

THE GENUS *DIOGMITES* (ROBBER FLIES) IN  
EASTERN UNITED STATES<sup>1</sup>  
(DIPTERA: ASILIDAE)

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ABSTRACT

The taxonomic status of the genus *Diogmites* has been the subject of controversy for many years, but it is now recognized as a valid genus, separable from *Deromyia* (with which it has been synonymized by many workers) by a number of characters. *Diogmites* is represented in eastern United States by 12 species: *basalis* (Walker), *neoternatus* (Bromley), *ternatus* Loew, *discolor* Loew, *missouriensis* Bromley, *properans* Bromley, *platypterus* Loew, *misellus* Loew, *salutans* Bromley, *crudelis* Bromley, *esuriens* Bromley, and *rubrodorsatus*, a new species described in this paper. This paper contains descriptions of these 12 species, and notes on their occurrence in eastern United States.

INTRODUCTION

The genus *Diogmites* occurs from the United States south to northern Argentina (fig. 1) and is represented in the United States by some 26 species; 12 species occur in the eastern states (east of the Mississippi river), and several of these are widely distributed throughout the country.

The robber flies of this genus are elongate and almost completely hairless; the mystax is reduced to a weak whitish group of hairs. The dominant colors are reddish brown and brownish yellow, but color patterns of black, golden, and silver occur in some species. The mesonotum often bears three black stripes that contrast strikingly with the golden background of the disc.

These insects are predaceous, and often prey on insects larger than themselves. Their principal prey consists of aculeate Hymenoptera, and their predation on honey bees often causes significant economic damage (Bromley, 1930); they also prey on Odonata and Diptera, including members of the same species.

There are no references in the literature to the immature stages of *Diogmites*. R. M. Goslin, of the Ohio State Museum, collected several pupae of *D. basalis* and *D. discolor* on the ground in a corn field; the soil in this field was sandy and dry, but during the previous winter was completely covered with water.

These insects apparently do not fly far from the place where the immature stages are spent, and are often abundant in certain areas. They commonly occur along woodland edges, the shores of streams, and in open fields with low vegetation; in Ohio they seem to prefer clover fields and fields containing blackberry bushes. The seasonal range of the adults varies in different species, from the end of June to the middle of October. The adults are active during the day, and at dusk seek refuge under branches and stones.

TAXONOMIC STATUS OF THE GENUS *DIOGMITES*

The taxonomic status of the genus *Diogmites* Loew (1866) has been discussed by many workers. Williston (1883) believed that *Diogmites* Loew was synonymous with *Deromyia* Philippi (1865). Philippi gave a very clear description of *Deromyia*, with drawings, and designated *D. gracilis* Philippi as the type. Many subsequent workers have followed Williston's lead and have placed these asilids in the genus *Deromyia*.

Osten Sacken (1887), on the other hand, believed that *Diogmites* and *Deromyia* were different genera, though he felt that if there were substantial disagreement with this opinion the two might be given the status of subgenera. Williston

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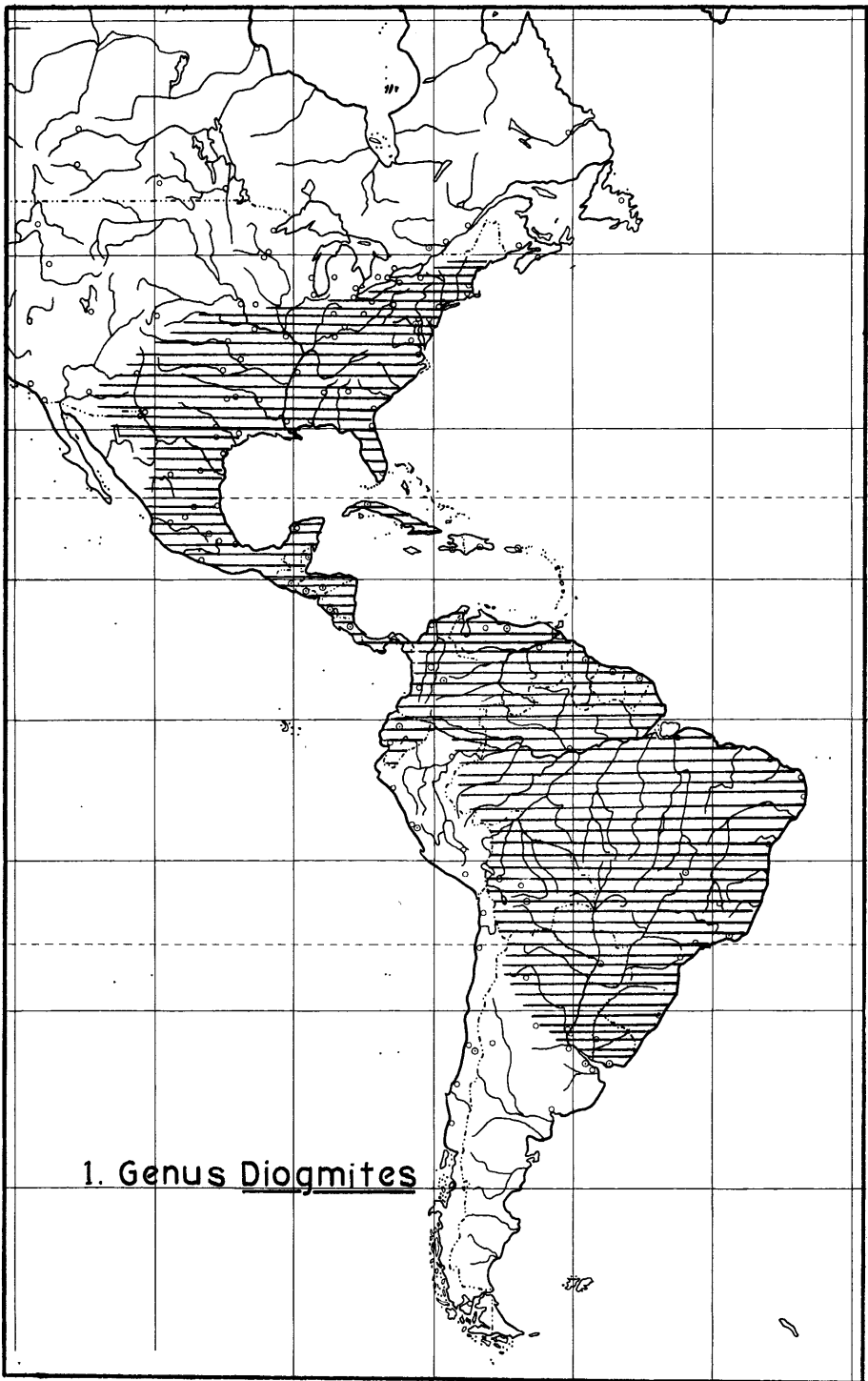


FIGURE 1. Distribution of the genus *Diognites* Loew.

(1889: 256) said that he could not agree with Osten Sacken, because Philippi's description was as good as Loew's, and a year earlier. Osten Sacken (1891) then insisted that it was erroneous to maintain that *Deromyia* and *Diogmites* were synonymous, because the reasons were "irrelevant." He pointed out that Philippi's description was actually published the same year as Loew's, because the volumes of the "Verhandlungen" were issued not in the year of their date but several months later, during the following year. He did not believe that Philippi's description was as good as Loew's, and believed that two of the three species Philippi placed in his genus probably did not belong there.

Malloch (1928), after a careful study of the types of the two genera, stated that *Deromyia* Philippi and *Diogmites* Loew were generically different and could be distinguished by several morphological characters. Engel (1929) pointed out that these genera can be differentiated by the antennae and the scutellar bristles.

Bromley (1936) concluded that *Diogmites* and *Deromyia* were different genera, and that *Deromyia* was more closely related to the African genus *Neolaparus* than to the North American genus *Diogmites*. He stated that the correct genus for the North American species was *Diogmites*, and that the type was *D. platypterus* Loew, as Loew had established it. After this opinion by Bromley, most writers followed his lead and described their new species in *Diogmites*. Prior to his 1936 paper, Bromley had used the generic name *Deromyia*, but afterwards he used the name *Diogmites*.

Loew's paper (1866) appeared in *Diptera Americae Septentrionalis Indigena*, Part II, Centuria Septima, pp. 80-84, where he described the species *unicolor*, *platypterus*, *discolor*, *ternatus*, *misellus*, *bilineatus*, *angustipennis*, *hypomelas*, and *umbrinus*. This work is cited by most writers as "Cent. VII, 1866", but such a citation is incomplete and the paper is difficult to locate from this citation alone.

Loew (1874) separated *Diogmites* from *Saropogon* by the following characters: fourth posterior cell closed farther from the wing margin (in *Saropogon* it is open, or closed at the wing margin), head wider, and the abdomen and legs longer and more slender. Williston (1884) pointed out that these differences were sometimes very slight, and in some cases were practically nonexistent. He also stated that *Diogmites misellus* (a North American species) was almost identical with *Deromyia gracilis* Philippi (a Chilean species); the fourth posterior cell in *gracilis* is closed just within the border of the wing. Hull (1962), states that *Deromyia* Loew is a distinct and separate Chilean genus.

The present opinion among dipterists is that the correct name for the North American genus is *Diogmites*. *Deromyia* Philippi and *Diogmites* Loew may be distinguished by the following characters:

#### *Deromyia*

1. Fourth posterior cell pointed and closed near the wing's border, connected with it by a short stalk. The closing vein of fourth posterior cell forms a right angle with the lower end vein of the discal cell (fig. 5).
2. Third antennal segment wearing a cylindrical style with a short spine on the apex (fig. 3).
3. No scutellar bristles.

#### *Diogmites*

1. Fourth posterior cell not pointed, closed far from the wing's border, and connected with it by a fairly long stalk. The closing vein of fourth posterior cell and the lower end vein of the discal cell tending to be nearly aligned (fig. 6).
2. Third antennal segment without style (fig. 4).
3. At least two strong scutellar bristles (figs. 27 to 38).

#### METHODS OF STUDY AND ACKNOWLEDGMENTS

This paper is based on a study of 483 specimens in the collections of the American Museum of Natural History in New York, the Museum of Comparative Zoology at Harvard University, the Academy of Natural Sciences in Philadelphia, the U. S. National Museum in Washington, the Ohio State Museum,

and the Ohio State University in Columbus. All or part of the collections of Bromley, Loew, Osten Sacken, Bequaert, C. W. Johnson, and Curran are located in these museums.

The writer is indebted to the men in charge of these collections for permission to study them, and to a great many other people for their help and suggestions during this study, particularly to Dr. Donald J. Borror, of the Department of Zoology and Entomology, Ohio State University. This study was supported by a grant from the Rockefeller Foundation.

