Revision of North American Aleiodes Wesmael (Part 2):
the apicalis (Brullé) Species-group in the New World
(Hymenoptera: Braconidae, Rogadinae)

SCOTT R. SHAW, PAUL M. MARSH, AND JOSEPH C. FORTIER

(SRS, JCF) Department of Plant, Soil, and Insect Science, P.O. Box 3354, University of Wyoming,
Laramie, Wyoming 82071, USA; (PMM) Cooperating Scientist, USDA Systematic Entomology Laboratory, c/o U.S. National Museum of Natural History, NHB-168, Washington, D.C. 20560, USA
(correspondence address: P.O. Box 384, North Newton, Kansas 67117, USA)

Abstract.—The Aleiodes apicalis (Brullé) species-group is defined to include the following previous-
described species: apicalis (Brullé, 1832), grandis Giraud, 1857 (=Rhogas malaiis Shestakov, 1940 NEW SYNONMY), parasiticus Norton, 1869, atriceps Cresson, 1869, abdominalis Cresson, 1869, rileyi Cresson, 1869, molestus (Cresson, 1872) NEW COMBINATION, schirjajewi Kokujev, 1898, convexus van Achterberg, 1991 (=Chelonorrhagos rufithorax Enderlein, 1912), and brethesi Shenefelt, 1975 NEW COMBINATION. One newly described species, flavitarsus Marsh and Shaw, is also included. The apicalis species-group is regarded as monophyletic based on the pres-
ence of dense setal mats on the apical metasomal terga of males. The genus Dimorphomastax Shenefelt, 1967 is synonymized under Aleiodes, and the species Dimorphomastax peculiaris Shenefelt, 1979 is regarded as a junior synonym of Aleiodes atriceps Cresson. Rogas rufocoxalis Gahan, 1917 is
newly synonymized as a junior synonym of Aleiodes molestus (Cresson). A key to the New World
species of the apicalis species-group is provided, and species treatments are given for Nearctic
species, including diagnostic characters, distribution, and biological information.

The rogadine braconid genus Aleiodes Wesmael is worldwide in distribution, but is particularly species-rich in the Holarctic
region. Aleiodes is diverse in North America, with at least 90 species in the United
States and Canada (Shaw et al. 1997). This paper is the second contribution in a series
of planned papers on Aleiodes species-
groups, intended to provide a complete
revision of the genus for North America.
In this paper we treat a distinctive
monophyletic assemblage, the species of the
Aleiodes apicalis species-group, as it occurs in
the New World region. All members of
this group have dense setal mats on male
terga 4–7 (Fig. 1). Our definition of the
species-group includes all species known
to us, worldwide. However, because our
main intent is to provide a revision for
North American species, species treat-
ments are limited to the Nearctic fauna.

Since only one other New World species
is known to us, this is included in the key
for convenience. The European species are
currently being revised by Kees van Achter-
berg and Mark Shaw.

Aleiodes species are koinobiont endopar-
asitoids of lepidopteran larvae, especially
macrolepidoptera of the superfamilies
Noctuoidea and Geometroidea, and to a
lesser extent, Arctioidea, Sphingoidea, and
Papilionoidea (Shaw et al. 1997). Members of the apicalis group, as far as known, are
mostly parasitoids of Noctuidae. The method of parasitism, unique to the tribe
Rogadini, is noteworthy: the Aleiodes larva
completes its feeding and pupates within
the shrunken and mummified remains of
the host caterpillar. The form of the mum-
my caused by a particular Aleiodes species
is usually characteristic for that host and
parasitoid, so the mummified remains are
of considerable diagnostic value and should be retained with the parasitoid, when reared. For more complete discussions of Aleiodes biology, readers may refer to Shaw (1983, 1994), Shaw and Huddleston (1991), Shaw (1995), and Shaw et al. (1997).

