

# Review of the New World genera of the subfamily Acontiinae (Lepidoptera, Noctuidae)

J. Donald Lafontaine<sup>1</sup>, Robert W. Poole<sup>2</sup>

**1** Canadian National Collection of Insects, Arachnids, and Nematodes Biodiversity Program, Agriculture and Agri-Food Canada, KW Neatby Bldg., C.E.F., Ottawa, Ontario, Canada K1A 0C6 **2** Research Associate, Department of Entomology, Smithsonian Institution, Washington, DC, USA

Corresponding authors: *Don Lafontaine* (LafontaineD@agr.gc.ca), *Bob Poole* (poole@nearctica.com)

---

Academic editor: *Christian Schmidt* | Received 26 December 2009 | Accepted 18 January 2010 | Published 18 March 2010

---

**Citation:** Lafontaine JD, Poole RW (2010) Review of the New World genera of the subfamily Acontiinae (Lepidoptera, Noctuidae). In: Schmidt BC, Lafontaine JD (Eds) Contributions to the systematics of New World macro-moths II. ZooKeys 39: 137–160. doi: 10.3897/zookeys.39.427

---

## Abstract

The taxonomic status of the 138 species of Acontiinae are reviewed and assigned to seven genera, *Ponometia* Herrich-Schäffer, *Tarache* Hübner, *Acontia* Ochsenheimer, *Eusceptis* Hübner, *Pseudalypia* H. Edwards, *Spragueia* Grote, and *Trogotorna* Hampson. A key to the genera, diagnoses of the genera, species groups of *Tarache*, illustrations of adults and genitalia of representatives of the seven genera, and a check list of the New World species are included.

## Keywords

Taxonomy, Acontiinae, New World, *Acontia*, *Eusceptis*, *Ponometia*, *Pseudalypia*, *Spragueia*, *Tarache*, *Trogotorna*

## Introduction

The purpose of this paper is to propose a new classification for the New World species of the noctuid subfamily Acontiinae.

The subfamily “Acontiinae” has a checkered history. It has been treated as a receptacle for a large number of unrelated small genera of the Noctuidae. The family as treated in the last check list of the moths of North America (Franclemont and Todd 1983) included the tribes Acontiini, Eustrotiini, Bagisarini, Cydosiini, and Eublemmini. These tribes have been disassociated and given subfamily ranking following

Crumb (1956), Poole (1995), Kitching and Rawlins (1998), Fibiger and Lafontaine (2005), Lafontaine and Fibiger (2006), and Lafontaine and Schmidt (in press).

The subfamily Acontiinae as currently classified by Fibiger and Lafontaine (2005) includes four tribes: Acontiini, Armadini, Aediini, and Hypercalymniini. Of the four, only the tribe Acontiini occurs in the New World and is the same group of genera listed as Acontiini in Franclemont and Todd (1983).

The Old World Acontiini was recently revised by Hacker et al. (2008). In this classification the world fauna of the Acontiini is placed in a single genus (*Acontia* Ochsenheimer) and the species arranged in seven subgenera: one restricted to the New World (subg. *Euseptis* Hübner), two Holarctic (*Acontia* and *Emmelia* Hübner) and four Palearctic. One would expect that a tribe with a single genus with more than 300 species would be very conservative structurally, but the situation is the opposite. The “genus” is so structurally diverse that the authors have restricted the diagnosis of the tribe and the genus to the type species, *Acontia lucida* Hufnagel, stating that the other members of the genus share “the same autapomorphic characters as those of the type-species, though sometimes in different states, and some of which might have been lost” (Hacker et al. 2008: 10). A number of the more striking apomorphic characters, such as the hair tufts on the scaphium and the characters of the tympanic area, apply to the subfamily. The larval characters apply to the tribe, and most of the other characters listed (bird-dropping appearance, shape of the valves and vesica, asymmetry of the valves, sacculi, and claspers) are so varied throughout the “genus” that they are of little use in diagnosing any of the “subgenera” except a few small subgenera segregated out because of a particularly unusual character state, in one case the forewing maculation. The derived character states that support the monophyly of the subfamily Acontiinae, and those that characterize the tribe Acontiini, are combined and applied to a single genus by Hacker et al. (2008) as a way of dealing with the huge amount of structural diversity among the several hundred species in the tribe Acontiini. The result is that the genus *Acontia* (s.l.) is very well defined, being equivalent to the tribe and largely to the subfamily. Molecular data and a phylogenetic analysis of genital characters may be useful in arranging the Old World fauna into smaller better defined monophyletic genera.

The classification that we present here is the result of the fusion of two separate research efforts. An online draft of the Acontiinae of North America by the junior author (R.W. Poole) intended as the basis for an online identification manual of the subfamily arranged the 100 or so species into six genera, mainly on the basis of genital structure. The senior author (J.D. Lafontaine), working on the classification mainly with DNA data from a molecular gene sequence of 658 base-pairs of the cytochrome c oxidase 1 (COI) mitochondrial gene, commonly called “barcodes,” arrived at the same six lineages that we treat as genera. The New World fauna of the Acontiinae was arranged in 14 genera by Poole (1989). We arrange the fauna in seven genera with the addition of the Neotropical genus *Trogotorna* Hampson to the six North American genera. A list of New World Acontiinae is given in the Appendix. Our classification based on morphology is similar in most respects to the phenetic clustering-produced neighbor-joining tree analysis of the 658 base-pair sequences of the COI barcodes of

the available 68 species of New World Acontiinae (Fig. 49). Although the COI DNA sequence analysis shows many relationships supported by genital characters, the placement of the genera *Spragueia* and *Trogotorna* are not consistent with their placement according to genital characters