Specimens of some species (e.g., *D. basalis* and *D. platypterus*) may be covered with grease after death, and this grease often obscures such important characters as hairs, bristles, the pollinose condition of the body, and color. Bromley (1936) has recommended that this grease be removed by putting the specimens in a bath of xylene or benzene for four or five days, then drying them; this procedure has been followed by the writer, and has proven very satisfactory. It destroys some characters (e.g., the pollinose condition and the natural color), but it permits easy observation of the hairs and bristles. Specimens degreased by the writer have been marked with a special label.

Special attention was given to a number of characters, including the color of a large number of body areas, hairs, and bristles, the amount of constriction between the second and third abdominal segments, the spines on the ovipositor, and measurements of body length, wing length, and wing width. If a character was not constant in at least 75 per cent of the specimens examined, it was not used for taxonomic purposes; if it was constant in 75 to 90 per cent of the specimens it is described as "usual," and exceptions as "occurring sometimes"; if it was constant in 91 to 96 per cent of the specimens examined, the exceptions are described as occurring "in a few cases"; exceptions to a character that was constant in 97 per cent or more of the specimens examined are described as "occurring rarely."

In the cases where type material was studied, this fact is indicated by (Type vid.).

#### ABBREVIATIONS USED

AE—A. Eddy	GHF—G. H. French	OSM—Ohio State Museum
AJW—A. J. Weldt	HES—H. E. Smith	OSU—Ohio State University
AMNH—American Museum of Natural History	HH—H. Hoogstraal	PC—posterior cell
ATH—A. T. Hardy	HJR—H. J. Reinhard	PHA—Philadelphia Academy of Sciences
ATS—A. T. Slosson	HLV—H. L. Viereck	PWF—P. W. Fattig
CFW—C. F. Walker	HYE—H. Y. Edwards	PWO—P. W. OMAN
CHM—C. H. Martin	IBP—I. B. Pigow	RCO—R. C. Osburn
CLR—C. L. Remington	JA—J. Angus	RDB—R. D. Bird
CMW—C. M. Weed	JAT—J. A. Taylor	REW—R. E. Woodruff
CTG—C. T. Green	JB—J. Bequaert	RHB—R. H. Beamer
CV—closing vein	JDB—J. D. Beamer	RLB—R. L. Blicke
CWJ—C. W. Johnson	JDH—J. D. Haynie	RMG—R. M. Goslin
DMT—D. M. Triplehorn	JLZ—J. L. Zabriskie	RKD—R. R. Dreisbach
DSB—D. S. Bullock	JN—J. Nottingham	RWS—R. W. Strandtmann
DWJ—D. W. Jenkins	JS—J. Silver	SK—S. Know
EBS—E. B. Southwick	JST—J. S. Thomas	SWB—S. W. Bromley
EGA—E. G. Anderson	KS—D. J. and J. N. Knull	SWJ—S. W. Johnson
EGV—E. G. Vanatta	LC—Loew Collection	TBM—T. B. Mitchell
EGW—E. G. Weneneek	LDJ—L. D. Jackson	TRM—T. R. Mitchell
EH—E. Herbsch	LDT—L. D. Tuthill	USNM—U. S. National Museum
EL—E. Lerch	LV—lower end vein	WDA—W. D. Appel
ELB—E. L. Bell	LKG—L. K. Gloyd	WET—W. E. Triplehorn
EST—E. S. Thomas	LM—L. Millspough	WLM—W. L. MacAtee
ETC—E. T. Cresson, Jr.	LTB—L. T. Barber	WMM—W. M. Middleton
FAE—F. A. Eddy	MCZ—Museum of Comparative Zoology, Harvard University	WMW—W. M. Weed
FGW—F. G. Werner	MDN—M. D. Neiswander	WS—W. Stone
FMS—F. M. Schott	MES—M. E. Smith	WTD—W. T. Davis
FSB—F. S. Blanton	NB—N. Banks	
FWW—F. W. Walker	OSC—Osten Sacken Collection	
GEB—G. E. Bohart		

KEY TO THE SPECIES OF *Diogmites* IN EASTERN UNITED STATES

1. Abdomen more or less constricted between second and third segments..... 2  
 1'. Abdomen not at all constricted between second and third segments..... 5  
 2(1). Abdomen distinctly constricted between second and third segments (fig. 7)..... 3  
 2'. Abdomen only slightly constricted between second and third segments; south-eastern United States..... 4  
 3(2). Central stripe of mesonotum usually shading to red or brown anteriorly, and not extending to pronotum (fig. 12)..... *neoternatus* Bromley  
 3'. Central stripe of mesonotum not shading to red or brown anteriorly, and extending to pronotum (fig. 37)..... *ternatus* Loew  
 4(2'). Central stripe of mesonotum divided longitudinally for its entire length, and not reaching pronotum (fig. 32)..... *esuriens* Bromley  
 4'. Central stripe of mesonotum not divided longitudinally, and reaching pronotum (fig. 34)..... *rubrodorsatus*, sp. n.  
 5(1'). Orbital, postvertical, and bristles of first abdominal segment black..... 6  
 5'. Orbital, postvertical, and bristles of first abdominal segment whitish, yellow, or reddish brown..... 7  
 6(5). Abdomen and mesonotum reddish brown; legs dark reddish brown, as dark as body; sides of abdominal tergites with an oblique line, contrasting with a golden spot on posterior angle (fig. 26); northeastern United States..... *basalis* (Walker)  
 6'. Abdomen black, mesonotum dark brown; legs yellowish, lighter than body; central and southern United States..... *platypterus* Loew  
 7(5'). Mesonotum with three conspicuous black stripes; central stripe of mesonotum shading into red anteriorly, not divided longitudinally, and not reaching pronotum, the lateral stripes divided horizontally (fig. 27)..... *missellus* Loew  
 7'. Mesonotum variable, either without conspicuous black stripes, or central stripe not as above..... 8  
 8(7'). Mesonotum without distinct stripes but with two thin, short, brown lines rarely present in center of disc (fig. 38)..... *crudelis* Bromley  
 8'. Mesonotum with three black or brown stripes..... 9  
 9(8'). Pronotal bristles black; abdomen dark, almost black in males, lighter in females, the posterior angles of tergites silver pollinose (fig. 25)..... *discolor* Loew  
 9'. Pronotal bristles white or yellow..... 10  
 10(9'). Stripes of mesonotum black, strongly contrasting with yellowish color of disc (figs. 32, 33, 36)..... 11  
 10'. Stripes of mesonotum brownish, not strongly contrasting with color of disc (fig. 35)..... *saluans* Bromley  
 11(10). Central stripe of mesonotum reaching pronotum (figs. 33, 36)..... 12  
 11'. Central stripe of mesonotum not reaching pronotum..... *esuriens* Bromley  
 12(11). Central stripe of mesonotum divided longitudinally (fig. 33)..... *missouriensis* Bromley  
 12'. Central stripe of mesonotum not divided longitudinally (fig. 36)..... *properans* Bromley

*Diogmites* Loew, 1866

First and second antennal segments with hairs on almost entire basal half of upper surface, second antennal segment longer than first, third antennal segment with an apical depression in which is inserted a small spine (fig. 4); mesonotum usually with longitudinal markings (figs. 10-12, 27-38); front tibiae with a terminal, sharply curved, ventral spur situated in a depression surrounded in part by a number of short stout spines (fig. 2); posterior pulvilli more than half as long as claws; marginal cell open (figs. 13-24) or closed at wing margin, fourth posterior cell closed and petiolate at apex (fig. 6); abdomen not clavate, sometimes constricted between second and third segments (fig. 7) almost bare.

Type, *Diogmites platypterus* Loew, by original designation.

*Diogmites basalis* (Walker) (nov. comb.)

Figures 8, 9, 19, 26, 30, 45a

*Dasyopogon basalis* Walker, 1856, p. 95.

*Diogmites umbrinus* Loew, 1866, p. 43; Osten Sacken, 1878, p. 233; p. 26; *Idem*, 1947, p. 68; Goslin, 1950, p. 304; Bromley, 1950, p. 233, Hull, 1962, p. 232.

*Deromyia umbrina* (Loew). Williston, 1833, p. 25; Aldrich, 1905, p. 265; Back, 1909, p. 367; Bromley, 1914, p. 197; MacAtee and Banks, 1920, p. 20; Bromley, 1931, p. 7.

This is a large reddish brown species, with golden spots on each side of the abdominal segments.

*Male*. Head golden pruinose; proboscis black, with proximal portion dark yellow; palpi and antennae dark brownish yellow, the palpi sometimes darker, hairs on palpi black; second antennal segment longer than first, with black hair above, third antennal segment with hairs only on basal part; mystax light yellow, beard yellow to yellowish brown. Thorax reddish brown with black bristles; mesonotum with three dark stripes, the central stripe extending to pronotum, the lateral stripes much shorter and often widely divided laterally or represented

by two spots (fig. 30); usually 3 or 4 long supraalars, 3-6 intraalars, 1-6 dorsocentrals, and 2 long convergent or cruciate scutellar bristles; hypopleural bristles numerous. Legs dark reddish brown, the tarsi lighter; leg bristles black, some bristles on front coxae yellow; pulvilli yellow, as light as mystax. Wings yellowish brown; halteres reddish brown. Abdomen reddish brown, usually covered with short hairs; a row of 4 to 6 bristles on sides of first segment; sixth segment with a short, wide, black line on each side extending to anteroventral corner of segment, and a golden pruinose spot (fig. 26); hair of genitalia long and black.

*Female.* Similar to male, but with short brownish hairs on genitalia.

*Measurements.* Length 20-27 (average, 23.7) mm., wing 13-17 (average, 14.9) mm. long and 3.5-5.0 (average, 4.0) mm. wide (averages based on 42♂ and 36♀).

*Material Examined.* 42♂ and 36♀. COLORADO: Boulder, 1♀ (AMNH). CONNECTICUT: Colebrook, 1♂ (WMW, AMNH); W. Woodstock, 1♀ (AMNH). MARYLAND: Plummer's Is., 1♂ (HLV, USNM). NEW HAMPSHIRE: Andover, 1♂ (CMW, USNM). NEW YORK: Baldwin, L.I., 1♀ (AMNH); Baltimore, 1♀ (EBS, AMNH); Barton, 2♂ and 7♀ (ETC, PHA); Beaverkill, 3♂ and 5♀ (ETC, PHA); Carmel, 1♂ (AMNH); Catskill Mts., 1♂ (AMNH); Huguenot, 1♀ (JLZ, AMNH); New Baltimore, 1♂ (JLZ), 1♀ (EBS), and 1♀ (without collector) (AMNH); New York, 1♀ (AMNH); "West Farms," 5♂ and 1♀ (JA, AMNH); "Woods," 1♀ (AMNH); without specific locality, 1♂ (OSC, AMNH). Without Locality: 1♂, No. 12825, 1♀, No. 227, 2-12825, 1♀, No. 3-12825 and 1♂, No. 111, 4-12825 (LC, MCZ).