METHODS

Species covered in this paper can be identified as members of the subfamily Rogadinae using the keys of Shaw and Huddleston (1991), van Achterberg (1993), or Shaw (1995). Our definition of Aleiodes follows that of van Achterberg (1991), Shaw (1993), and Shaw et al. (1997). Specimens can be determined as Aleiodes using the keys of Marsh et al. (1987), van Achterberg (1991), or Shaw (1997). Specimens keyed through Marsh et al. (1987) will key to couplet 185, at which point they can be separated from Rogas by the presence of a discrete median carina on the propodeum, the lack of a foveate sternaulus on the mesopleuron, and the lack of a blunt basal tooth on the tarsal claw. In practice, more than 99% of U.S. and Canadian specimens encountered will be Aleiodes, as Rogas s.s. is only infrequently encountered north of Mexico (but increases in species richness in the neotropics). The species-groups of North American Aleiodes can be keyed using the key provided in Shaw et al. (1997). The species treated in this paper were formerly assigned to the ductor Thunberg species-group by Shaw et al. (1997) following a recent interpretation of that species by Papp (1985). However, Kees van Achterberg (pers. comm.) has indicated to us that previous interpretations of ductor are not correct, and that the species treated here are better called the apicalis species-group.

Terminology follows that used for Aleiodes by Shaw et al. (1997), Shaw (1993) and Marsh (1989). Microsculpture terminology follows that of Harris (1979). Wing venation terminology (see Fig. 16) follows that of Shaw (1997) and Shaw et al. (1997).

Abbreviations for museums are as follows: ANSP, Academy of Natural Sciences, Philadelphia; AEI, American Entomological Institute, Gainesville; AMNH, American Museum of Natural History, New York; CAS, California Academy of Sciences, San Francisco; CNC, Canadian National Collection, Ottawa; CUI, Cornell University, Ithaca; FSCA, Florida State Collection of Arthropods, Gainesville; HNHM, Hungarian Natural History Museum, Budapest; INHS, Illinois Natural History Survey, Urbana; MISU, Michigan State University, East Lansing; MSSU, Mississippi State University, Mississippi State; OKSU, Oklahoma State University; RMNH, Nationaal Natuurhistorisch Museum, Leiden; TAMU, Texas A. & M. University, College Station; UCD, University of California, Davis; UMSP, University of Minnesota, St. Paul; RMSEL, Rocky Mountain Systematic Entomology Laboratory, University of Wyoming, Laramie; USNM, U.S. National Museum of Natural History, Washington, D.C.

Authorship of species is attributed to the senior authors (PMM and SRS) in the order indicated.

ALEIODES APICALIS SPECIES-GROUP

Included species: apicalis (Brullé, 1832), grandis Giraud, 1857 (=malaisei Shestakov, 1940 new synonymy), parasiticus Norton, 1869, atriceps Cresson, 1869 revised combination (=Dimorphomastax peculiaris Shenefelt, 1979 new synonymy), abdominalis Cresson, 1869 (=lectus Cresson, 1869), rileyi Cresson, 1869 revised combination, molestus (Cresson, 1872) new combination (=rufocoxalis (Gahan, 1917) new synonymy), schirrajewi Kokujev, 1898, convexus van Achterberg, 1991 (=Chelonorhogas rufithorax Enderlein, 1912), brethesi Shenefelt, 1975 new combination (replacement name for nigriceps Brethes, 1909, preoccupied by nigriceps Wesmael, 1838), and flavilarsus Marsh and Shaw, new species.

Diagnostic characters.—Ocellar diameter small, ratio of ocellar diameter to distance
between lateral ocellus and compound eye less than 1; occipital carina meeting hypostomal carina laterally; dense setal mat present on male terga 4–7 and subdivided medially (Fig. 1); medial ridge extending down frons 0.55 or more of distance from line between base of scape to clypeus; mesonotal disc sculpture finely granulate to smooth (Figs. 4–6), sparsely or not setose; tarsal claws strongly pectinate (Figs. 12–14).

Remarks.—A moderate-sized, circumpolar and neotropical monophyletic group, associated mostly with noctuids (see Fig. 15). There are some recorded associations with geometrids, lymantriids, pyralids, and even sawflies, but these need confirmation and the latter seems unlikely.

The dense setal mats on male terga 4–7 are undoubtedly synapomorphic. The function of the dense setal mats on male terga 4–7 is unknown, but perhaps they...
may serve to disperse pheromones during courtship and mating.

