).

RIVERSIDE CO.: Hemet, ♀, VI-21-37 (A. T. McClay, U.C.D.). Hemet 10 mi. W., ♂, VIII-11-46 (J. W. MacSwain, C.I.S.). Riverside, 2 ♂, IX-5-38 (C. M. Dammers, U.C.R.). Temecula, ♀, VII-4-50, flowers *Eriogonum* (E. G. Linsley & J. W. MacSwain, C.I.S.).

SAN DIEGO CO.: Poway, 3 ♀, (F. E. Blaisdell, C.A.S.). San Diego, ♀, VIII-23-90 (F. E. Blaisdell, C.A.S.).

Host: unknown.

*Macrosiagon fernaldum* Rivnay<sup>1</sup>

*Macrosiagon fernaldum* Rivnay, 1929, Mem. Am. Ent. Soc., 6:26. (Type, ♂, Lindsay, Calif., U.S.N.M.).

**States recorded from:**

Calif.

<sup>1</sup>First reported from California by Horn (1875) as a variety of *flavipenne* (LeConte).

**California records:**

\*KERN CO.: Arvin, 2 ♀, V-14-38 (F. D. Horn, C.I.S.).

RIVERSIDE CO.: Palm Springs, 2 ♀, 2 ♂, V-20-05 (A. Fenyes, C.A.S.); ♀, ♂, VI-8-16; 4 ♀, 3 ♂, V-15-17 (J. O. Martin, C.A.S.); 2 ♀, 1 ♂, V-22-17 (E. P. VanDuzee, C.A.S.).

\*SAN BERNARDINO CO.: Daggett, ♂ (A. Fenyes, C.A.S.). Yermo, ♀, ♂, V-23-40 (G. E. Bohart, C.A.S.). Cronise, ♀, VII-7-38, flowers *Asclepias erosa* (P. H. Timberlake, U.C.R.).

\*SAN DIEGO CO.: Pine Valley, 2 ♀, VI-20 (C.A.S.). San Felipe Valley, ♀, VII-20 (C.A.S.); 4 ♀, ♂, VI-7-40, flowers *Asclepias* (C.A.S.); 2 ♀, 2 ♂, VI-7-40, flowers *Asclepias* (F. R. Rindge & B. Slocum, C.I.S.).

TULARE CO.: Porterville, ♀, ♂, VII-13 (E. C. VanDyke, C.A.S.). Lindsay, 2 ♀, 2 ♂, VIII-4-11; ♀, VII-16-09; 3 ♀, ♂, VI-28-09; ♀, ♂, VII-15-09, all flowers *Asclepias* (W. A. Davidson, U.S.N.M.).

*Macrosiagon flavipenne* (LeConte)

*Rhipiphorus flavipenne* LeConte, 1866, Smiths. Misc. Col., 6:153. (Type, ♂, New York, M.C.Z.).

**States recorded from:**

Mass., \*Conn., N.Y., N.J., \*Pa., Va., N.C., Ga., Fla., Ala., La., \*Ill., \*Mo., Kans., Tex., Calif.

**\*California records:**

LOS ANGELES CO.: Palmdale, ♀, VI-9-18 (J. O. Martin, C.A.S.). Claremont, ♂, IX-7-27 (T. Craig, C.A.S.).

RIVERSIDE CO.: Riverside, ♂, IX-11-27, flowers *Isocoma verna* (P. H. Timberlake, U.C.R.). Hemet, ♀, VIII-22-46 (J. W. MacSwain, C.I.S.).

SAN BERNARDINO CO.: Morongo, ♀, ♂, IX-26-44, flowers *Solidago confinis*; ♂, IX-27-44, flowers *Solidago confinis*; ♀, IX-29-44, flowers *Solidago confinis* (P. H. Timberlake, U.C.R.).

SAN DIEGO CO.: Poway, ♀, VIII-30-80 (C.A.S.). Host: *Bembix spinolae* Lepeletier (Barber, 1915).