**Genital terminology.** Terms for genital structures and wing markings follow Lafontaine (2004).

### Key to genera of North American Acontiinae (male genitalia)

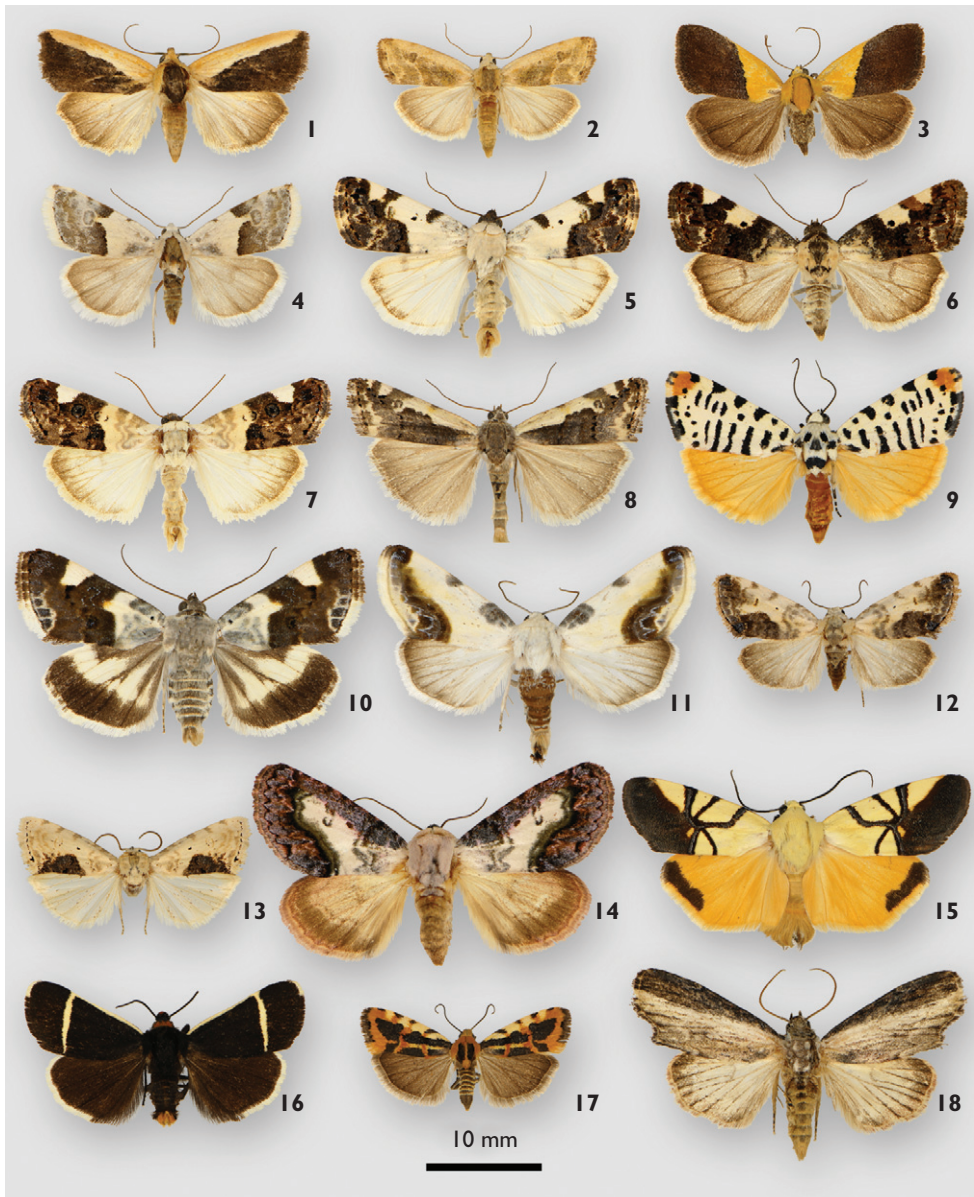
1. Ventral surface of uncus with rows of spine-like setae; southern Texas and Neotropics ..... *Eusceptis*
- Ventral surface of uncus smooth or with a few hair-like setae ..... 2
2. Valves with prominent, rounded or elongated setose ampulla on dorsal margin of clasper ..... 3
- Valves without ampulla; some species with spiny posterior extension of sacculus ..... 5
3. Apical part of the vesica membranous, but with elongated tapered diverticulum covered with spicules forming a false cornutus ..... *Acontia*
- Apical part of vesica with several pouch-like diverticula covered with dense patches of spines ..... 4
4. Valves bilaterally symmetrical except for longer ampulla on right valve ..... *Pseudalypia*
- Valves prominently asymmetrical ..... *Spragueia*
5. Aedeagus short, about 3 × as long as wide; valve tapered apically; Neotropics .. *Trogotorna*
- Aedeagus at least 5 × as long as wide; valve wider toward apex; widespread .... 6
6. Vesica with one or two medial diverticula with longitudinally ridged cornutus at apex of each diverticulum; apical part of vesica with comb-like row of short cornuti; valves bilaterally symmetrical in most species ..... *Ponometia*
- Vesica with dense field of spines toward apex or at end of subapical diverticulum; valves bilaterally asymmetrical in most species ..... *Tarache*

### Synoptic descriptions of the New World genera

#### *Ponometia* Herrich-Schäffer, 1868

Figs 1–4, 19–22, 39

*Ponometia* is a large genus of New World Acontiinae with 47 described species. We list it first because of the bilaterally symmetrical male genitalia, a character likely to be primitive and apparently absent in Old World Acontiinae (Hacker et al. 2008). Unlike *Tarache* and *Acontia*, only a few species have a moth that resembles a bird dropping.



**Figures 1–18.** Acontiinae adults [former generic name in brackets]. **1** *Ponometia* [*Ponometia*] *exigua* **2** *Ponometia* [*Fruva*] *fasciatella* **3** *Ponometia* [*Tarachidia*] *semiflava* **4** *Ponometia* [*Conochares*] *altera* **5** *Tarache* [*Acontia*] *aprica*, m **6** *Tarache* [*Acontia*] *aprica*, f **7** *Tarache* [*Acontia*] *areli* **8** *Tarache* [*Therapsea*] *augustipennis* **9** *Tarache* [*Hemispragueia*] *idella* **10** *Acontia* [*Acontia*] *lucida* **11** *Acontia* [*Acontia*] *cretata* **12** *Acontia* [*Stylorache*] *albida* **13** *Acontia* [*Chelichares*] *nubifera* **14** *Acontia* [*Hoplotarache*] *ruffinellii* **15** *Eusceptis* [*Eusceptis*] *flavifrimbriata* **16** *Pseudalyptia* [*Pseudalyptia*] *crotchii* **17** *Spragueia* [*Spragueia*] *leo* **18** *Trogotorna* [*Trogotorna*] *persecta*.

The genus is most easily characterized by the relatively small size of the moth (forewing length: 6–16 mm, but most species 8–12 mm), and the male and female genitalia. **Male genitalia** (Figs 19–22). The valves are bilaterally symmetrical with only a few species showing slight differences between the valves (e.g., *P. albitermen*, *P. binocula*, *P. tortricina*). The clasper is a long spine-like process on the ventral margin of the valve that turns upward, often abruptly so, to project onto the inner surface of the valve. The diagnostic feature of *Ponometia* is the vesica; there are one or two long diverticula, each with a longitudinally-ridged apical cornutus, and there is a comb-like row of small cornuti on the apical part of the vesica. **Female genitalia** (Fig. 39). The inner surface of the corpus bursae is covered posteriorly, sometimes entirely, with large patches of long spines 5–10 × as long as wide.

**Food plants.** Food plants are recorded for *Ponometia candefacta* (*Ambrosia* spp.), *Ponometia erastrioides* (*Ambrosia* spp.), *Ponometia acutus* (*Ambrosia* sp.), *Ponometia altera* (*Haplopappus* Cass. and *Ericameria* Nuttall), and *Ponometia libedis* (*Iva ambrosiaefolia* A. Gray), all in the Asteraceae. In addition *Ponometia bicolorata* has been reared from *Simsia foetida* (Cav.) S. F. Blake in the Asteraceae and *Heliotropium indicum* L. in the Boraginaceae.

### ***Tarache* Hübner, [1823]**

Figs 5–9, 23–30, 40–43

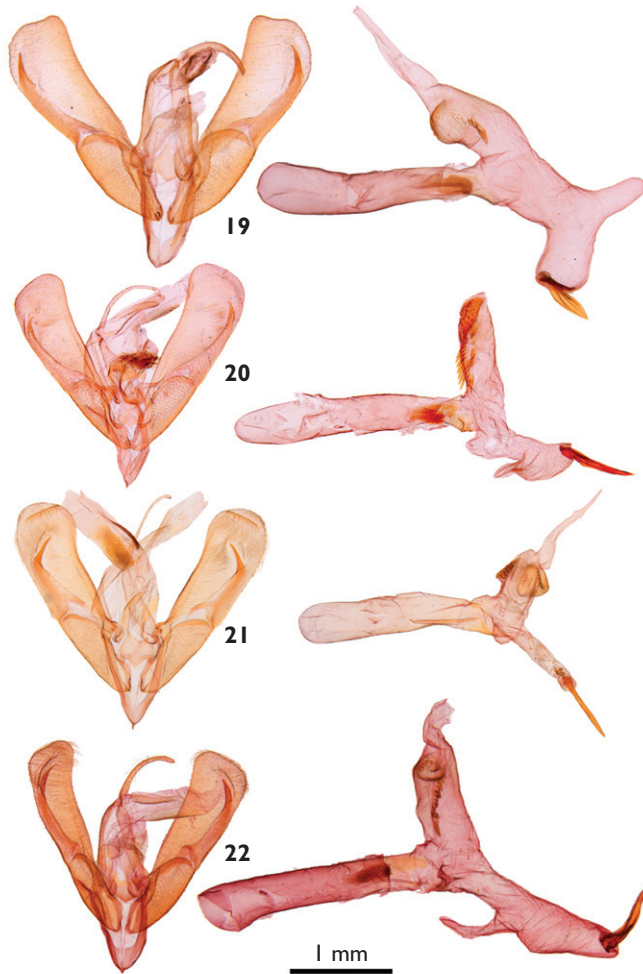
The genus *Tarache* contains 46 species, the majority of the species previously assigned to *Acontia* in the New World. The genus is heterogeneous in morphology, but can be arranged in three relatively well-defined and more homogeneous species-groups, and two of these can be divided further into subgroups. It may be desirable at some point in the future to subdivide the genus, but overlap in the presence of diagnostic character states among the species groups has encouraged us to adopt a larger definition of the genus. Included in *Tarache* are species previously placed in *Therapsea* and *Hemispragueia*.