Even fairly recently (Shenefelt, 1975; Marsh, 1979), species belonging in this group have been classified in several genera (Aleiodes, Chelonorhogas, Dimorphomastax, and Rogas). Chelonorhogas was synonymized with Aleiodes by van Achterberg (1991), but retained Chelonorhogas as a valid subgenus, to which the apicalis-group is assigned.

---

**KEY TO NEW WORLD SPECIES OF THE ALEIODES APICALIS SPECIES-GROUP**

1 Mandible of male with a large, curved, tusk-like accessory tooth situated near the posterior condyle (Fig. 2), or female with a small accessory tooth situated near the posterior condyle; oral space unusually large; southwestern U.S. and Mexico ... *A. atriceps* Cresson
   - Mandible normal and unmodified, lacking a large, tusk-like tooth (males) or small tooth (females) near the posterior condyle (Fig. 3); oral space smaller (Fig. 3) ................. 2

2(1) Mesosoma (excluding legs) entirely black ........................................... 3
   - Mesosoma color varying from entirely orange, to orange with extensive black markings posteriorly and laterally, but pronotum, mesonotum, and scutellar disc always colored bright orange ........................................... 4

3(1) Hind tarsomeres orange to brown, similar to color of tibia; body length 6.0–8.0 mm; fore wing vein 1cu-a beyond vein 1M by less than 3 times its length; hindwing vein m-cu present (Fig. 16) ................. *A. abdominalis* Cresson
   - Hind tarsomeres 1–4 yellow, much lighter than color of tibia; body length 4.5–5.5 mm; fore wing vein 1cu-a beyond vein 1M by 3 times its length; hindwing vein m-cu absent (Fig. 17) .................. *A. flaevitarsi* Marsh & Shaw, new species

4(3) Body entirely orange to orangish brown; mesonotum granulate and dull ............... *A. rileyi* Cresson
   - Body only partly orange, head entirely black, legs, mesosoma, and apex of mesotoma with variable black markings; mesosoma sculpture variable, but always somewhat shining and polished ........................................... 5

5(4) Mesosoma entirely orange, legs entirely black; mesonotal disc entirely smooth and highly polished, virtually devoid of setae (Fig. 6); South American species .................. *A. brethesi* (Shenefelt)
   - Mesosoma usually orange and black (rarely entirely orange), leg color orange and black, coxae at least always orange; mesonotal disc not so completely smooth, with numerous setal pits (Fig. 5); North American species ..................... 6

6(5) Hind femur and tibia banded, orange on basal half, black on apical half; northern species associated with boreal forests .................. *A. parasiticus* Norton
   - Hind femur and tibia entirely black; southern species frequently associated with agrocosystems ............. *A. molestus* (Cresson)

---

**Aleiodes atriceps** Cresson, revised combination

(Fig. 2)


**Diagnosis.**—Body bicolored, head including antenna black, mandibles and palpi yellow, mesosoma varying from entirely black to entirely orange, tegula yellow, metasoma orange, legs orange, wings hyaline, veins brown except vein C+Sc+R and stigma yellow; body length, 6.0–7.0 mm; 46–53 antennomeres; malar space equal to basal width of mandible; oral opening circular, diameter equal to malar space in female and greater than malar space in male; ocelli small, ocellocular distance about twice diameter of lateral ocel-
lus; mandible in female with short triangular tooth at condyle, in male with large sickle-shaped tooth at condyle; occipital carina meeting hypostomal carina; head entirely coriaceous, sometimes smoother in male; pronotum rugose laterally; mesonotum and scutellum coriaceous, notauli weakly scrobiculate; mesopleuron smooth, subalar sulcus rugose, sternaulus absent; propodeum rugose, median carina complete; metasomal terga and costate-rugose, median carina complete; third metasomal tergum longitudinally costate over basal 0.25 to 0.5, smooth posteriorly; terga 4–7 in male with dense row of short yellow setae at base, and dense patches of yellow setae on each side of mid-line; fore wing with vein 1cu-a beyond vein IM by distance nearly twice length of 1cu-a, hind wing with marginal cell gradually broadening to apex, vein RS straight on basal half and slightly bent downward on apical half, vein m-cu present; tarsal claws strongly pectinate with 6–7 stout teeth, apical 3 teeth of pectin about 0.75 as long as apical claw, remaining teeth gradually shorter towards base of claw; apical tibial spurs of male blunt.