This species is one of the most common in the genus; it is widely distributed throughout the United States and is very abundant in the northeast. Bromley (1950) called it the "New York Bee-killer," because of its possible economic importance as a predator of bees. It is usually found in dry open areas.

*D. basalis* is usually reddish brown in color. The palpi are generally red, but a female in the Loew collection has yellow palpi. The body bristles are mostly black, but the male genitalia usually have a few pale bristles mixed with the black ones. There is quite a bit of variation in the hairs and bristles in this species; some specimens have the abdomen covered with abundant short black hairs, but in others the abdomen is almost bare.

The male genitalia are small, always narrower than the last abdominal segment, and covered with long dark hairs. The female genitalia are covered with short brown or reddish brown hairs. The beard is usually black, but in some specimens varies to brown or a mixture of black and yellow hairs.

The black spots on the abdomen (fig. 26) are prominent, and contrast with the golden spots on the distal part of the segments. In old or greasy specimens these spots are usually less prominent, but are always distinguishable.

The prey of this species consists principally of various bees and wasps, but occasionally includes ichneumons and other robber flies; *basalis* has been reported (Bromley, 1914) taking syrphids, small scarabs, and treehoppers.

### *Diogmites neoternatus* (Bromley)

Figures 12, 17, 29, 42

*Deromyia neoternata* Bromley, 1931, p. 433; *Idem*, 1931a, p. 7.

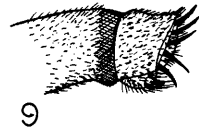
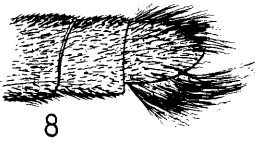
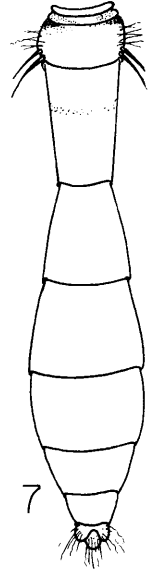
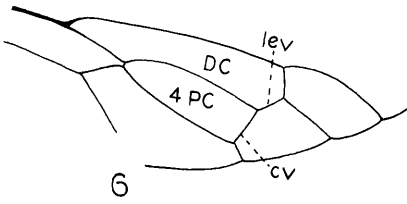
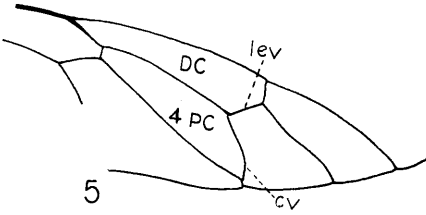
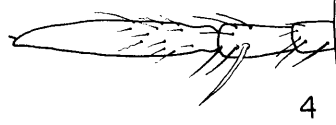
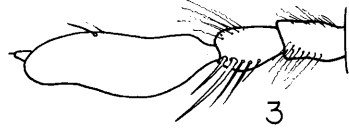
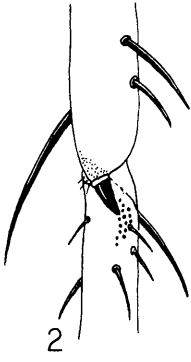
*Diogmites neoternatus* (Bromley). Bromley, 1934, p. 101; Fattig, 1945, p. 15; Bromley, 1950a, p. 232; *Idem*, 1950b, p. 232; Goslin, 1950, p. 304; Hull, 1962, p. 232.

This is a medium-sized brownish species with long legs; the abdomen is strongly constricted between the second and third segments, and the mesonotum has three velvety black stripes that contrast with the light background of the disc.

*Male.* Head golden pruinose; proboscis black, the bulb yellow; antennae reddish, third segment longer than second and bearing a few short black hairs above; mystax white; beard usually white; postvertical and orbital bristles usually mixed black, yellow, and brown. Sides of mesothorax golden pruinose; disc of mesonotum golden reddish brown bordered by gold, with three velvety black stripes that contrast with background of disc (fig. 29); central mesonotal stripe usually not divided longitudinally for its entire length, shading into red anteriorly, and not reaching pronotum; lateral mesonotal stripes divided horizontally by a line the same color as disc; 3 supraalars, 2 intraalars, usually 3 or 4 dorsocentrals, and 2 long, black, con-

### EXPLANATION OF FIGURES

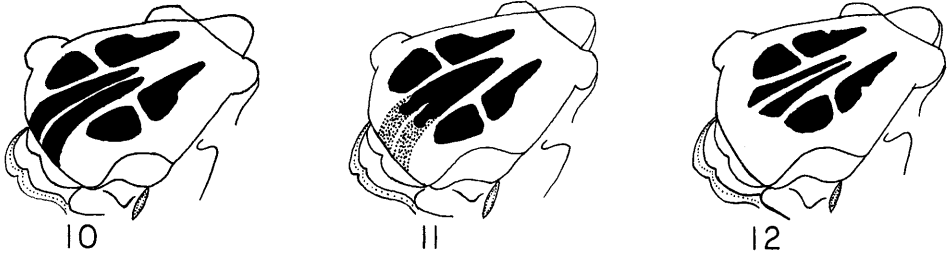
FIGURES 2-9. Fig. 2. Front tibial spur, *Diogmites platypterus* Loew. Fig. 3. Antenna, *Deromyia gracilis* Philippi. Fig. 4. Antenna, *Diogmites platypterus* Loew. Fig. 5. Fourth posterior cell, *Deromyia gracilis* Philippi. Fig. 6. Fourth posterior cell, *Diogmites platypterus* Loew. Fig. 7. Abdomen of *Diogmites ternatus* Loew, showing basal constriction. Fig. 8. Female genitalia, *Diogmites basalis* (Walker). Fig. 9. Male genitalia, *Diogmites basalis* (Walker).



vergent or cruciate scutellar bristles; prothoracic bristles mostly reddish brown, with a few black and white bristles; hypopleural bristles yellow or brown. Legs long, yellowish brown with short black bristles; coxal bristles white; tarsi usually lighter than tibiae and femora. Abdomen dark brown or yellowish brown, strongly constricted between second and third segments; short, stout, black hairs often cover abdomen, being more abundant on last three or four segments; sides of abdomen without distinguishable spots or bands; bristles of first abdominal segment black, yellow, or mixed black and yellow. Hypopygium shiny dark brown with abundant long yellow hairs.

*Female.* Similar to male, but genitalia covered with short yellow hairs.

*Measurements.* Length 20-30 (average, 23.9) mm.; wing 14-20 (average, 16.8) mm. long and 4.5-5.0 (average, 4.6) mm. wide, (averages based on 26♂ and 26♀).



FIGURES 10-12. Fig. 10. Mesonotum of *Diogmites missouriensis* Bromley. Fig. 11. Mesonotum of *Diogmites misellus* Loew. Fig. 12. Mesonotum of *Diogmites neoternatus* (Bromley).

*Material Examined*, 28♂ and 35♀. ARIZONA: San Javier, 1♀ (USNM). FLORIDA: Alachua, 1♀ (HKW, USNM); Maryport, 1♀ (acc. 23983, USNM). GEORGIA: Atlanta, 2♂ (HH, USNM); Cartersville, 1♀ (PWF, USNM); Prattsburg, 1♀ (LDT, USNM); Thomasville, 1♀ (PWF, USNM). KANSAS: Salina, 1♀ (CHM, USNM). LOUISIANA: Haraham, 1♂ (FGW, USNM); New Orleans, 1♂ (CLR, USNM); Worpcoint, 1♀ (IBP, USNM). MARYLAND: Columbia, 1♂ and 1♀ (USNM). NEBRASKA: Lincoln, 1♂ (DSB, USNM); Maywood, 1♂ (FGW) and 1♀ (RRD) (USNM). OHIO: Cincinnati, 2♂ (RMG, OSM); Columbus, 3♂ and 1♀ (RMG, OSM); Fairfield Co., 1♂ (RMG, OSM); Hocking Co., 1♂ and 3♀ (EST, OSM); Perry Co., 2♂ and 1♀ (RMG, OSM); Ross Co., 6♀ (OSM); 3♀ by RMG. OKLAHOMA: Woods Co., 1♂ (RDB, AMNH). SOUTH CAROLINA: Clemson College, 1♂ (USNM). TENNESSEE: Cedar Creek, 7♂ and 9♀ (OSM). TEXAS: Dallas, 1♂ and 1♀ (LC, MCZ), 1♂ and 1♀ (OSC, MCZ); Devil's River, 2♀ (JB, MCZ); D. Ford, 1♂ (CWJ, MCZ); Richmond, 1♀ (JB, MCZ).

*D. neoternatus* is easily distinguishable by the strong constriction between the second and third abdominal segments; the central mesonotal stripe shades into red or reddish brown anteriorly, and usually does not extend to the pronotum (fig. 29). Dark patterns sometimes occur on the abdominal tergites, causing the abdomen to appear dark. This species is quite similar to *D. ternatus*, but the central mesonotal stripe always extends to the pronotum in *ternatus* (fig. 37).

Bromley (1931) collected several specimens of this species in low damp areas in Missouri and Indiana, and found them particularly abundant around berry thickets. Other collectors have found this species in clover fields. When disturbed, *D. neoternatus* flies directly through shrubs and weeds, rather than over or around them.

The prey consists principally of bees, polistes, and wasps, with occasional flies and bugs.