**Male genitalia** (Figs 23–30). Valves usually bilaterally asymmetrical, often markedly so; vesica with a dense rasp-like patch or patches of short spines at or near apex of vesica or on a diverticulum. **Female genitalia** (Figs 40–43). Inner surface of corpus with patches of spines 2–4 × as long as wide; appendix bursae sclerotized, most frequently forming a posterior lobe of corpus bursae but wrapping around and partially or completely fused to right side of corpus bursae in *T. aprica* group and in *T. angustipennis* and *T. cora*, so that ductus seminalis arises at or near anterior end of corpus bursae.

**Food plants.** The food plants are recorded for *T. aprica* (*Althaea rosea* Cav.), *T. delecta* (*Hibiscus moschuetos* L.), *T. tetragona* (*Malvaviscus arboreus* Cav. and *Herssantia crispa* (L.) Brizicky) all in the family Malvaceae.

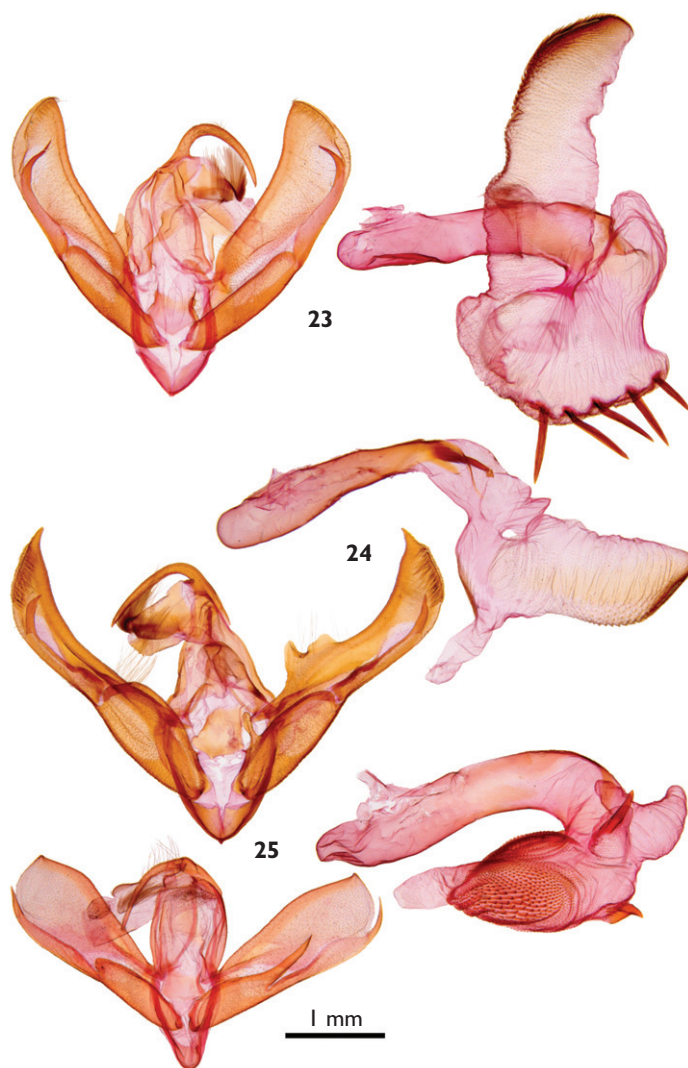
***Tarache aprica* species-group.** This species-group contains the type species of *Tarache* (*T. aprica*) and 22 other species (*Tarache abdominalis*, *T. apela*, *T. ardoris*, *T. assimilis*, *T. dacia*, *T. cratina*, *T. delecta*, *T. destrecta*, *T. flavipennis*, *T. isolata*, *T. knowltoni*, *T. lagunae*, *T. lactipennis*, *T. morides*, *T. parana*, *T. phrygionis*, *T. quadriplaga*, *T.*





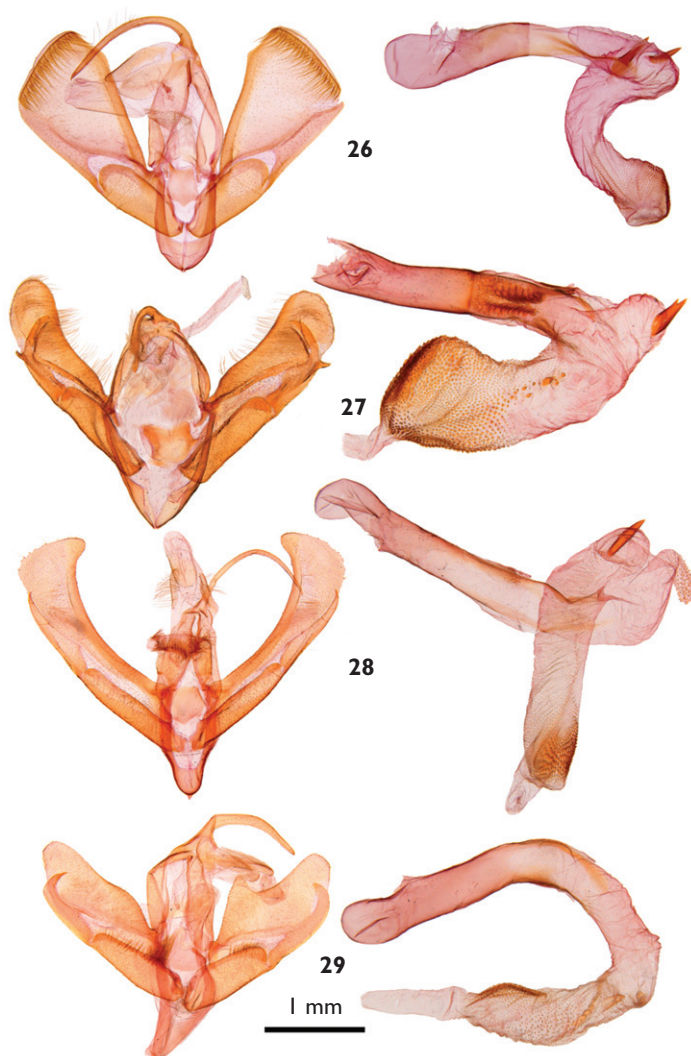
**Figures 19–22.** Male genitalia of *Ponometia* [former generic name in brackets]. **19** *Ponometia* [*Ponometia*] *megocula* **20** *Ponometia* [*Fruva*] *fasciatella* **21** *Ponometia* [*Tarachidia*] *venustula* **22** *Ponometia* [*Conochara*] *altera*.

*rufescens*, *T. sutor*, *T. tenuicola*, *T. terminimaculata* and *T. tetragona*). The vesica of the aedeagus is the most distinctive feature of the *T. aprica* species-group; it tends to be globular with small subbasal diverticula and a massive subapical diverticulum, almost as long as the aedeagus, with its apex covered by a dense patch of spines. Species of the *T. aprica* subgroup have a distinctive subbasal lobe on the vesica armed with a row of 2–8 (depending on the species) large spike-like cornuti (Fig. 23). This row of cornuti is absent in the other three subgroups: *T. terminimaculata* (with *T. dacia*, *T. cratina*, *T. phrygonis*, and *T. isolata*), *T. tetragona* (with *T. quadriplaga*), and *T. ardoris* (with *T. morides*, *T. parana*, and *T. rufescens*). A diagnostic feature of species in the *T. aprica*, *T.*



**Figures 23–25.** Male genitalia of *Tarache* [former generic name in brackets]. **23** *Tarache* [*Acontia*] *aprica*  
**24** *Tarache* [*Acontia*] *tetragona* **25** *Tarache* [*Acontia*] *areli*.