Type material examined.—Aleoiodes atriceps Cresson, holotype female, Mexico (ANSP). Dimorphomastax peculiaris Shenefelt, paratype female, Portal, Arizona (AEI).

Distribution.—Mexico, Arizona, and Texas.

Biology.—Unknown. Adults have been collected from July through December.

Comments.—Shenefelt (1975) classified atriceps under Rogas, but we are moving it here back to its original combination with Aleiodes. Although the unusual and distinctive shape of the mandible (Fig. 2) prompted Shenefelt (1979) to create a new genus for this species, we consider it to be only a specialized species of Aleiodes with peculiar mandibles. The species is, in most other characters, a typical Aleiodes and we consider the mandible shape, as well as the blunt tibial spurs of the male, to be autapomorphies. Dimorphomastax Shenefelt, 1969 is therefore considered a junior synonym of Aleiodes, new synonymy.

The unusual accessory mandibular tooth of this species is strongly sexually dimorphic (small triangular tooth in the female, large sickle-shaped projection in the male) suggesting a possible role in courtship and mating. The sexual dimorphism raises doubts about whether it may serve any primary cutting function, such as assisting in escape from the host mummy.

Aleiodes abdominalis Cresson
(Figs. 1, 3, 4, 7, 12, 16)


Diagnosis.—Body bicolored, head and mesosoma black, metasomal terga 1–3 orange, remainder of terga orange to black, antenna and legs orange, wings lightly dusky, veins brown, tegula yellow; body length, 6.0–8.0 mm; 54–63 antenomeres; malar space longer than basal width of mandible; face costate with distinct raised ridge between antennae, frons, vertex and temple coriaceous; oral opening circular, diameter about equal to basal width of mandible; propodeum rugose; mesonotum and scutellum finely coriaceous, notauli weakly scrobiculate and meeting in small rugose are before scutellum; mesopleuron smooth, subalar sulcus rugose, sternaulus absent; propodeum rugose-coriaceous, median carina on basal half only; first and second metasomal terga costate, median carina complete, third tergum costate at base, remainder smooth; apical terga of males, especially terga 4–7 densely covered with silvery setae, except along median line; fore wing with vein 1cu-a wing beyond vein IM by distance greater than length of 1cu-a; hind wing with marginal cell gradually widening, vein RS slightly
curved downward, vein m-cu present; tarsal claws strongly pectinate with 6–7 stout teeth, apical 3 teeth of pectin about 0.75 as long as apical claw, remaining teeth gradually shorter towards base of claw.

Type material examined.—Aleiodes abdominalis Cresson, holotype female, Pennsylvania (ANSP). Aleiodes lector Cresson, holotype male, Illinois (ANSP).

Distribution.—Widely distributed in eastern North America from Quebec and Ontario south to North Carolina, west to South Dakota and Arizona; more commonly encountered in the eastern parts of its range.

Biology.—Unknown. One specimen from Maryland is associated with an undetermined noctuid. The mummy is dark brown, smooth, and about 1 cm long. Adults appear in early June in the north-
ern parts of its range; the specimens from Arizona were collected in late September.

Comments.—This is the most common member of the species-group with a mostly black body. The only other North American species in the group with an all-black mesosoma is flavitarsus, from which abdominalis can be distinguished by its larger body size (6.0-8.0 mm), fore wing vein 1cu-a beyond vein 1M by less than 3 times its length, and hindwing vein m-cu present (Fig. 16). The European species, A. apicalis, is also similar in body color and general appearance. However, abdominalis can be distinguished by its finely coriaceous to granulate mesonotum (Fig. 4), while the disc of the mesonotum is smooth-punctate in apicalis. Superficially, abdominalis is similar in color pattern (black and orange) to the very common species A. terminalis Cresson, but terminalis is a member of a different species-group, and can be easily separated by the species-group key provided in Shaw et al. (1997). Males of terminalis do not have densely setose metasomal terga 4-7.