### *Diogmites ternatus* Loew

Figures 7, 15, 37, 43a

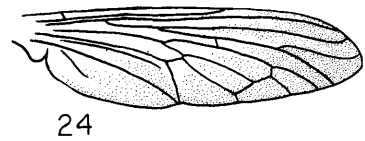
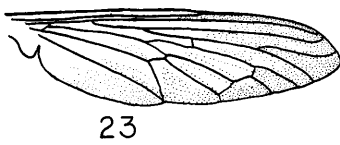
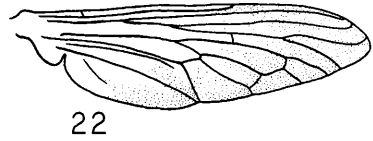
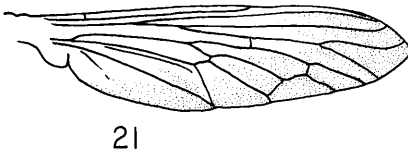
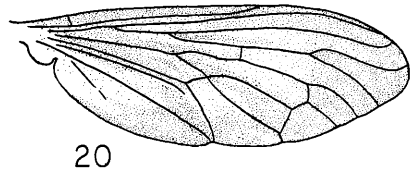
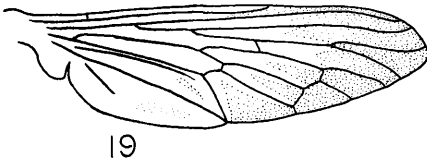
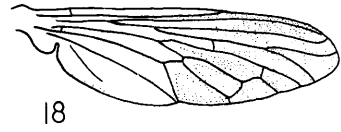
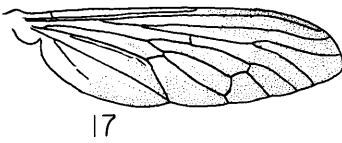
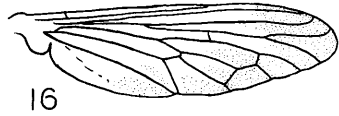
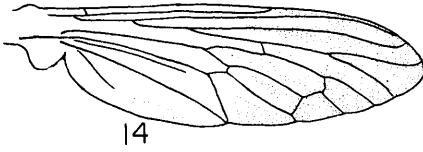
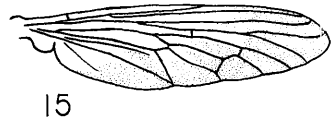
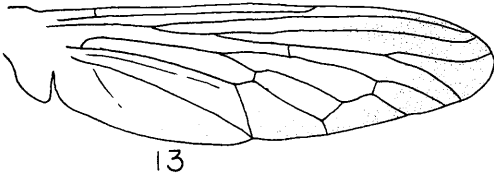
*Diogmites ternatus* Loew, 1866, p. 38; Bromley, 1936, p. 228; Hull, 1962, p. 232, figs. 549, 1056, 1065.

*Deromyia ternata* (Loew). Aldrich, 1905, p. 265; Back, 1909, p. 336; Hine, 1918, p. 3; Bromley, 1929, p. 278.

### EXPLANATION OF FIGURES

FIGURES 13-24. Fig. 13. *D. crudelis* Bromley. Fig. 14. *D. discolor* Loew. Fig. 15. *D. ternatus* Loew. Fig. 16. *D. misellus* Loew. Fig. 17. *D. neoternatus* (Bromley). Fig. 18. *D. missouriensis* Bromley. Fig. 19. *D. basalis* (Walker). Fig. 20. *D. platypterus* Loew. Fig. 21. *D. salutans* Bromley. Fig. 22. *D. properans* Bromley. Fig. 23. *D. esuriens* Bromley. Fig. 24. *D. rubrodorsatus*, sp. n.





*D. ternatus* is a rather small reddish yellow species with three black stripes on the mesonotum and with the abdomen strongly constricted between the second and third segments.

*Male.* Head golden pollinose; proboscis black, basal part yellowish brown; palpi yellowish, palpal hairs mostly yellow with some black hairs intermingled; antennae yellow; mystax almost white; postvertical and orbital bristles yellowish brown. Mesonotum light yellow pollinose with three contrasting black stripes, central stripe undivided longitudinally or sometimes divided by a thin line, and always extending to pronotum, lateral stripes divided by a thin line, and always extending to pronotum, lateral stripes divided horizontally; sides of prothorax reddish gold; 3-4 supraalars, usually 2 intraalars, usually 4 dorsocentrals that are shorter than intraalars or supraalars, and 2 black, usually cruciate scutellar bristles; pronotal bristles black or yellow; hypopleural bristles yellow, black, or mixed yellow, brown, and black. Legs yellow; coxal bristles white. Wings hyaline. Abdomen brownish red or reddish yellow, posterior margin and lateroposterior angles of tergites golden pruinose; abdomen strongly constricted between second and third segments (fig. 7); bristles of first segment variable, black, brown, yellow, or mixed; abdomen covered with short black and yellow hairs; hypopygium darker than abdomen; genitalia with long yellow hairs.

*Female.* Similar to male, but hairs of genitalia short.

*Measurements.* Length, 16-23 (average, 21.0) mm., wing 11.5-19.0 (average, 15.5) mm. long and 3-5 (average, 4.1) mm. wide (averages based on 15 ♂ and 10 ♀).

*Material Examined.* 15♂ and 10♀. CUBA: Havana, 4♂ and 4♀ (PHA); N. Vidales, 3♀ (OSU); Pinar del Rio, 1♂ and 1♀ (OSU); no locality given, 6♂ and 2♀ (USNM). FLORIDA: Jacksonville, 1♂ (PHA). KANSAS: Doniphan, 1♂ (JHT, PHA). LOUISIANA: Lecompte, 1♂ (PHA). TEXAS: Round Mt., 1♂ (PHA).

*D. ternatus* is a Cuban species that has been recorded several times in the United States. It is often confused with *D. neoternatus*, but may be distinguished from that species by the central stripe of the mesonotum, which in *ternatus* extends anteriorly to the pronotum (fig. 37), but in *neoternatus* shades into reddish anteriorly and rarely reaches the pronotum (fig. 29). Some Cuban specimens of *ternatus* have the central mesonotal stripe not quite reaching the pronotum, but it is always black anteriorly.

#### *Diogmites discolor* Loew

Figures 14, 25, 28, 39a

*Diogmites discolor* Loew, 1866, p. 37; MacAtee and Banks, 1920, p. 22; Bromley, 1931, p. 25;

*Idem*, 1936, p. 229; Fattig, 1945, p. 14; Bromley, 1946, p. 7; Hull, 1962, p. 232.

*Deromyia discolor* (Loew), Aldrich, 1905, p. 264; Back, 1909, p. 358.

*Dasygogon rufescens* Macquart, 1834, p. 295.

*Diogmites bilineatus* Loew, 1866, p. 40; Fattig, 1945, p. 13.

*Deromyia bilineata* (Loew), Wulp, 1882, p. 2; Aldrich, 1905, p. 264; Back, 1909, p. 356.

*D. discolor* is a large, slender, black species with conspicuous silver spots on each side of the tergites; the females are lighter than the males.

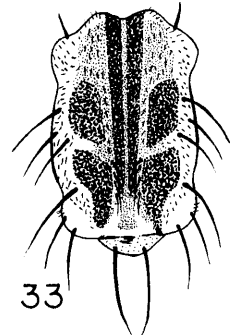
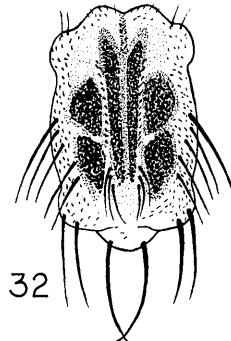
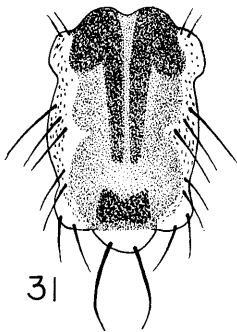
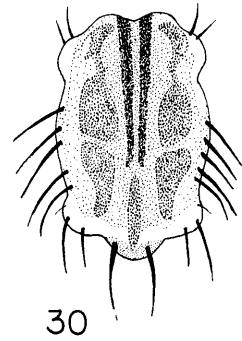
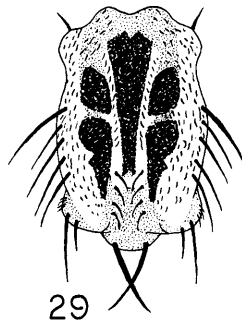
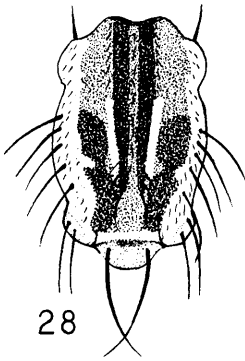
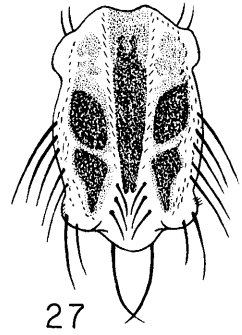
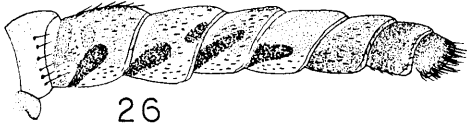
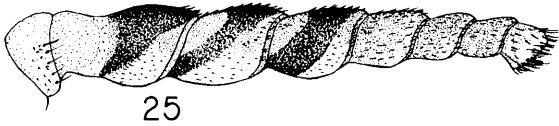
*Male.* Head golden pruinose; proboscis black; palpi almost black, covered with long dark yellowish brown or black hairs; antennae yellow with a few short hairs above on second and third segments; mystax white; beard much reduced, of light brown hairs; postvertical and orbital bristles reddish brown; two black divergent ocellar bristles. Mesonotum usually dark brown with golden borders and black (rarely brown) stripes (fig. 28); 3-4 black supraalars, 2-4 black intraalars, 2-4, usually short and weak dorsocentrals, and 2 long, black, usually cruciate scutellar bristles; pronotal bristles black; hypopleural bristles black (rarely brown). Legs light brownish red covered with short black hairs; pulvilli light brown, almost white, wings yellowish hyaline. Abdomen black, posterior margin of first segment and anterior margin of second dark brown, segments 2-6 with conspicuous lateral silver spots on posterior angles (fig. 25); genitalia usually lighter than abdomen and covered with long black hairs.

*Female.* Similar to male but with abdomen brownish red, segments 2-5 with an oblique black line on anterolateral margins contrasting with the silver spot; hairs of genitalia short and yellow.