*Macrosiagon octomaculatum* (Gerstäcker)

*Rhipiphorus octomaculatus* Gerstäcker, 1855, Rhipiph. Col. Fam., p. 22. (Types Illinois and Brazil).

**States recorded from:**

\*Va., N.C., Ga., Fla., Ala., Ill., \*Mo., Kans., Tex., \*N.M., Ariz., \*Calif.

## California records:

SAN BERNARDINO CO.: Baldy Mesa, 3700' elev., ♀, VII-21-36, flowers *Eriogonum fasciculatum* (A. J. Basinger, U.C.R.). Lucerne Valley, ♀, VII-8-50 (J. L. Nickel, C.I.S.).  
Host: unknown.

*Macrosiagon pectinatum* (Fabricius)

*Mordella pectinata* Fabricius, 1775, Systema Entom., p. 263. (Type locality: "America")

## Discussion:

This is apparently an extremely variable species or species complex. Rivnay (1929) lists numerous supposed synonyms but obviously more study of these is required. We have seen no California specimens.

## States recorded from:

"All over North and Central America" (Rivnay, 1929).

## California records:

Not yet reported.

Host: *Tiphia* (Davis, 1919).

*Macrosiagon sayi* (LeConte)

*Rhipiphorus bicolor* Say, 1823, Jour. Acad. Phila., 3:275. (Type Pennsylvania, lost). [Preocc.]  
*Rhipiphorus sayi* LeConte, 1858, Jour. Acad. Nat. Sci. Phila., 4:21. [New name].

## States recorded from:

Penn., N.J., Del., D.C., Va., N.C., Fla., La., Ill., Mo., Kan., Ariz., and Calif.

## \*California records:

SAN DIEGO CO.: ♀ (C.S.D.A.).

Host: *Myzine* sp. (as *Elis* sp.) (Rivnay, 1929).

Genus *Rhipiphorus* Bosc.

*Rhipiphorus blaisdelli* Linsley and MacSwain  
*Rhipiphorus blaisdelli* Linsley and MacSwain, 1950, Wasmann Jour. Biol., 8:237. (Type Poway, San Diego Co., California, C.A.S.).

## States recorded from:

Calif.

## California records:

SAN DIEGO CO.: Poway, ♀ (F. E. Blaisdell, C.A.S.).  
Host: unknown.

*Rhipiphorus californicus* (LeConte)

*Myodites californicus* LeConte, 1880, Trans. Amer. Ent. Soc. 8:210. (Type ♀, California, Mus. Comp. Zool.).

## States recorded from:

\*Idaho (Moscow), Wash. (Soda Springs, \*Walla Walla, \*Colfax), Ore. (Hood River), Calif., \*Utah (Salt Lake City, Timpanogas).

## \*California records:

SHASTA CO.: Castle Crags, ♀, ♂, VII-30-98 (A. Fenyes, C.A.S.).

CALAVERAS CO.: Mokelumne Hill, 2 ♀, X (F. E. Blaisdell, C.A.S.).

Host: unknown.

*Rhipiphorus dammersi* Barber

*Ripiphorus dammersi* Barber, 1939, Bull. Brooklyn Ent. Soc., 34:19. (Type ♂, Blythe, California, U.S.N.M.).

## States recorded from:

Calif.

## California records:

RIVERSIDE CO.: Blythe, 1 ♀, 13 ♂, VII-15-38 (C. M. Dammers, U.S.N.M.); 10 ♀, 73 ♂, VIII-13-38 (C. M. Dammers and G. P. Englehardt, U.S.N.M.); ♀, VIII-20-46, flowers *Sida hederacea* (J. W. MacSwain, C.I.S.).

Host: *Diadasia consociata* Timberlake (Barber, 1939).