Aleiodes flavitarsus Marsh and Shaw, new species
(Fig. 17)

Female.—Body color: head black, mandibles and mouthparts yellow, antenna light brown; mesosoma black, propleuron sometimes brown or orange; tegula yellow; legs yellow except apical tarsal segments, apical 0.25 of hind femur and apical 0.5 of hind tibia which are black; meta-soma with segments 1-3 yellow-orange except tergum 1 black medially and ter-gum 3 black apically, segments 4-8 black; wings hyaline, veins light brown, tegula yellow. Body length, 4.5-5.5mm. Head: malar space short, equal to basal width of mandible and about eye height; temple narrow, about 0.5 eye width; occipital carina not quite meeting hypostomal carina; oral space small and oval, width equal to malar space and about 0.5 face height; 46-49 antennomeres, all flagellomeres slightly longer than wide, first slightly longer than second; ocelli small, ocellocular distance equal to or slightly greater than diameter of lateral ocellus; face rugulose-coriaceous with median carina between antennae; frons coriaceous; vertex and temples coriaceous; occiput smooth and shining; maxillary palpus not swollen; mandibles small, tips not overlapping when closed. Mesosoma: propleuron rugose, often smooth medially; mesonotum and scutellum coriaceous; notauli scrobiculate, meeting in small rugose area before scutellum; mesopleuron smooth and shining, rugose
Figs. 16-17. Wings showing venation terminology. 16. *A. abdominalis*. 17. *A. flavitarsus*.

dorsally and in subalar sulcus; sternaulus absent; propodeum rugose-coriaceous dorsally, coriaceous laterally, median carina obscured apically. Legs: tarsal claws strongly pectinate with 4-5 stout teeth, apical 3 teeth of pectin about 0.75 as long as apical claw, remaining teeth gradually shorter towards base of claw; inner spur of hind tibia slightly less than 0.5 length of hind basitarsus; hind coxa smooth dor-
sally. Wings: hyaline; fore wing with vein r 0.5 length of 3RSa, vein 1cu-a beyond 1M by nearly 3 times length of 1 cu-a, vein 1CUa slightly longer than 1CUb; hind wing with vein RS straight, cell IR1 gradually widening to wing apex, vein r-m slightly shorter than 1M, vein M+Cu slightly longer than 1M, vein m-cu absent. Metasoma: first tergum rugulostriate, median carina complete, length equal to apical width; second tergum rugulostriate, median carina complete; third tergum rugulostriate basally, smooth apically, median carina absent; fourth and following terga smooth; ovipositor short, about 0.5 length of hind basitarsus.

**Male.**—Essentially as in female.

**Holotype.**—Female: MICHIGAN: Marquette County, August 14, 1959, R. And K. Dreisbach. Deposited in USNM.


man, July 22, 1917, A.L. Melander. Deposited in CNC, HNHM, MCZ, RMNH, RMSEL, USNM.

**Distribution.**—Widely distributed across Canada and the northern United States.

**Biology.**—Two specimens from Manitoba were reared from an unknown species of the genus Autographa (Noctuidae). Adults are active from late June through September. The specimens from Manitoba were labeled as emerging in March, but were probably collected during the previous summer and emergence may have been under laboratory conditions.

**Comments.**—This species is similar to abdominalis, but differs by its smaller body size (4.5–5.5 mm), vein 1cu-a of the fore wing being beyond vein 1M by three times its length (Fig. 17), by having hind tarsomeres 1–4 yellow, and by the absence of vein m-cu in the hind wing (Fig. 17).

**Aleiosdes molestus (Cresson), new combination**

(Figs. 14, 15)

**Rogas molestus** Cresson, 1872, Trans. Amer. Ent. Soc. 4:188.


**Diagnosis.**—Body bicolorized, mesonotum orange, mesopleuron and propodeum varying from entirely black to entirely orange, with various intermediate forms occurring, metasomal terga 1–3 always orange, rest of terga varying from orange to black, legs beyond coxae dark brown or black, wings slightly dusky, veins brown, tegula orange; body length, 5.0–7.0 mm; 45–47 antennomeres; malar space long, slightly greater than basal width of mandible; face, frons and vertex rugulose, temple smooth; mesonotum and mesopleuron smooth; propodeum rugose, median carina complete; first and second metasomal terga strigate-rugose to costate, median
carina complete; fore wing with vein 1cu-a beyond 1M by distance nearly twice length of 1cu-a; marginal cell of hind wing narrowest basally, gradually widening toward wing apex; tarsal claws strongly pectinate with 6–8 stout teeth, apical 3 teeth of pectin about 0.75 as long as apical claw, remaining teeth gradually shorter towards base of claw.