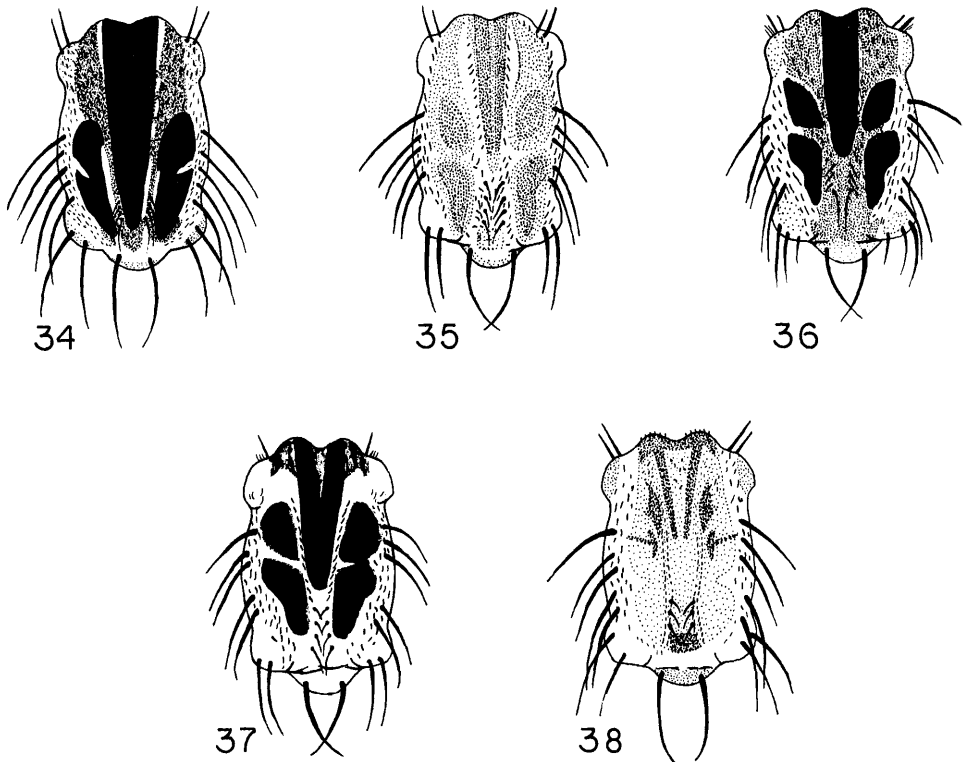
*Measurements.* Length 19-31 (average 24.0) mm., wings 15-20 (average 17.2) mm. long and 4-6 (average 4.9) mm. wide (averages based on 72♂ and 39♀).

#### EXPLANATION OF FIGURES

FIGURES 25-33. Fig. 25. Abdomen of female, *D. discolor* Loew. Fig. 26. Abdomen of female, *D. basalis* (Walker). Fig. 27. Mesonotum, *D. misellus* Loew. Fig. 28. Mesonotum, *D. discolor* Loew. Fig. 29. Mesonotum, *D. neoternatus* (Bromley). Fig. 30. Mesonotum, *D. basalis* (Walker). Fig. 31. Mesonotum, *D. platypterus* Loew. Fig. 32. Mesonotum, *D. esuriens* Bromley. Fig. 33. Mesonotum, *D. missouriensis* Bromley.



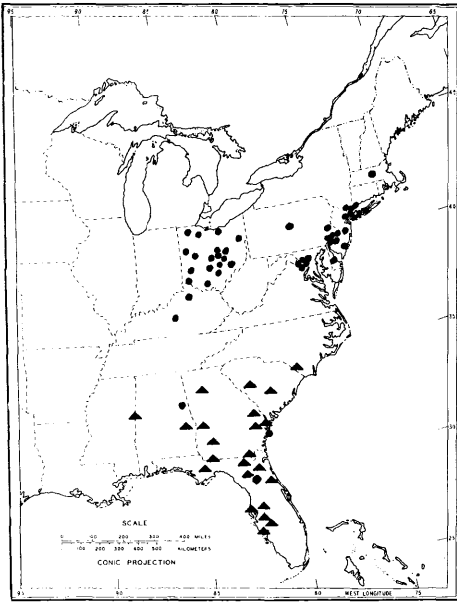
*Material Examined.* 77♂ and 48♀. ALABAMA: Amiston, 2♂ (MES, USNM). CONNECTICUT: Stamford, 1♀ (USNM). DISTRICT OF COLUMBIA: Washington, 1♂ (OSU) and 1♀ (USNM). KENTUCKY: Lexington, 3♂ (USNM). MARYLAND: Beltsville, 1♂ (CTG), 1♂ and 1♀ (WLM), 1♂ (LDG), and 1♂ (JS) (USNM); Chestertown, 1♀ (EGV, PHA); Columbia, 1♀ (SWB, USNM); Plummer's Is., 1♀ (WLM, USNM). NEW YORK: Astoria, 1♂ and 1♀ (USNM); Flatbush, L.I., 1♂ and 1♀ (AMNH); Nyack, 1♂ and 1♀ (AMNH); Van Cortland, 1♀ (AMNH); "West Farms," 1♂ (JS, AMNH); no locality, 2♂ (HYE, AMNH). NEW JERSEY: West Orange, 1♂ (No. 5642, AJW, AMNH); no locality, 1♂ (PHA). OHIO: Adams Co., 4♂ (EST, OSM); Allen Co., 1♂ (WET, OSM); Amherst, 1♂ and 1♀ (HJR, USNM); Athens, 1♂ (JST, OSM); Bethlehem Chapel, 1♀ (SWB, USNM); Champaign Co., 1♂ (REW, OSM); Cincinnati, 1♂ and 3♀ (RMG, OSM); Columbus, 1♂ (RCO, OSU), 2♂ and 1♀ (no collector indicated, OSU); Coshocton Co., 1♂ (DWJ, OSM); Delaware, 2♂ and 2♀ (KS), 2♀ (RWS), 1♂ (RLB), 1♂ and 1♀ (EST), and 1♂ (REW) (all OSM); Fairfield Co., 1♂ and 2♀ (RMG, OSU), 1♂ and 1♀ (no collector indicated, OSU); Franklin Co., 1♂ (RWS, OSU), 6♂ and 3♀ (Alum Creek) (RMG, USNM); Guernsey Co., Co., 3♂ (MDN, OSM); Hancock Co., 1♀ (DMT, OSM); Hocking Co., 1♂ (EST), 1♂ (RMG), and 1♀ (without collector) (OSM); Jackson, 1♂ (RMG, OSM); Licking Co., 1♂ (CFW), 1♂ (MDN), and 1♂ (RMG) (OSM); Lockbourne, 1♂ (OSU); Morgan Co., 1♂ and 2♀ (MDN, OSM); Muskingum Co., 2♂ (MDN) and 1♀ (without collector) (OSM); Newark, 1♀ (OSU); Perry Co., 1♂ (MDN, OSM); Pickaway Co., 3♂ (RMG, OSM); Ross Co., 2♀ (RMG, AMNH);



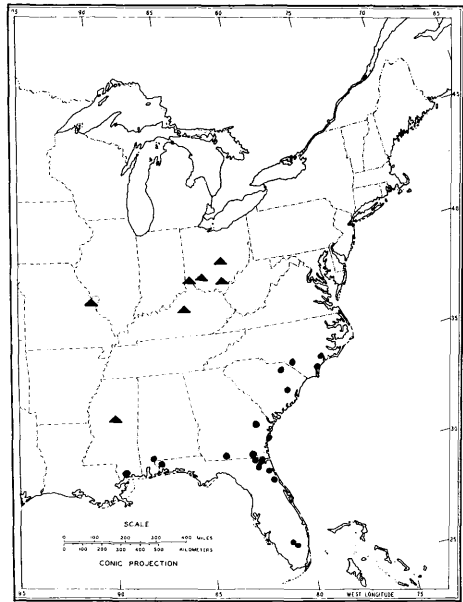
FIGURES 34-38. Fig. 34. Mesonotum, *D. rubrodorsatus*, n. sp. Fig. 35. Mesonotum, *D. salutans* Bromley. Fig. 36. Mesonotum, *D. properans* Bromley. Fig. 37. Mesonotum, *D. ternatus* Loew. Fig. 38. Mesonotum, *D. crudelis* Bromley.

Sardinia, 1♀ (JST, OSM); Scioto Co., 1♀ (EST) and 1♂ and 1♀ (RMG) (OSM); Warren Co., 1♂ (RMG, OSM); Washington Court House, 1♂ and 1♀ (JST, OSM); no locality, 1♂ and 1♀ (OSM). PENNSYLVANIA: Darby, 1♀ (PHA); Delaware Co., 1♂ (ETC, PHA); New Hope, 1♂ (PHA); Ogontz, 1♀ (PHA); Wennerville, 1♂ and 2♀ (PHA). VIRGINIA: Falls Church, 8♂ and 4♀ (CTG, USNM).

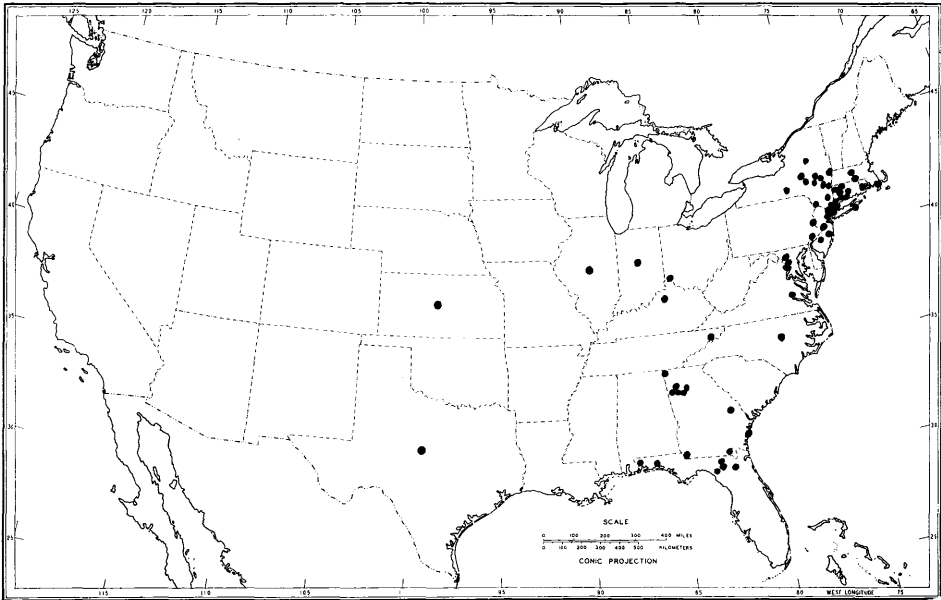
*D. discolor* is readily recognizable by the silvery spots on the sides of the abdominal seg-



39 a) *D. discolor* Loew ●  
 39 b) *D. salutans* Brom. ▲



40 a) *D. crudelis* Brom. ●  
 40 b) *D. missouriensis* Brom. ▲



41 *D. misellus* Loew

FIGURES 39-41. Fig. 39a. North American Distribution of *D. discolor* Loew. Fig. 39b. North American Distribution of *D. salutans* Bromley. Fig. 40a. North American distribution of *D. crudelis* Bromley. Fig. 40b. North American Distribution of *D. missouriensis* Bromley. Fig. 41. North American Distribution of *D. misellus* Loew.

ments, which occur in both sexes. The mesonotal stripes are variable; usually only two central stripes are present, but in some specimens there is a pair of spots on each side of the central stripes; a very few specimens have two short dark stripes on each side of the central stripes.

This is the only species in the genus exhibiting sexual dichromatism. The females are lighter than the males, usually yellowish brown or brownish red, and they also differ from the males in having an oblique black line in front of the silvery lateral abdominal spots, which contrasts strikingly with the silver spots. These silver spots sometimes appear reddish in specimens covered with grease.