*Rhipiphorus diadasiae* Linsley and MacSwain

*Rhiphorus diadasiae* Linsley and MacSwain, 1950, Wasmann Jour. Biol., 8:234. (Type ♀, Barret Springs, San Diego Co., California, C.A.S.).

## States recorded from:

Calif.

## California records:

SAN DIEGO CO.: Barret Springs, 6 ♀, 3 ♂, IV-20-50 (E. G. Linsley and J. W. MacSwain, C.I.S.).

\*SANTA CLARA CO.: Alum Rock Park, ♂, V-19-40 (B. Brookman).

Host: *Diadasia bituberculata* Cresson (Linsley and MacSwain, 1950).

*Rhipiphorus epinomiae* Linsley and MacSwain  
*Rhipiphorus epinomiae* Linsley and MacSwain, 1950, Wasmann Jour. Biol., 8:229. (Type ♀, Blythe,

Riverside Co., California, C.A.S.).

States recorded from:

Calif.

California records:

IMPERIAL CO.: Holtville, ♀, VI-20-39 (E. S. Ross, C.A.S.). Westmorland, 2 ♀, V-31-30, flowers *Aster spinosus* (P. H. Timberlake, U.C.R.). Laguna Dam, ♀, XI-25-35 (C. M. Dammers, U.C.R.). Brawley, 5.2 mi. W, ♀, V-2-39, flowers *Sphaeralcea orcutti* (C. A. Fleschner).

MONO CO.: Hot Creek, ♀, VIII-1-36 (R. M. Bohart, U.C.D.).

RIVERSIDE CO.: Blythe, ♀, ♂, VI-27-45 (E. G. Linsley and J. W. MacSwain, C.A.S.); ♂, VI-23-46 (R. F. Smith, C.I.S.); ♀, VIII-19-46, flowers *Sesbania* (J. W. MacSwain, C.I.S.). Ripley, 2 ♀, VII-14-46 (W. F. Barr, C.I.S.). Hemet, 1 ♀, VIII-10-46, flowers *Solidago* (J. W. MacSwain, C.I.S.).

TULARE CO.: ♀, V-1935 (P. Baldwin, U.C.D.). Host: *Nomia (Epinomia) nevadensis* Cresson (Linsley and MacSwain, 1950).

*Rhipiphorus eremicola* Linsley and MacSwain

*Rhipiphorus eremicola* Linsley and MacSwain, 1950, Wasmann Jour. Biol., 8:231. (Type ♀, Pecos, Texas, C.A.S.).

Discussion:

We have not seen any California specimens assignable to this species but since it has been taken at Yuma, Arizona it undoubtedly occurs in this state.

States recorded from:

Texas, Ariz.

California records:

Not yet reported.

Host: unknown.

*Rhipiphorus luteipennis burdi* Linsley and MacSwain

*Rhipiphorus luteipennis burdi* Linsley and MacSwain, 1950, Wasmann Jour. Biol., 8:236. (Type, ♀, Grant Lake, Calif., C.A.S.).

States recorded from:

Calif.

California records:

MONO CO.: Grant Lake, 3 ♀, V III-5-48, flowers

*Chrysanthemum* (P. D. Hurd and J. W. MacSwain, C.I.S.).

Host: unknown.

*Rhipiphorus mutchleri* Rivnay

*Rhipiphorus mutchleri* Rivnay, 1929, Mem. Amer. Ent. Soc., 6: 57. (Type ♀, Ormsby Co., Nevada, A.M.N.H.).

States recorded from:

\*British Columbia (Vernon), \*Washington (Colfax), \*Oregon (Hood River), California, Nevada, \*Utah (Provo, Park City).

California records:

\*PLUMAS CO.: 4 mi. W. Quincy, ♀, VI-22-49 flowers *Achillea* (R. C. Bechtel, C.I.S.).

\*ELDORADO CO.: Pollock Pines, ♂, VIII-8-39 (A. T. McClay, U.C.D.).

Host: unknown.