Type material examined.—Rogas molestus Cresson, holotype female, Texas, G.W. Belfrage collection, [USNM]. Rogas rufocoxalis Gahan, holotype female, Colorado, Rocky Ford [USNM].

Distribution.—South Dakota south to Arkansas, Louisiana, Texas, and Mexico, west to Wyoming, Utah, Arizona, and southern California.

Biological.—Although A. molestus is commonly collected by Malaise trap, sweep net, or at lights, verified rearing records are less common. In the USNM collection there are single specimens labelled as reared from several plusine and noctuid species including Autoptusia egena (Gn.), the soybean looper, Pseudoplusia includens (Wlkr.), the cabbage looper, Trichoplusia ni (Hbn.), and the variegated cutworm, Peridroma saucia (Hbn.). The known hosts are all generalist feeders on a variety of low vegetation including numerous crop species. Adults have been collected from late April through mid-September in the southern parts of its range.

Comments.—A. molestus is a fairly common midwestern and southern species favoring open fields, low vegetation, and agroecosystems. It belongs to the parasiticus assemblage, comprising parasiticus Norton, molestus (Cresson) and brethesi (Shenefelt), all of which have an orange mesonotum that is smooth and shining (as in Figs. 5–6) and well-developed longitudinal sculpture on tergum 2+3 (as in Fig. 10). A. molestus differs from parasiticus by having the legs entirely dark brown or black beyond the coxae (the femorae and tibiae are banded in parasiticus). It differs from brethesi by having orange coxae, while the legs are entirely black in that South American species.

There is considerable variation in the extent of dark coloration on the mesopleuron and propodeum in molestus, consequently rufocoxalis, which differs only by having an entirely orange mesosoma, cannot be held as a valid species. In his description of rufocoxalis, Gahan (1917) stated that “it would not be surprising if it (rufocoxalis) would ultimately turn out to be merely a color variety of Cresson’s species (molestus).” Indeed, although sometimes the mesopleuron and propodeum are entirely black, intermediates with less dark color and orange patches showing through are fairly common, so it would appear that Gahan’s prediction is correct.

**Aleiodes parasiticus Norton**

(Figs. 5, 8, 12)


Diagnosis.—Body bicolored black and orange, head black, antenna orange basally to black apically, mesosoma orange except mesopleuron below subalar sulcus and propodeum black, first and second metasomal terga orange, third tergum orange on basal 0.5, black on apical 0.5, remainder of terga black, fore and middle legs orange except apical tarsomeres black, hind coxa and trochanters orange, hind femur orange on basal 0.66, black on apical 0.33, hind femur yellow on basal 0.5, black on apical 0.5, hind tarsus orange except apical tarsomere black, wings lightly dusky, veins brown, tegula yellow; body length, 5.0–7.0 mm; face costate, frons and vertex rugose, temple punctate, occipital carina scrobiculate; malar space longer than basal width of mandible and about 0.5 eye height; ocellocular distance longer than diameter of lateral ocellus; pronotum rugose; mesonotum smooth, mesopleuron smooth medially, subalar sulcus and sternaulus rugose; propodeum rugose dorsally, punc-
tate laterally, median carina complete; first and second metasomal terga costate-rugose, median carina complete, third tergum costate on basal 0.5, smooth on apical 0.5, median carina absent, remainder of terga smooth, fourth-seventh terga of male with dense patches of setae on apical 0.5 on each side of mid-line; fore wing with vein 1cu-a beyond 1M by distance twice length of 1cu-a, marginal cell of hind wing gradually widening, vein RS straight, vein m-cu absent; tarsal claws strongly pectinate with 5–6 stout teeth, apical 3 teeth of pectin about 0.75 as long as apical claw, remaining teeth gradually shorter towards base of claw.

Type material examined.—Aleiodes parasiticus Norton, holotype female, Connecticut (MCZ).