*D. discolor* is usually found in open areas where there is dry grass, near the borders of woods, and in patches of brush in pastures. Its flight is erratic, accompanied by a low buzz (Bromley, 1946). It preys principally on Apidae and Vespidae, but has been reported (Fattig, 1945; Bromley, 1946; MacAtee and Banks, 1920) feeding on other wasps, various flies and beetles.

### *Diogmites missouriensis* Bromley

Figures 10, 18, 33, 40b

*Diogmites missouriensis* Bromley, 1950a, p. 230 (*nomen nudum*); 1951, p. 13 (Type vid.); Woodruff, 1960; Hull, 1962, p. 232.

This is a pale reddish golden species, with a reddish brown proboscis and a yellow abdomen; the abdomen is without distinct blackish markings.

*Male.* Head golden pruinose; proboscis reddish brown, the palpi reddish with yellow hairs; beard, mystax, and orbital and postvertical bristles yellow. Mesonotum and sides of prothorax brown golden; mesonotum with three black stripes, central stripe divided and reaching pronotum, lateral stripes divided horizontally by a wide line and sometimes appearing as two black spots on each side of central line; intraalar, supraalar, and dorsocentral bristles black; 2 long black scutellar bristles, usually almost cruciate; pronotal bristles yellow; antennae yellow; hypopleural bristles yellow. Legs reddish or brownish yellow; coxal bristles yellowish. Median lateral portion of abdominal tergites darker than rest of dorsal portion; bristles of first segment yellow; hypopygium reddish yellow with long yellow hairs.

*Female.* Similar to male, but the yellow hairs of genitalia short.

*Measurements.* Length, 17-26 (average, 20.3) mm.; wings 13-16 (average, 14.2) mm. long and 3-5 (average, 3.6) mm. wide (averages based on 7♂ and 11♀).

*Material Examined,* 7♂ and 11♀. ARKANSAS: Fair Oaks Cross., 1♀ (PHA). KENTUCKY: Port Knox, 1♂ and 3♀ (REW, OSM). MISSOURI: St. Louis, 1♂ (type) and 5♀ (USNM). MISSISSIPPI: Harrison Co., 1♀ (JB, MCZ). OHIO: Chillicothe, 1♂ (RMG, OSM); Cincinnati, 1♂ (USNM) and 1♀ (OSM) (RMG); Highland Co., 1♂ (RMG, OSM); Jackson Co., 2♂ (RMG, OSM).

Bromley 1950a, mentioned the species *missouriensis* before the original description appeared in Bromley 1951.

*D. missouriensis* is similar to *salutans*, but differs in having darker mesonotal markings and lacking the blackish bands on the dorsum of the abdomen. The central mesonotal stripe is divided longitudinally for its entire length and extends to, or almost to, the pronotum.

*D. missouriensis* has been collected in gardens. The first Ohio specimen (Bromley, 1950, p. 230) was collected in a field in which the weeds had recently been cut, at the edge of a vegetable garden in a corner lot at Erie and Raymar Streets in Hyde Park, Ohio, August 17, 1947; R. M. Goslin later collected another specimen at this same spot.

### *Diogmites properans* Bromley

Figures 22, 36, 44a

*Diogmites properans* Bromley, 1936, p. 232 (Type vid.); Fattig, 1945, p. 15; Bromley, 1950a, p. 233; Hull, 1962, p. 232.

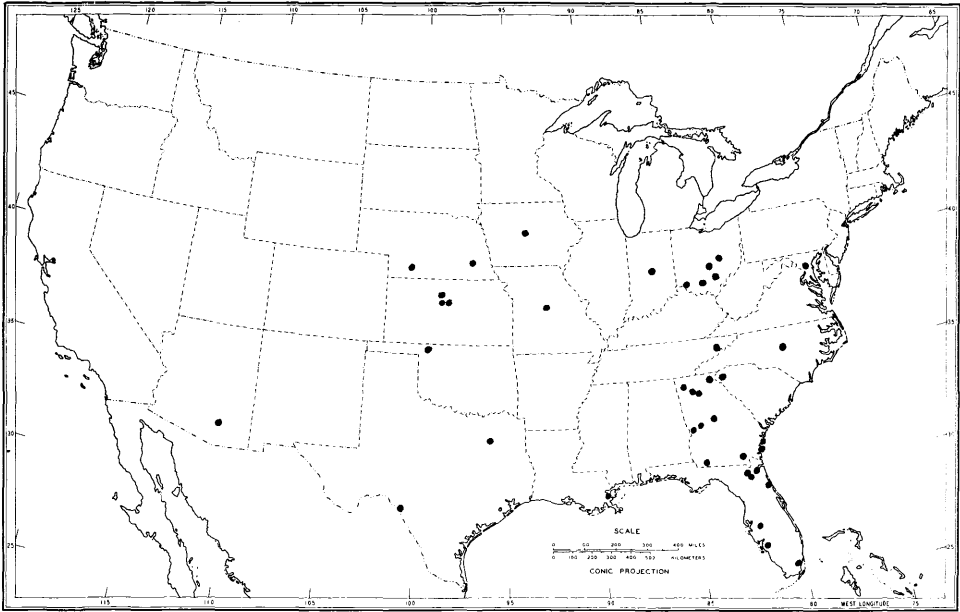
This is a medium-sized species with three black stripes on the mesonotum and black dorsal bands on the abdomen.

*Male.* Head golden pruinose; palpi and palpal hairs yellow; antennae yellow, third segment longer than second and with a few short hairs above; mystax and beard white; postvertical and orbital bristles yellow. Sides of mesonotum reddish golden pruinose, the dorsum red or brown bordered by gold, with three black stripes; central mesonotal stripe usually not divided longitudinally, and reaching pronotum, lateral stripes divided horizontally; usually 3 supraalars, 2 intraalars, and 2 long, black, usually convergent scutellar bristles; pronotal and hypopleural bristles yellow. Abdomen yellow, reddish, or brown, with a black dorsal band on each segment, the band sometimes becoming brownish or reddish mesally; posterior margins and lateral angles of each tergite golden pollinose; bristles of first segment yellow; anterior border of second segment black; genitalia covered with long black hairs, with a few reddish hairs intermingled.

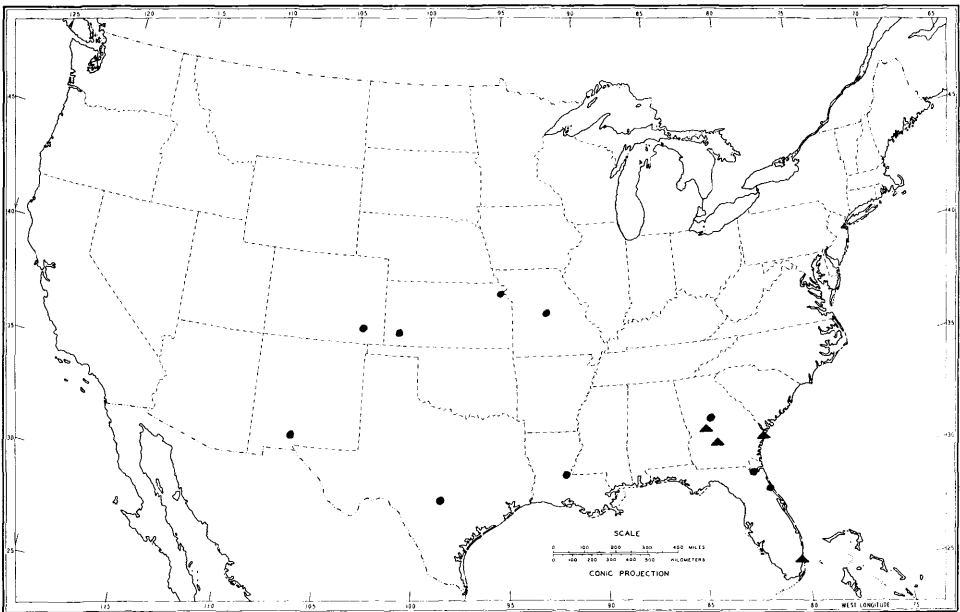
*Female.* Similar to male, but hairs of genitalia short.

*Measurements.* Length, 15-28 (average, 22.0) mm.; wings 15-18 (average, 15.2) mm. long and 3-4 (average, 3.6) mm. wide (averages based on 4♂ and 6♀).

*Material Examined,* 4♂ and 6♀. ALABAMA: Mobile, 1♀ (SWB, USNM); Theodore, 1♂ (type) (USNM); Tuskegee, 1♀ (RHB, USNM). FLORIDA: Madison, 1♀ (USNM); no



42 D. neoternatus Bromley



43 a) D. ternatus Loew ●

43 b) D. rubrodorsatus n.sp. ▲

FIGURES 42 and 43. Fig. 42. North American Distribution of *D. neoternatus* Bromley. Fig. 43a. North American Distribution of *D. ternatus* Loew. Fig. 43b. North American Distribution of *D. rubrodorsatus*, sp. n.

locality, 2♂ (OSM). GEORGIA: Prattsburg, 1♂ (PWO,USNM); no locality, 2♀ (OSM). MISSISSIPPI: Pass Christian, 1♀ (USNM).

*D. properans* is similar to *salutans*, but can be distinguished from it by the three velvety black stripes on the mesonotum; the mesonotal stripes in *salutans* are brownish.

The specimens of this species in the Bromley collection (USNM) include a holotype, an allotype, and four paratypes; these types and the 23 additional specimens in the collection show considerable variation in the size and shape of the central mesonotal stripe. Some specimens have the stripe divided longitudinally, and others have this stripe undivided; some have the stripe reaching the pronotum, and in others it does not reach the pronotum. The color of the disc of the mesonotum varies from reddish to golden.

The abdomen varies in color from yellow to reddish brown, but the black dorsal bands are always present.

### *Diogmites platypterus* Loew

Figures 2, 4, 6, 20, 31, 44b

*Diogmites platypterus* Loew, 1866, p. 36 (Type vid.); Bromley, 1936, p. 229; Fattig, 1945, p. 15; Bromley, 1950a, p. 233; Hull, 1962, p. 232, figs. 94, 466, 1997.

*Deromyia platyptera* (Loew). Aldrich, 1905, p. 265; Jones, 1907, p. 280; Back, 1909, p. 361.

*D. platypterus* is a dark brown to black, slender-bodied, broad-winged species. The wings are dark fumose, and the yellow legs contrast with the dark color of the body. This species is the type of the genus *Diogmites*.