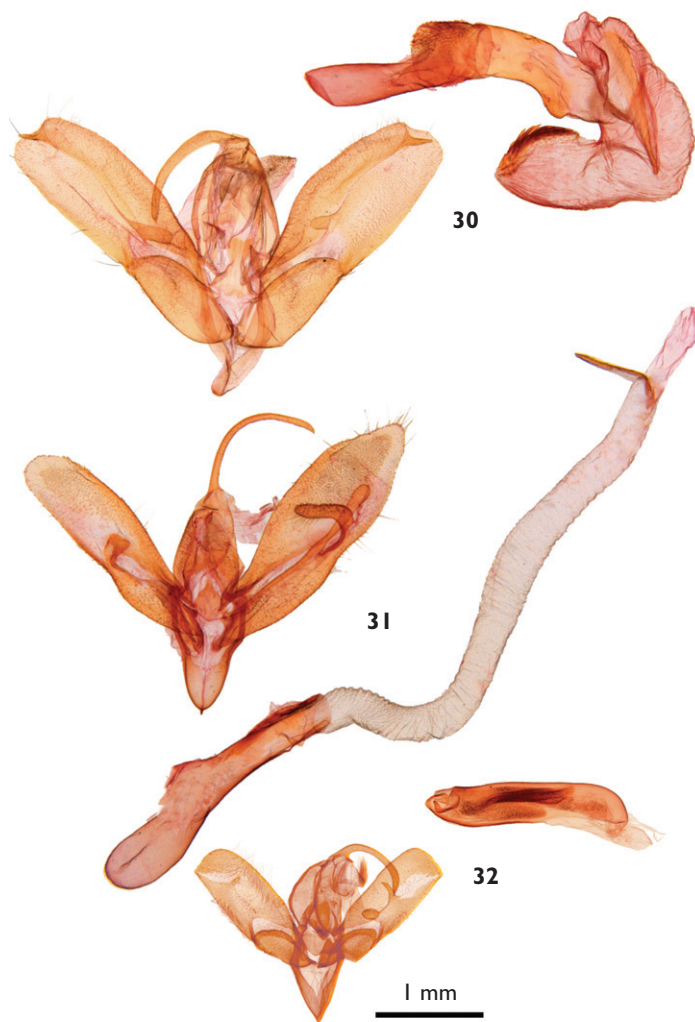
*terminimaculata*, and *T. tetragona* subgroups, is the presence of a clavus at the base of the dorsal margin of the sacculus on the right valve, but absent on the left one (Figs 23, 24). The South American *Tarache ardoris* subgroup lacks the clavus on the right valve. In the female, the appendix bursae is very long and is fused to the right wall of the corpus bursae and extends 0.5–0.8 of the distance to the anterior end of the corpus bursae (Fig. 40). A similar form of bursa copulatrix is in *T. augustipennis* (Fig. 41) and *T. cora*, but in the former the fusion is less complete and in the latter there is no distinction between the corpus bursae and appendix bursae, and the ductus seminalis is at the anterior end of the bursa.



**Figures 26–29.** Male genitalia of *Tarache* [former generic name in brackets]. **26** *Tarache* [*Acontia*] *ex-polita* **27** *Tarache* [*Hemispragueia*] *idella* **28** *Tarache* [*Therasea*] *augustipennis* **29** *Tarache* [*Acontia*] *lucasi*.

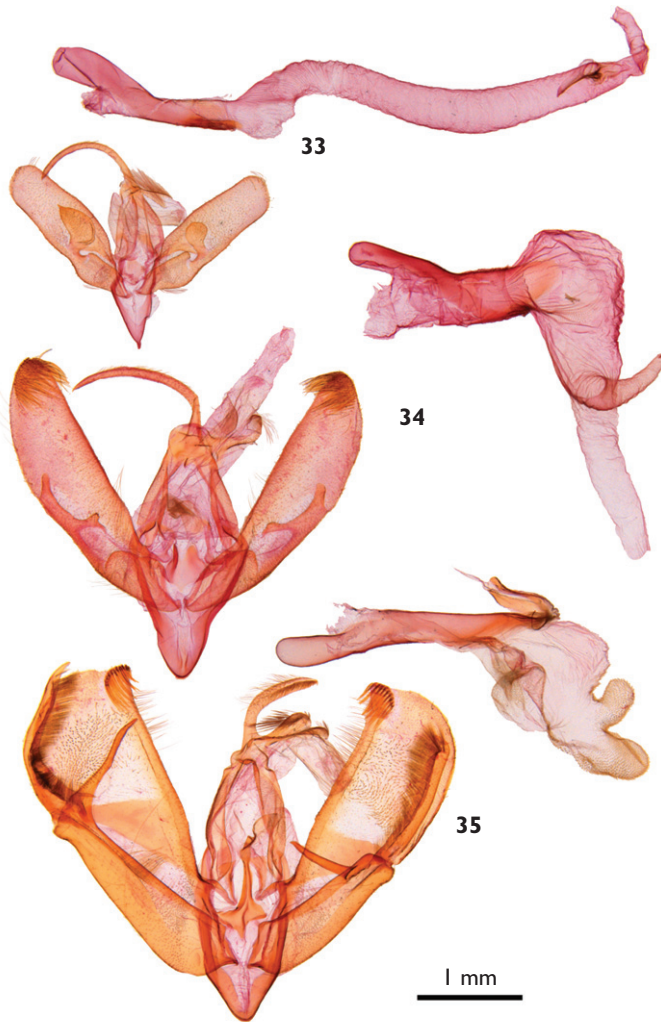
***Tarache bilimeki* species-group.** This species-group contains 21 species found in North and Central America. Like the species of the *T. aprica* species-group, the moths and male valve structure varies greatly, and the moth of the majority of the species resembles a bird-dropping when at rest. The species associated with the *T. bilimeki* species-group are best characterized by the form of the vesica (Figs 25–28). The apical part of the vesica has two, sometimes partially merged, fields of dense spines that form a rasp-like area; there are several sub-basal diverticula, some of which have peculiar cornuti that arise obliquely, sometimes to the degree that they appear to be on their side. In the female genitalia (Fig. 41) the posterior part of the ductus bursae forms a





**Figures 30–32.** Male genitalia of *Acontia* [former generic name in brackets]. **30** *Acontia* [*Acontia*] *lucida* **31** *Acontia* [*Acontia*] *crenata* **32** *Acontia* [*Stylorache*] *albida*.

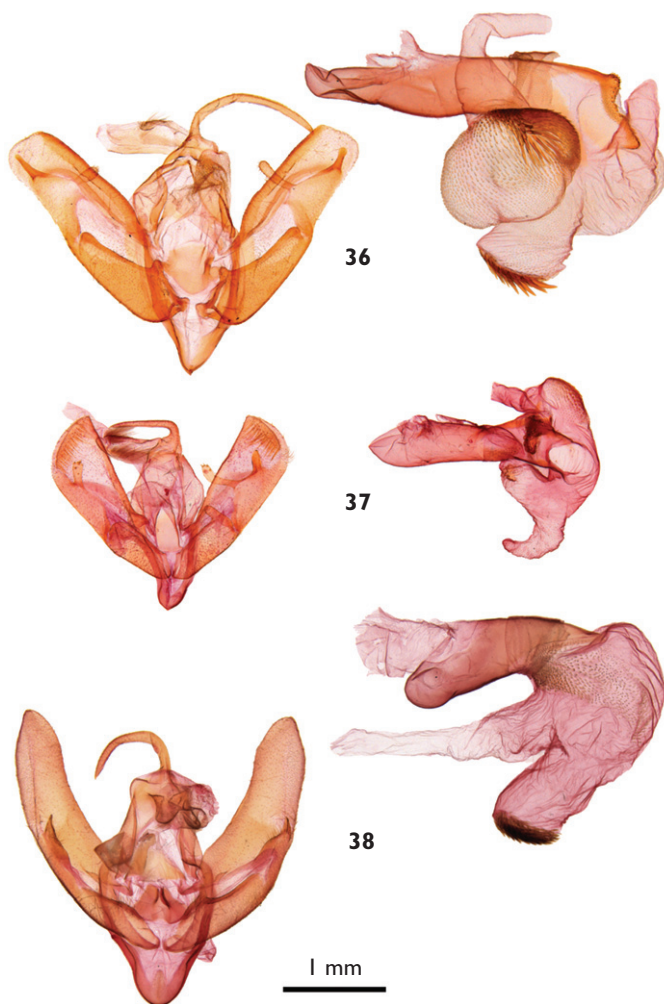
sclerotized, pouch-like ostium bursae, and the appendix bursae is sclerotized, mostly posteriorly, but sometimes partially or completely fused with the right side of the corpus bursae, as in the *T. aprica* species-group. Species in the *T. bilimeki* species-group can be arranged in four subgroups. **1) *Tarache areli* subgroup** (with *T. albifusa*, *T. areletta*, *T. areloides*, *T. geminocula*, and *T. toddi*) characterized by a forewing divided into a mainly pale basal half and a mainly dark outer half, except for a contrasting white preapical patch and a contrasting reniform spot, usually with some blue scaling (Fig. 7). The group was recently revised by Ferris and Lafontaine (2009). **2) *Tarache expolita* subgroup** (with *T. arida*, *T. bella*, *T. cora*, *T. phaenna*) with dark and light shading forming