*Rhipiphorus nevadicus* (LeConte)

*Myodites nevadicus* LeConte, 1880, Trans. Amer. Ent. Soc., 8:211. (Type ♀, Nevada, M.C.Z.).

States recorded from:

Nevada.

California records:

Not yet reported.

Host: unknown.

*Rhipiphorus sexdens* Linsley and MacSwain

*Rhipiphorus sexdens* Linsley and MacSwain, 1950, Wasmann Jour. Biol., 8:235. (Type ♀, Pinon Flat, San Jacinto Mts., Riverside Co., California, C.A.S.).

States recorded from:

\*Wash. (Kennewick), Calif.

California records:

RIVERSIDE CO.: Pinon Flat, ♀, V-24-39 (E. G. Linsley, C.A.S.).

Host: unknown.

*Rhipiphorus smithi* Linsley and MacSwain  
(Plate IX, ♀.)

*Rhipiphorus smithi* Linsley and MacSwain, 1950, Wasmann Jour. Biol., 8:232. (Type ♀, Tracy, San Joaquin Co., California C.A.S.).

States recorded from:

Calif.

California records:

\*MERCED CO.: Turner Island, N. Dos Palos, ♀, VIII-29-50, flowers *Sida hederacea* (C. D. MacNeill, C.I.S.).

SAN JOAQUIN CO.: Tracy, 46 ♀, 115 ♂, V-23 to VII-1-49, flowers *Sida hederacea* (R. F. Smith, J. W. MacSwain, W. W. Allen, V. M. Stern, R. van den Bosch, C.I.S.); ♀, VII-23-37 (E. S. Ross, C.A.S.); 3 ♀, 7 ♂, VII-27-50 (E. G. Linsley and J. W. MacSwain,

C.I.S.).

Host: *Diadasia consociata* Timberlake (Linsley and MacSwain, 1950).

*Rhipiphorus vierecki* (Fall)

*Myodites vierecki* Fall, 1907, Trans. Amer. Ent. Soc., 31:259. Type ♀, Florence, Arizona, M.C.Z.  
*Myodites knausi* Pierce, 1920, Ent. News, 31:279.  
 (Types ♂ ♀, Hurricane, Utah).

States recorded from:

\*Texas (Valentine, Alpine, El Paso, Sierra Blanca, Sanderson, White Rose Canyon); New Mexico (Almagordo, \*Loving); Utah (St. George, Hurricane); Arizona (Florence, \*Tucson, \*Weaver Mts., \*Santa Rita Mts., \*Santa Catalina Mts., \*Douglas, \*20 mi

E. of Mesa, \*Wickenburg, \*Oatman, \*Globe); \*California.

California records:

RIVERSIDE CO.: Pinon Flat, San Jacinto Mts., ♀, V-25-39 (E. S. Ross, C.I.S.); Vandevanter Flat, San Jacinto Mts., 2 ♀, VI-12-39 (E. G. Linsley, C.I.S.); 27 mi. E. of Hemet, ♀, VI-28-46 (W. F. Barr).

LOS ANGELES CO.: ♂ (E. C. VanDyke, C.A.S.).

SAN BENITO CO.: The Pinnacles, ♀, V-19-41 (J. W. MacSwain, C.I.S.).

SAN BERNARDINO CO.: Windmill Station, ♀, V-28-50, flowers *Encelia* (C. D. MacNeill, C.I.S.).

SAN DIEGO CO.: Borego State Park, ♀, IV-26-50 (C. D. McNeill, C.I.S.).

Host: unknown.