*Male*. Head golden pruinose; proboscis usually black, in a few cases dark brown; palpi and palpal hairs black; antennae yellow, third segment longer than first two and with a few short black hairs above in basal half; mystax yellow; beard black; postvertical, orbital, and the two ocellar bristles black. Sides of prothorax dark reddish pollinose; mesonotum dark brown, often with two faint dark lines on central part of disc which reach pronotum (fig. 31); usually 3 supraalars, 2 intraalars, 2-3 (rarely 4) short dorsocentrals, and 2 long, strong, usually divergent scutellar bristles; thoracic bristles black; halteres usually same color as sides of mesothorax (The type (MCZ) has the halteres yellow, contrasting with the almost black mesopleura; it also lacks the third segment in each antenna, and the left middle leg.). Legs yellow or brownish yellow, always lighter than mesopleura; coxal bristles usually black. Wings dark brownish fumose. Abdomen black, without pattern or light spots; bristles on first segment black; hypopygium polished black; hairs of genitalia black.

*Female*. Similar to male, but hairs of genitalia short and reddish yellow.

*Measurements*. Length, 20.5-28.0 (average, 23.6) mm.; wings, 14-20 (average 17.0) mm. long and 3-7 (average 5.4) mm. wide (averages based on 14♂ and 16♀).

*Material Examined*, 14♂ and 18♀. COLORADO: Ione, 1♂ and 1♀ (LM, USNM). INDIANA: Ames, 1♂ (OSU); Knox, 1♂ (OSU); Monroe, 1♀ (OSU); Posey, 1♀ (OSU); Spencer, 2♂ (OSU). ILLINOIS: Carbondale, 2♂ and 2♀ (GHF, PHA). KENTUCKY: Douglas, 1♀ (OSU). LOUISIANA: Crowley, 1♂ and 1♀ (OSU); Jones, 1♀ (OSU); Murvel, 1♀ (OSU); New Roads, 3♀ (OSU); Opelousas, 1♂ and 1♀ (PHA); Pointe a la Hache, 1♂ (OSU). MARYLAND: Anniston, 1♀ (USNM); Columbia, 1♀ (EH, USNM). MISSOURI: Carterblue Mts., 1♂ (OSU); Stonehill, 1♂ (OSU); no locality, 1♀ (OSU). OKLAHOMA: Ft. Gibson, 1♂ (SK, USNM); Gora, 1♀ (SK, USNM). TEXAS: Karnaack, 1♀ (KS, OSU). No locality: 1♂ (type) (LC, 12824, MCZ).

This species is easily recognized and is likely to be confused only with specimens of *discolor* which are covered with grease and have the silver abdominal spots concealed under the grease. The wings of *platypterus* are longer, wider, and darker than in any other species in the genus. The characters in this species are relatively constant, with only the mesonotal lines showing some variation. *D. platypterus* is found in low, moist, protected areas.

### *Diogmites misellus* Loew

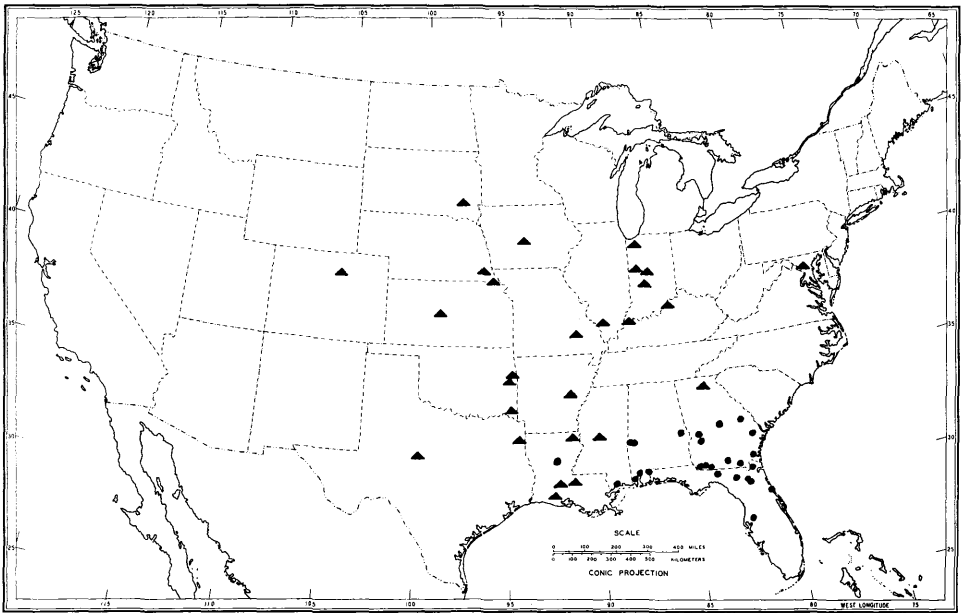
Figures 11, 16, 27, 41

*Diogmites misellus* Loew, 1866, p. 39 (Type vid.); Osten Sacken, 1901, p. 177; Bromley, 1931, p. 7; *Idem*, 1934, p. 101; *Idem*, 1936, p. 228; Fattig, 1945, p. 14; Bromley, 1946, p. 25; *Idem*, 1950a, p. 232; Goslin, 1950, p. 304; Hull, 1962, p. 232.

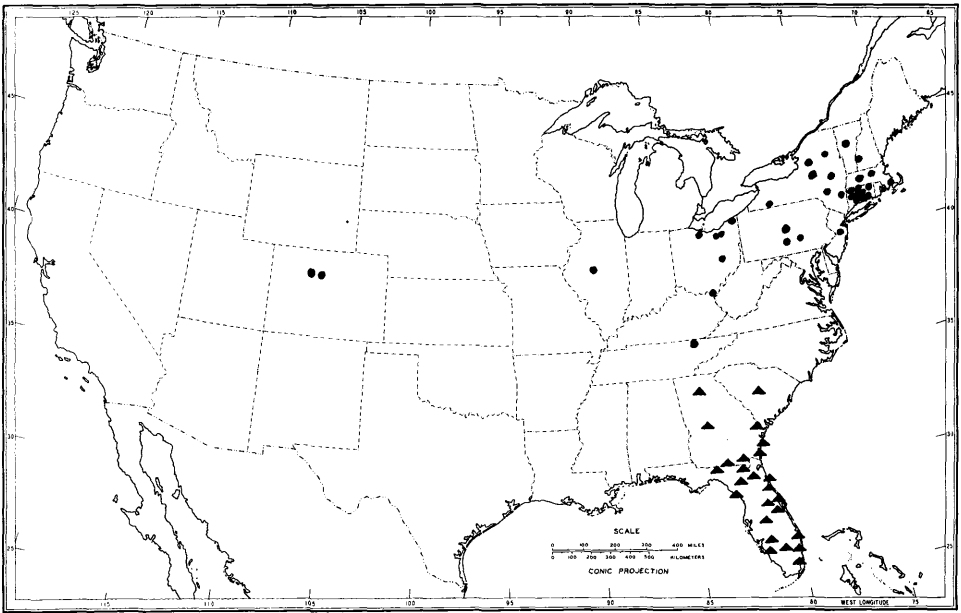
This is a small yellow or light brown species, with three black stripes on the mesonotum; the central stripe shades into red anteriorly, and does not reach the pronotum.

*Male*. Head golden pruinose; proboscis black, with basal part dark red, palpi brown, palpal hairs yellow; antennae yellow, third segment longer than second and bearing a few black hairs on basal half above; mystax and beard white; postvertical and orbital bristles yellow, in a few cases with some black hairs intermingled. Mesonotum (fig. 27) golden, with three black stripes, lateral stripes divided horizontally, central stripe undivided, shading to red anteriorly, and not reaching pronotum; 3 supraalars, 2 intraalars, 3-4 dorsocentrals, and 2 long, black, and usually cruciate scutellar bristles; pronotal bristles yellow; hypopleural bristles yellow, with a few black bristles intermingled. Legs yellow, covered with abundant short black hair; joints between tibia and tarsus and between tarsal segments shiny red; coxal





- 44 a) *D. properans* Brom. ●
- 44 b) *D. platypterus* Loew ▲



- 45 a) *D. basalis* (Walker) ●
- 45 b) *D. esuriens* Brom. ▲

FIGURES 44 and 45. Fig. 44a. North American Distribution of *D. properans* Bromley. Fig. 44b. North American Distribution of *D. platypterus* Loew. Fig. 45a. North American Distribution of *D. basalis* (Walker). Fig. 45b. North American Distribution of *D. esuriens* Bromley.

bristles white. Wings hyaline. Abdomen brownish yellow, posterior margins and latero-posterior angles of tergites usually golden; genitalia with long yellow hairs, usually with some black hairs intermingled.

*Female.* Similar to male, but genitalia with short yellow hairs.

*Measurements.* Length, 16–23 (average 19.2) mm.; wings 11–15 (average 12.2) mm. long and 2.5–3.0 (average 2.7) mm. wide (averages based on 32♂ and 30♀).

*Material Examined.* 32♂ and 36♀. CONNECTICUT: Lyme, 1♀ (NB, MCZ); Stamford, 1♀ (USNM). FLORIDA: Branfor, 1♀ (ATH, USNM); Liberty, 1♀ (USNM); Live Oak, 1♀ (JDH, USNM); MacDavid, 1♂ (FSB, USNM); Suwanee, 1♀ (EGW, USNM); Vakullan, 1♀ (JDB, USNM). MASSACHUSETTS: Southbridge, 1♂ (SWB, USNM); Woods Hole, 3♂ and 1♀ (AMNH). NEW JERSEY: Cape May, 7♂ and 6♀ (WS, PHA); Lake Huist, 1♀ (USNM); Lake Maccabue, 1♂ and 1♀ (AMNH); Lancaster, 1♀ (PHA); Ramsey, 1♀ (AMNH); Riverton, 1♂ (CWJ, MCZ); West Creek, 2♀ (PHA). NEW YORK: Carmel, 1♀ (PHA); Coldspring, L.I., 1♀ (JB, MCZ); E. Hampton, 3♂ and 2♀ (USNM); Fleet Woods, 3♂ and 2♀ (USNM); Huntington, L.I., 1♀ (JB, MCZ); Neppertham, 1♂ and 1♀ (EL, USNM); New York City, 1♂ and 2♀ (HYE, AMNH), 1♀ (WTD, PHA); Sea Cliff, L.I., 1♂ and 1♀ (NB, MCZ); Springs, 1♂ (JB, MCZ); West Nyack, 1♂ and 1♀ (JB, MCZ); Wyandanch, L.I., 1♀ (FMS, MCZ). NORTH CAROLINA: Raleigh, 1♂ (TBM, USNM). PENNSYLVANIA: Delaware Water Gap, 1♂ (ATS, AMNH); Philadelphia, 1♂ (CWJ, MCZ). RHODE ISLAND: Kingston, 1♂ (MCZ). TENNESSEE: no locality, 1♀ (OSM). VIRGINIA: Falls Church, 1♀ (NB, MCZ); Richmond, 2♂ (USNM). No locality, 1♂ (type, LC No. 12827, MCZ).