**Figures 33–35.** Male genitalia of *Acontia* [former generic name in brackets]. **33** *Acontia* [*Chelichares*] *nubifera* **34** *Acontia* [*Hoplotarache*] *ruffinellii* **35** *Eusceptis* [*Eusceptis*] *flavifimbriata*.

a patchwork pattern (*T. arida*, *T. bella*), or a dark streak through the middle and lower part of the wing that curves up to the forewing apex (*T. cora*, *T. expolita*) or almost entirely dark (*T. phaenna*). **3) *Tarache bilimeki* subgroup** (with *T. acerba*, *T. augustipennis*, *T. axendra*, *T. lanceolata*, *T. major*, *T. mizteca*, and *T. sedata*) characterized by elongated forewings with the costal half mainly pale and the posterior half mainly dark (Fig. 8). **4) *Tarache idella* subgroup** that includes a single species with a white forewing with narrow black transverse bands and a clear yellow-orange hindwing (Fig. 9).

***Tarache lucasi* species-group.** This species group includes only two species (*T. lucasi* and *T. vittamargo*). The males resemble some species in the *T. bilimeki* subgroup and females are like some in the *T. aprica* subgroup. The male genitalia (Fig. 29), how-



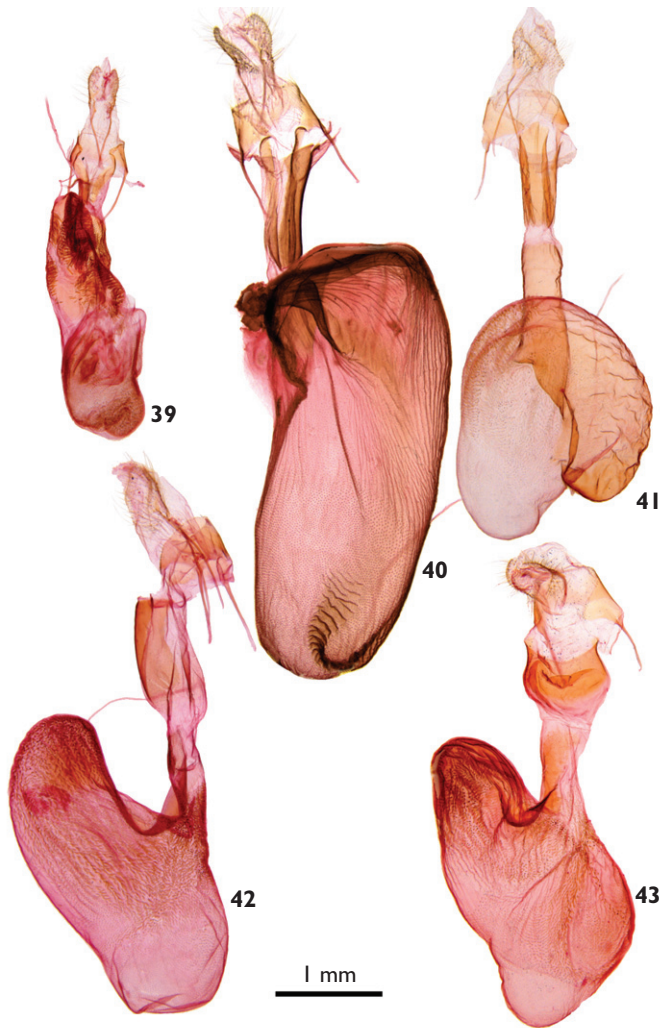
**Figures 36–38.** Male genitalia of Acontiinae. **36** *Pseudalypia crotchii* **37** *Spragueia leo* **38** *Trogotorna persecta*.

ever, are atypical for either group. The male valves are short and stumpy with strong claspers on both the right and left valves and spine-like setae along the dorsal margins of the sacculi; the aedeagus and vesica are elongate and narrow.

### ***Acontia* Ochsenheimer, 1816**

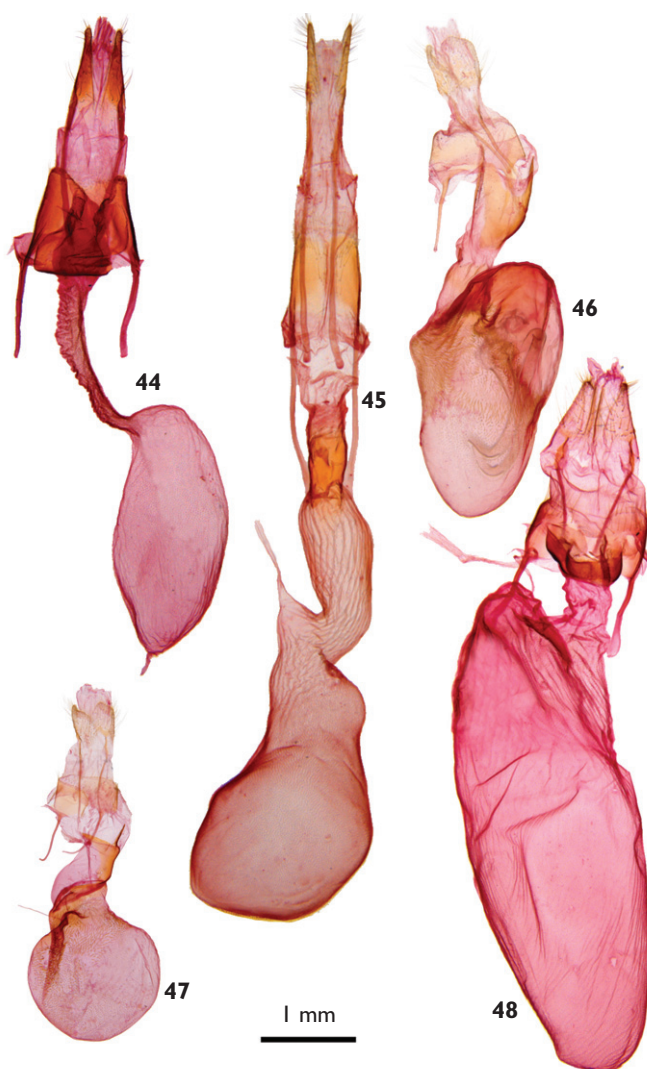
Figs 10–14, 30–34, 44

*Acontia* is the only New World genus also represented in Old World as well. There are five described species in the genus in North America and six in Central and South America. The



**Figures 39–43.** Female genitalia of Acontiinae [former generic name in brackets]. **39** *Ponometia* [*Tarachidia*] *nannodes* **40** *Tarache* [*Acontia*] *aprica* **41** *Tarache* [*Therasea*] *augustipennis* **42** *Tarache* [*Acontia*] *lucasi* **43** *Tarache* [*Hemispragueia*] *idella*.