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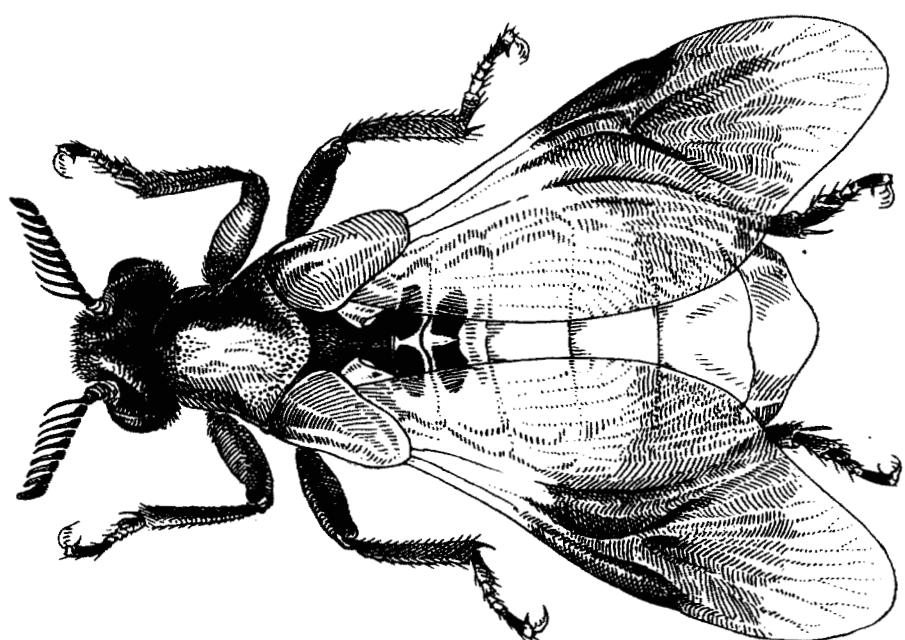
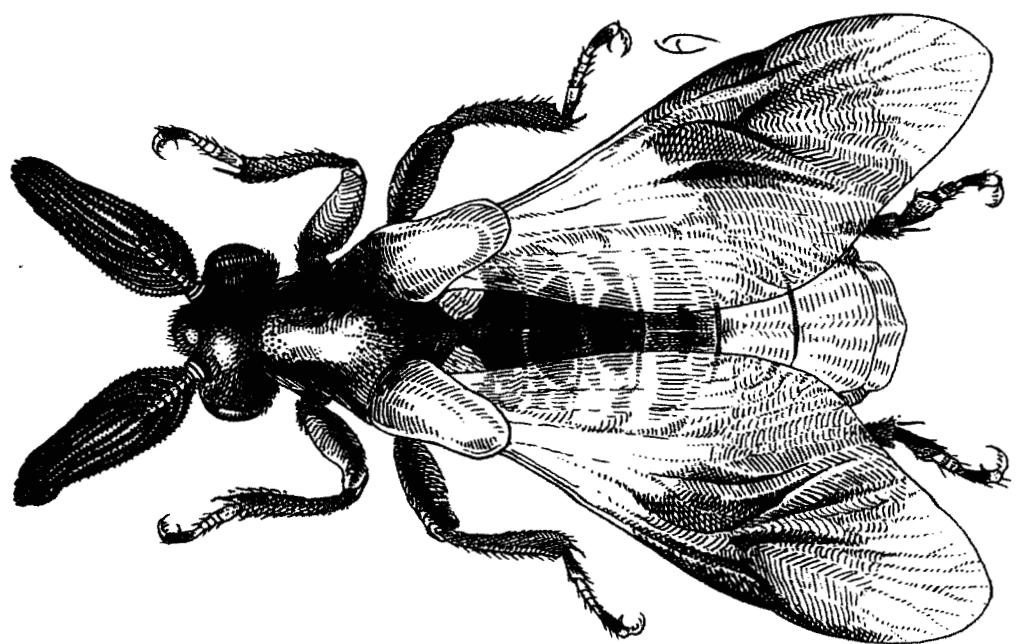


PLATE 9

*Rhipiphorus smithi* Linsley and MacSwain, ♀♂  
(x 20). (Drawings by F. Abernathy, courtesy of  
E. O. Essig).