Distribution.—Eastern Canada and United States south to Maryland, west to North Dakota, Wyoming, and Colorado.

Biology.—We have examined specimens from the CNC and USNM collections labelled as reared from the plusuline noctuids Anagapha falcifera (Kby.) and Syngrapha epigaea (Grt.). The former is a generalist on low plants including blueberries and clover, while the later is a generalist feeding on conifers including pines, spruces, and firs. The mummy formed is typically cream-colored and fairly smooth. Norton (1869) and Shenefelt (1975) listed this species as having been reared from the diprionid sawfly Neodiprion abietis (Harris) on Abies, but this seems very unlikely. Adults of A. parasiticus are active from late May to early September.

Comments.—A. parasiticus is similar to molestus, but parasiticus differs in having the posterior femur and tibia banded (orange on basal 0.5, black on apical 0.5). A. parasiticus is a distinctly northern species associated with boreal forests, while molestus is a midwestern and southern species favoring drier and more open habitats, including agroecosystems.

Aleiodes rileyi Cresson, revised combination
(Fig. 13)


Diagnosis.—Body unicolored orange or honey yellow, flagellum black, wings hyaline, veins brown, stigma yellow to light brown; body length, 5.5–8.0 mm; 53–55 antennomeres; malar space short, about equal to basal width of mandible and 0.25 eye height; ocelli large, ocellocular distance equal to or slightly less (about 0.75) diameter of lateral ocellus; oral opening small and circular, diameter about equal to basal width of mandible; face rugose, frons smooth, vertex and temple coriaceous; occipital carina not meeting hypostomal carina; pronotum procate; mesonotum and scutellum coriaceous; mesopleuron smooth, subalar sulcus rugose, sterna-lus absent; propodeum rugose dorsally, coriaceous laterally, median carina complete; first and second metasomal terga rugose costate, median carinae complete; third tergum costate on basal 0.33, smooth or weakly coriaceous on apical 0.66, sometimes entirely smooth or weakly coriaceous, median carina absent; remainder of terga weakly coriaceous; terga 4–6 in male with lateral patches of dense gold hair; fore wing with vein 1cu-a beyond 1M by distance slightly greater than length of 1cu-a; hind wing with vein RS arched in middle, marginal cell narrowest in middle; tarsal claws strongly pectinate with 7–8 stout teeth, apical 3–4 teeth of pectin about 0.75 as long as apical claw, remaining teeth gradually shorter towards base of claw.

Type material examined.—Aleiodes rileyi Cresson, holotype female, Missouri (ANSP).

Distribution.—Connecticut south to Florida, west to Michigan, Kansas, and Saskatchewan. It probably occurs throughout the eastern half of North America.

Biology.—We have examined specimens
from the CNC, INHS, and USNM collections labelled as reared from the noctuids Acronycta oblinata (J.E. Sm.), Melanchra picta (Harr.), and Nephelodes minians Gn., the lymantrid Dasychira vagans (B. & McD.), and possibly the pyralids Ostrinia obumbratalis (Led.), and O. penitalis (Grt.). The known hosts are all generalist feeders on a variety of low vegetation, shrubs, and low trees such as willows. Adults of Aleiodes rileyi are active in Florida as early as January, but in northern parts of its range (Illinois) adult activity is in late summer (August).

Comment.—Marsh (1979) classified rileyi under Rogas, but we are moving it here back to its original combination with Aleiodes. A. rileyi is quite distinctive by being the only member of the species-group that is entirely orange; all other North American species in the apicalis-group have at least some black coloration on the body.

ACKNOWLEDGMENTS

This research was supported by grant DEB-930-6314 from the National Science Foundation. Additional support was provided by supplemental Research Experience for Undergraduates (REU) grants in 1994, 1995, and 1996. Support was also provided by a Faculty Grant-in-Aid from the University of Wyoming Research Office, U.W. Experiment Station Project WYO-256-90, and a CANACOL Foundation grant to the junior author (JCF). Additional thanks are due to Ms. Teresa Williams, of the Western Research Institute, for assistance with the Environmental Scanning Electron Microscope and photography. We also thank the curators of the museums mentioned in the Methods section for the loan of specimens used in this study.

LITERATURE CITED