moths differ greatly in appearance and size; however most species tend to be some combination of white and gray, the white tending to be shiny. The forewing tends to be broad, often with a rounded apex. **Male genitalia** (Figs 30–34). All of the species have a well-developed, setose ampulla on the clasper and the clasper is usually weakly sclerotized except for a spine-like apex. In many species the costal part of the valve is more heavily sclerotized than the ventral part. The vesica in the New World species is elongated and without diverticula or spiny areas, except for a long, tapered, horn-like subapical diverticulum that is covered with minute denticles so that it appears to function as an enlarged cornutus; *Acontia lucida*, the type-species from western Eurasia, has a spinulose subbasal diverticulum with a spiny



**Figures 44–48.** Female genitalia of Acontiinae. **44** *Acontia cretata* **45** *Eusceptis lelae* **46** *Pseudalypia crotchii* **47** *Spragueia leo* **48** *Trogotorna persecta*.

apex, as well as the false cornutus. **Female genitalia** (Fig. 44). These consist of an elongate, sclerotized, ostium bursae, a tubular, membranous ductus bursae, and an oval membranous corpus bursae with the ductus seminalis at the anterior end. In Old World *Acontia* there are separate sclerotized plates in the ostium and ductus bursae and the ductus seminalis is at the end of a sclerotized appendix bursae, which is on the posterior left side of the corpus bursae.

**Food plants.** The food plants are recorded in the New World only for an undescribed species related to *A. cretata* that occurs in Texas and northeastern Mexico; it has been reared from *Abutilon pedunculare* Kunth (Malvaceae). In the Old World, *Acontia lucida* feeds primarily, but not exclusively, on species of Malvaceae.



***Eusceptis* Hübner, [1823]**

Figs 15, 35, 45

This genus includes 11 species, mainly of the Neotropical Region, but one species extends northward to Texas. The relatively large moths (forewing length 9–17 mm) with their broad boldly-patterned forewings, are more reminiscent of some species of *Eulepidotis* Hübner than an acontiine. One species (*E. obscura*) is drably colored with more rounded wings, but the genitalia are typical for *Eusceptis*. **Male genitalia** (Fig. 35). The rows of stiff setae on the ventral surface of the uncus are diagnostic for the genus. The valves are broad and apically rounded, widest near the apex; they are highly asymmetrical in almost all species (less so in *E. irretita*) and in most the right valve is more structurally complex than the left one. In all species except two the corona is concentrated in a small cluster at the dorsal-apical corner of the valve at the apex of a rod-like thickening of the costal margin of the valve. **Female genitalia** (Fig. 45). These are similar to those of *Acontia*. The ostial area is sclerotized but the ductus bursae and corpus bursae are elongated and membranous; the appendix bursae is on a short membranous lobe on the left posterior margin of the corpus bursae. The apophyses and abdominal segment eight are very long and suggest a different mode of oviposition than other acontiines.

**Food plant.** *Malvaviscus arboreus* Cav. (Malvaceae); reared by D. Janzen and W. Hallwachs in Costa Rica.

***Pseudalypia* H. Edwards, 1874**

Figs 16, 36, 46

This only species known in the genus *Pseudalypia* is *P. crotchii* and is so different from other acontiines that it was described in the Agaristinae. It was first recognized as an acontiine by Crumb (1956) from the larval characters. The moth is unmistakable (Fig. 16) and is reminiscent of an arctiine because of the contrasting orange prothoracic collar. **Male genitalia** (Fig. 36). These are most similar to those of *Spragueia*, but the valves are almost bilaterally symmetrical, except for the larger ampulla on the right valve. The vesica has two large subapical diverticula covered with spines. **Female genitalia** (Fig. 46). These are similar to those of *Tarache* and have a large sclerotized appendix bursae that extends anteriorly part way down the right side of the corpus bursae.

**Food plants.** *Malvastrum exile* A. Gray and *M. parviflora* Phil. (Malvaceae).

***Spragueia* Grote, 1875**

Figs 17, 37, 47

The genus *Spragueia* contains 21 species of small, colorful moths found from southern Canada to the American tropics. The genus has traditionally been associated with the group of genera now amalgamated into *Ponometia*, probably because of small size

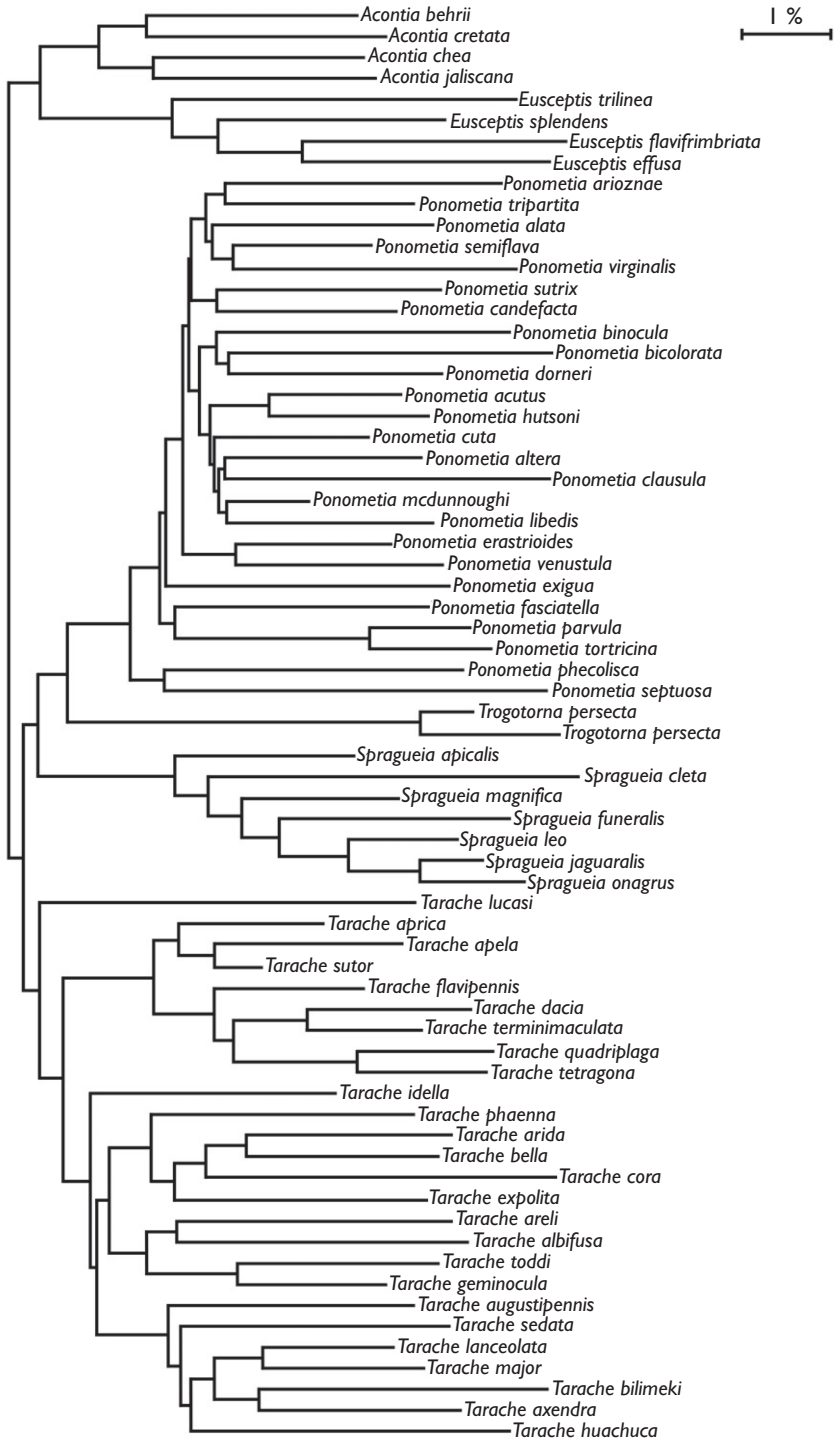


Figure 49. COI neighbor-joining tree of available taxa of New World Acontiinae.

and bold forewing pattern, compared with the bird-dropping look of most species of *Tarache* and *Acontia*. The male genitalia, however, are asymmetrical, and the ampulla well developed, as in *Acontia*, *Pseudalypia*, and *Eusceptis*, so we associate *Spragueia* with these genera. **Male genitalia** (Fig. 37). The clasper of each valve is a broad plate arising from the ventral margin of the valve with a well developed ampulla on each side with the setae enlarged, so the ampulla resembles a mace. The right clasper ends in a heavily sclerotized spine-like process that is absent on the left valve. The vesica has four lobes covered with spicules. A strong corona is usually present. **Female genitalia** (Fig. 47). The ostium is deeply invaginated and heavily sclerotized with the sclerotization commonly extended into the corpus bursae. The corpus bursae is usually globular with its anterior half weakly sclerotized.