This species is the smallest in the genus, and is most readily distinguished by the central stripe of the mesonotum shading to red anteriorly. This stripe is almost never divided longitudinally; less than 4 per cent of the specimens examined had a thin light line along the center of this stripe.

The type (MCZ) is a small specimen with the disc of the mesonotum more silver than gold; the central mesonotal stripe shades into brownish red anteriorly, and the abdominal segments are dark above.

This species is found in open areas, dry clover fields, and around blackberry bushes. It feeds chiefly on Diptera and ants, which it picks off grass stems (a rather unique habit among asilids).

### *Diogmites salutans* Bromley

Figures 21, 35, 39b

*Diogmites salutans* Bromley, 1936, p. 233 (Type vid.); Fattig, 1945, p. 15; Bromley, 1950a, p. 233; Hull, 1962, p. 232.

This is a medium-sized brownish red species, with three dark brown stripes on the mesonotum; the central mesonotal stripe is divided longitudinally for its entire length.

*Male.* Head golden pruinose; proboscis black, bulb yellow. Palpi brownish yellow with yellow hairs; antennae yellow, third segment bearing a few short black hairs above in basal portion; mystax and beard white; postvertical and orbital bristles white. Mesonotum reddish brown bordered with gold, sides brownish golden pruinose; mesonotum with three dark brown stripes, usually not contrasting with background of disc, central stripe divided longitudinally for its entire length (fig. 35); 3–4 supraalars, usually 2 intraalars, 3–4 dorsocentrals, and 2 long, black usually converging scutellar bristles; pronotal bristles white; hypopleural bristles yellow. Wings yellowish hyaline. Legs reddish yellow, covered with short black hairs; coxal hairs white; pulvilli almost white. Abdomen brownish yellow with a black dorsal band on each segment; hypopygium reddish, not pollinose; genitalia with abundant long black hairs.

*Female.* Similar to male, but hairs of the genitalia yellow and short.

*Measurements.* Lengths, 20–25 (average 21.7) mm.; wings 12–19 (average 15.5) mm. long and 3–4 (average 3.6) mm. wide, (averages based on 5♂ and 3♀).

*Material Examined.* 5♂ and 4♀. FLORIDA: Crescent, 2♀ (MCZ); Homestead, 1♂ (AMNH). GEORGIA: Jekyll Island, 1♂ (MCZ); Sandfly, 1♀ (AMNH); Spring Creek, 1♂ (PWF, PHA). NORTH CAROLINA: Elvood, 2♂ (including type) and 1♀ (USNM).

This species is similar to *properans* and *crudelis*; it differs from *properans* in having dark brown rather than black mesonotal stripes (cf. figs. 35 and 36), and the central stripe is narrowly divided longitudinally for its entire length; *crudelis* has the mesonotum brownish, without the three stripes, though it may have narrow brown lines in the center of the disc (fig. 38). The eyes of *salutans* in life are bright green (Bromley, 1950).

*D. salutans* is found in tall grass in damp sandy areas. It feeds on bees, wasps, dragonflies, and other asilids.

### *Diogmites crudelis* Bromley

Figures 13, 38, 40a

*Diogmites crudelis* Bromley, 1936, p. 230 (Type vid.); Fattig, 1945, p. 14; Bromley, 1950b, p. 232; Hull, 1962, p. 232, figs. 1797 and 1798.

This is a large light brown species, with two short darker lines on the mesonotum and with dark dorsal bands on the abdomen.

*Male.* Head reddish golden pruinose; proboscis black; palpi brownish or yellow with yellow hairs; first and second antennal segments yellowish brown, third reddish and twice as long as second; mystax and beard white; postvertical and orbital bristles yellow. Mesothorax reddish with large golden areas; mesonotum brownish gold, bordered by gold, and usually with two dark, closely approximate, usually dark brown or reddish brown lines in center of disc (fig. 38); 3 supraalars, 2 black intraalars, 3-4 dorsocentrals, and 2 long black scutellar bristles; pronotal bristles yellow, sometimes with a few brown bristles intermingled. Legs brownish red with short black hairs; coxal bristles white; tibiae armed with strong black spines. Wings yellowish hyaline. Abdomen reddish brown with dark dorsal bands that are more or less interrupted mesally, lateroposterior angles of tergites golden, bristles of first segment usually yellow or light brown; genitalia covered with long yellowish brown hairs, sometimes with a few black hairs intermingled.

*Female.* Similar to male, but with hairs of genitalia short.

*Measurements.* Length 26-48 (average 32.3) mm.; wings 19-26 (average 20.8) mm. long and 4.5-6.5 (average 4.9) mm. wide (averages based on 16♂ and 17♀).

*Material Examined.* 16♂ and 17♀. ALABAMA: Atmore, 3♂ (FSB, USNM). FLORIDA: Childs, 1♀ (PWO, USNM); MacDavid, 9♂ and 4♀ (FSB, USNM); Pablo Beach, 1♂ and 1♀ (USNM); Okefenokee Swamp, 2♀ (JDB, USNM). NORTH CAROLINA: New River, 1♀ (GEB, USNM); Southern Pines, 1♀ (USNM); Wilmington, 1♂ (type) (TRM, USNM). SOUTH CAROLINA: Lane, 1♀ (PHA); MacBee, 4♀ (USNM).

This species varies considerably in size, with the largest specimens (body length, 48 mm.) from Florida, but the other characters are relatively constant; the mesonotal markings vary to some extent, with two small spots the same color as the central lines sometimes (e.g., T, USNM) present on each side of the lines.

This species is found in tall grass in open areas, and feeds principally on wasps and bees. The eyes in life are bright green.

### *Diogmites esuriens* Bromley

Figures 23, 32, 45b

*Diogmites esuriens* Bromley, 1936, p. 230 (Type vid.); Fattig, 1945, p. 14; Bromley, 1950b, p. 232; Hull, 1962, p. 232.

This is a dark brown species with the abdomen slightly constricted between the second and third segments, and with the central stripe of the mesonotum divided longitudinally and not reaching the pronotum.

*Male.* Head golden pruinose; proboscis black, palpi brown; antennae orange yellow; mystax, beard, palpal hairs, and the postvertical and orbital bristles whitish. Sides of mesothorax reddish golden; mesonotum usually golden, rarely reddish golden bordered by gold, and with three black stripes, central stripe divided longitudinally (fig. 32); 3 supraalars, 2 intraalars, 4 dorsocentrals, and 2 long, black, usually cruciate scutellar bristles; pronotal bristles yellow; hypopleural bristles usually brown, and often yellow, black, or mixed. Legs reddish brown with short black hairs; coxal bristles white. Wings hyaline, apex and border fumose. Abdomen brownish, with a slight constriction between second and third segments; tergites usually with a black oblique line on proximal angle, contrasting with the brown or golden background color, the posterior angles of tergites golden pruinose; bristles on first segment yellow; genitalia with long brownish hairs, sometimes with a few black and yellow hairs intermingled.

*Female.* Similar to male, but hairs of genitalia yellow and short; constriction between second and third abdominal segments less pronounced, and in a very few specimens scarcely indicated.

*Measurements.* Length, 21-31 (average 25.0) mm.; wings 14-18 (average 15.7) mm. long and 3.0-4.5 (average 3.8) mm. wide (averages based on 7♂ and 9♀).

*Material Examined.* 8♂ and 9♀. FLORIDA: Alachua, 1♂ (FWW, USNM), 3♀ (USNM); Altamonte, 1♀ (FAE, MCZ); Brandford, 1♂ (JN, USNM); Brevard, 1♂ (USNM); Fruitville, 1♀ (LTD, USNM); Gainesville, 1♀ (USNM); Kissimmee, 1♂ (AMNH); Lake Worth, 1♀ (USNM); Loughman, 1♀ (JN, USNM); Miami, 2♂ (LKG, USNM), 1♀ (AMNH). SOUTH CAROLINA: MacBee, 1♂ (USNM). No locality, 1♂ (type) (USNM).

The abdomen is less constricted basally in the females than in the males, and this character is sometimes difficult to use in identification, especially in the females.

This species feeds upon various bees and wasps.

### *Diogmites rubrodorsatus*, sp. n.

Figures 24, 34, 43b

This is a dark brown species with the mesonotum red and bearing three black stripes; the central stripe is not divided longitudinally, and extends to the pronotum. The abdomen is slightly constricted between the second and third segments.

*Male.* Head reddish golden pruinose; proboscis black; palpi reddish brown, palpal hairs yellow, antennae reddish yellow, third segment with a few black hairs above in basal half, mystax and beard yellow; postvertical and orbital bristles yellow; 2 black, divaricate and proclinate ocellar bristles. Pronotum black covered with silver pollen; sides of mesothorax blackish silver pollinose; mesonotum dark red bordered anteriorly by gold and laterally by silver, the scutellum reddish brown; three black stripes on mesonotum, the central stripe undivided and reaching pronotum, the lateral stripes undivided (fig. 34); 3 black supraalar, 2 black intraalar, 4 dorsocentrals (of different size), 2 long postalar, and 2 long, black, convergent scutellar bristles; pronotal bristles yellow; hypopleural bristles reddish brown. Legs brownish yellow with short black hairs; tarsi lighter than tibiae, the joints between tibia and tarsus and between tarsal segments red; last tarsal segment dark red, almost black; coxal bristles white; pulvilli yellow, darker than mystax. Wings yellow hyaline, fumose on posterior border. Abdomen reddish brown, proximal angles of tergites with an oblique black line, distal inferior angles silver pollinose and contrasting with the black line; anterior border of second segment with a black band that is interrupted dorsally; bristles of first segment yellow; abdomen slightly constricted between second and third segments; hairs of genitalia black, with some yellow hairs intermingled.

*Female.* Similar to male, but abdomen less constricted basally and hairs of genitalia short and yellow.

*Measurements.* Length 24-27 (average 26.0) mm.; wings 15-17 (average 15.4) mm. long and 3.3-4.2 (average 3.6) mm. wide (averages based on 3♂ and 2♀).

*Material Examined.* 3♂ and 2♀. FLORIDA: Miami, 1♂ (SWB, USNM). GEORGIA: Perry, 1♂ and 1♀ (PFW, USNM); Savannah, 1♀ (LTB, USNM) (*Vespula* sp. as prey); Silvester, 1♂ (PFW, USNM). Total examined, 5 specimens. Type, ♂, Silvester, Georgia.

This species is related to *esuriens*, from which it may be distinguished by the red mesonotum, and the central mesonotal stripe undivided and reaching the pronotum. *D. esuriens* has the pronotum reddish golden, and the central mesonotal stripe is divided longitudinally and does not reach the pronotum.

The name *rubrodorsatus* refers to the red color of the mesonotum.

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