**Food plants.** Species have been reared from plant species in the families Malvaceae, Sterculiaceae, Asteraceae, Convolvulaceae, and Poaceae.

### ***Trogotorna* Hampson, 1910**

Figs 18, 38, 48

This genus has only recently been confirmed as an acontiine though the research of J. B. Sullivan. It currently contains only the type species, *Trogotorna persecta*, but several undescribed species are under study (J. B. Sullivan, pers. comm.). The moth (Fig. 18) does not at all look like it would belong to the Acontiinae, but the scaphium has the characteristic pair of setose patches, the enlarged alula over the tympanum, a vestigial tympanal hood, and asymmetrical male sacculi and claspers. Also, the CO1 barcode consistently places *Trogotorna* among the acontiine genera. **Male genitalia** (Fig. 38). These would hardly be recognizable as belonging to the Acontiinae were it not for the characteristic setose pouch on each side of the scaphium. The valve tapers apically, unlike most acontiines, and the clasper is short leaf-shaped. There is no corona, ampulla, or saccular extension. The valves are slightly asymmetrical in that the sacculus and clasper on the left valve are smaller than those on the right valve. The aedeagus is unusually short and wide for an acontiine. The vesica is short and bulbous, except for a large subapical diverticulum with a dense patch of spines at the apex. **Female genitalia** (Fig. 48). The apophyses, abdominal segment eight, and the ostium and ductus bursae are very short, whereas the corpus bursae is very large, 10 × as long as the ductus bursae.

**Food plants.** Unknown.

### **Acknowledgments**

We thank Michael Pogue (Systematic Entomology Laboratory, United States Department of Agriculture, USNM, Washington, DC) for the loan of specimens. We also thank Jocelyn Gill (CNC, Ottawa) for assistance with the preparation of the genitalia, photographs, and plates. Paul Hebert and the staff at the Canadian Centre for DNA

Barcoding, Biodiversity Institute of Ontario, University of Guelph, Guelph, Canada, provided data and information from the Barcode of Life Data (BOLD) system. Bo Sullivan (Beaufort, North Carolina) generously shared data, specimens, and insights from his study of the Acontiinae in Central America. Chris Schmidt and James Adams reviewed the manuscript and made many useful suggestions.

## References

- Crumb SE (1956) The larvae of the Phalaenidae. United States Department of Agriculture Technical Bulletin 1135: 1–356, pl. 1–11.
- Ferris CD, Lafontaine JD (2009) Review of the *Acontia areli* group with descriptions of three new species (Lepidoptera, Noctuidae, Acontiinae). *ZooKeys* 9: 27–46.
- Fibiger M, Lafontaine JD (2005) A review of the higher classification of the Noctuoidea (Lepidoptera) with special reference to the Holarctic fauna. *Esperiana* 11: 7–92.
- Franclemont JG, Todd EL (1983) Noctuidae. In: Hodges RW (Ed) Check List of the Lepidoptera of America North of Mexico. E.W. Classey Ltd. and the Wedge Entomological Research Foundation, London, 120–159.
- Hacker HH, Legrain A, Fibiger M (2008) Revision of the genus *Acontia* Ochseneheimer, 1816 and the tribus Acontiini Guenée, 1841 (Old World) (Lepidoptera: Noctuidae: Acontiinae). *Esperiana* 14: 7–533.
- Kitching IJ, Rawlins JE (1999 [1998]). The Noctuoidea. In: Kristensen NP (Ed) Lepidoptera: moths and butterflies. Volume 1: Evolution, systematics and biogeography. – Handbook of Zoology/Handbuch der Zoologie. Walter de Gruyter, Berlin/New York, 355–401.
- Lafontaine JD (2004) Noctuoidea, Noctuidae (part), Noctuinae (part – Agrotini). In: Hodges, RW (Ed) The Moths of America North of Mexico fasc. 27.1. The Wedge Entomological Research Foundation, Washington, 1–385.
- Lafontaine JD, Fibiger M (2006) Revised higher classification of the Noctuoidea (Lepidoptera). *The Canadian Entomologist* 138: 610–635.
- Lafontaine JD, Schmidt BC (2010) Annotated check list of the Noctuoidea (Insecta: Lepidoptera) of North America north of Mexico. *ZooKeys* 40: 1–239.
- Poole RW (1989) *Lepidopterorum Catalogus* (New Series), fascicle 118, Noctuidae. E. J. Brill, Leiden, 1314 pp.
- Poole RW (1995) Noctuoidea, Noctuidae (part), Cuculliinae, Stiriinae, Psaphidinae (part). In: Hodges, RW (Ed) The Moths of America North of Mexico fasc. 26.1. The Wedge Entomological Research Foundation, Washington, 1–249.

## Appendix: Checklist of the New World species of the subfamily Acontiinae

\* Neotropical species not known from the United States or Canada

\*\* Old World generic synonymy omitted

- Ponometia*** Herrich-Schäffer, 1868 [Type species: *Ponometia ochricosta* Herrich-Schäffer; = *P. exigua* (Fabricius)]
- = *Fruva* Grote, 1877, **syn. n.** [Type species: *Spragueia fasciatella* Grote]
  - = *Heliodora* Neumoegen, 1891 [Type species: *Acontia costalis* Walker; = *P. exigua* (Fabricius)]
  - = *Graeperia* Grote, 1895 [Type species: *Acontia costalis* Walker; = *P. exigua* (Fabricius)]
  - = *Tarachidia* Hampson, 1898, **syn. n.** [Type species: *Tarachidia flavibasis* Hampson]
  - = *Tornacontia* Smith, 1900 [Type species: *Tarache sutrix* Grote]
  - = *Conochares* Smith, 1905, **syn. n.** [Type species: *Conochares acutus* Smith]
  - = *Neptunia* Barnes & McDunnough, 1911, **syn. n.** [Type species: *Azena pulchra* Barnes & McDunnough]
  - = *Uniptena* Nye, 1975, **syn. n.** [Type species: *Azena pulchra* Barnes & McDunnough]
- Ponometia albitermen* (Barnes & McDunnough, 1916) (*Tarachidia*), **comb. n.**
- Ponometia bicolorata* (Barnes & McDunnough, 1912) (*Tarachidia*), **comb. n.**
- Ponometia flavibasis* (Hampson, 1898) (*Tarachidia*), **comb. n.\***
- Tarachidia holophaea* Hampson, 1898
- Ponometia semiflava* (Guenée, 1852) (*Xanthoptera*), **comb. n.**
- Ponometia septuosa* (A. Blanchard & Knudson, 1986) (*Tarachidia*), **comb. n.**
- Ponometia carmelita* (Dyar, 1914) (*Tarachidia*), **comb. n.\***
- Ponometia clausula* (Grote, 1883) (*Xanthoptera*), **comb. n.**
- Ponometia venustula* (Walker, 1865) (*Acontia*), **comb. n.**
- Acontia discoidalis* Walker 1866
- Thalpochares fortunata* Grote, 1882
- Thalpochares perita* Grote, 1882
- Orobena subcitrinalis* Hulst 1886
- Ponometia virginalis* (Grote, 1881) (*Tarache binocula* var.), **comb. n.**
- Acontia tenuescens* Smith, 1902
- Ponometia binocula* (Grote, 1875) (*Tarachidia*), **comb. n.**
- Ponometia candeffecta* (Hübner, 1831) (*Tarache*), **comb. n.**
- Micra haworthana* Westwood, 1851
- Acontia debilis* Walker, [1858]
- Acontia neomexicana* Smith, 1900
- Ponometia dorneri* (Barnes & McDunnough, 1913) (*Tarache*), **comb. n.**
- Ponometia huita* (Smith, 1903) (*Acontia*), **comb. n.**



- Ponometia heonyx* (Dyar, 1913) (*Tarachidia*), **comb. n.**  
*Ponometia cuta* (Smith, 1905) (*Acontia*), **comb. n.**  
*Ponometia erastrioides* (Guenée, 1852) (*Acontia*), **comb. n.**  
*Ponometia libedis* (Smith, 1900) (*Acontia*), **comb. n.**  
*Ponometia nannodes* (Hampson, 1910) (*Tarachidia*), **comb. n.**  
*Ponometia phecolisca* (Druce, 1889) (*Acontia*), **comb. n.**  
*Ponometia alata* (Smith, 1905) (*Tarachidia*), **comb. n.**  
*Ponometia albimargo* (Barnes & McDunnough, 1916) (*Tarachidia*), **comb. n.**  
*Ponometia parvula* (Walker, 1865) (*Xanthodes*), **comb. n.**  
*Fruva georgica* Grote, 1881  
*Ponometia tortricina* (Zeller, 1872) (*Agrophila*), **comb. n.**  
*Fruva obsoleta* Grote, 1877  
*Fruva deleta* H. Edwards 1884  
*Fruva modesta* H. Edwards, 1884  
*Ponometia fumata* Smith, 1905 (*Spragueia*), **comb. n., stat. rev.**  
 [treated as valid species because of differences in genitalia and sympatry with *P. tortricina*]  
*Ponometia nigra* (Mustelin, 2006) (*Tarachidia*), **comb. n.**  
*Ponometia fasciatella* (Grote, 1875) (*Spragueia*), **comb. n.**  
*Ponometia hutsoni* (Smith, 1906) (*Thalpochares*), **comb. n.**  
*Ponometia pulchra* (Barnes & McDunnough, 1910) (*Azenia*), **comb. n.**  
*Ponometia acutus* (Smith, 1905) (*Conochares*), **comb. n.**  
*Thalpochares catalina* Smith, 1906  
*Ponometia altera* (Smith, 1903) (*Tornacontia*), **comb. n.**  
*Graeperia concharodes* Hampson 1910  
*Ponometia elegantula* (Harvey, 1876) (*Thalpochares*), **comb. n.**  
*Tarache semiopaca* Grote, 1878  
*Conochares arizonae* (H. Edwards, 1878), **syn. n.**  
*Thalpochares arizonae* H. Edwards, 1878, **syn. n.**  
*Conochares interruptus* Smith, 1905, **syn. n.**  
*Orobena seminivealis* Hulst, 1886, **syn. n.**  
*Conocharis* [sic] *rectangula* McDunnough 1943, **syn. n.**  
*Ponometia exigua* (Fabricius, 1793) (*Bombyx*)  
*Nonagria indubitans* Walker 1857  
*Acontia costalis* Walker [1858]  
*Acontia dimidiata* Walker 1865  
*Ponometia ochricosta* Herrich-Schäffer, 1868  
*Monodes citrina* Druce, 1889  
*Heliadora magnifica* Neumoegen, 1891  
*Ponometia macdunnoughi* (Barnes & Benjamin, 1923) (*Graeperia*)  
*Ponometia megocula* (Smith, 1900) (*Tornacontia*)  
*Ponometia tripartita* (Smith, 1903) (*Tornacontia*)  
*Ponometia sutrix* (Grote, 1880) (*Tarache*)

*Ponometia albisecta* (Hampson, 1910) (*Tarachidia*), **comb. n.\***

*Ponometia bruchi* (Breyer, 1931) (*Eugraphia*), **comb. n.\***

*Ponometia corrientes* (Hampson, 1910) (*Tarachidia*), **comb. n.\***

*Ponometia margarita* (Schaus, 1904) (*Spragueia*), **comb. n.\***

*Ponometia marginata* (Köhler, 1979) (*Tarachidia*), **comb. n.\***

*Ponometia mixta* (Möschler, 1890) (*Acontia*), **comb. n.\***

*Ponometia morsa* (Köhler, 1979) (*Tarachidia*), **comb. n.\***

*Ponometia nigrans* (Köhler, 1979) (*Tarachidia*), **comb. n.\***

*Ponometia semibrunnea* (Druce, 1909) (*Tarachidia*), **comb. n.\***

*Ponometia viridans* (Schaus, 1904) (*Tarache*), **comb. n.\***

*Ponometia vinculis* (Dyar 1914) (*Fruva*), **comb. n.\***

***Tarache*** Hübner, [1823] [Type species: *Noctua aprica* Hübner]

= *Trichotarache* Grote, 1875 [Type species: *Trichotarache assimilis* Grote]

= *Therasea* Grote, 1875, **syn. n.** [Type species: *Tarache augustipennis* Grote]

= *Conacontia* Smith, 1900, **syn. n.** [Type species: *Conacontia flavicosta* Smith]

= *Hemispragueia* Barnes & Benjamin, 1923, **syn. n.** [Type species: *Cerathosea idella* Barnes]

*Tarache apela* (Druce, 1889) (*Acontia*), **comb. n.**

*Acontia philomela* Druce, 1889

*Tarache dstricta* Draudt, 1936, **comb. rev.\***

*Tarache tenuicola* Morrison, 1874, **comb. rev.**

*Acontia nuicola* Smith, 1900

*Acontia meskei* Smith, 1900

*Tarache mescei* Hampson, 1910

*Graeperia carcharodonta* Hampson, 1910

*Tarache sutor* (Hampson, 1910) (*Graeperia*), **comb. n.**

*Tarache aprica* (Hübner, [1808]), (*Noctua*), **comb. rev.**

*Noctua alboater* Haworth, 1809

*Acontia unocula* Freyer, 1849

*Acontia biplaga* Guenée, 1852

*Acontia redita* Felder & Rogenhofer, 1874

*Tarache assimilis* (Grote, 1875) (*Trichotarache*), **comb. n.**

*Tarache abdominalis* Grote, 1877, **comb. rev.**

*Tarache knowltoni* (McDunnough, 1940) (*Acontia*), **comb. n.**

*Tarache flavipennis* Grote, 1873, **comb. rev.**

*Tarache lagunae* (Mustelin & Leuschner, 2000) (*Acontia*), **comb. n.**

*Tarache delecta* (Walker, [1858]) (*Acontia*), **comb. n.**

*Acontia metallica* Grote, 1865

*Tarache lactipennis* Harvey, 1875, **comb. rev.**

*Tarache terminimaculata* Grote, 1873, **comb. rev.**

*Tarache pulchella* Grote, 1874

*Tarache dacia* (Druce, 1889) (*Acontia*), **comb. n.**

*Tarache curvilinea* Barnes & McDunnough, 1913

- Tarache phrygionis* (Hampson, 1910) (*Acontia*), **comb. n.\***  
*Tarache cratina* (Druce, 1889) (*Acontia*), **comb. n.\***  
*Tarache isolata* (Todd, 1960) (*Acontia*), **comb. n.\***  
*Tarache quadriplaga* (Smith, 1900) (*Acontia*), **comb. n.**  
     *Acontia alessandra* Smith, 1903, **syn. n.**  
*Tarache tetragona* (Walker, [1858]) (*Acontia*), **comb. n.**  
     *Acontia aprica* var. *ceyvenstensis* Dyar, 1904  
     *Tarache gonoides* McDunnough, 1943  
*Tarache ardoris* Hübner [1831], **comb. rev.\***  
     *Tarache duenna* Schaus, 1898  
*Tarache morides* (Schaus, 1894) (*Acontia*), **comb. n.\***  
     *Tarache ochrochroa* Druce, 1909, **syn. n.**  
*Tarache parana* (Jones, 1921), **comb. rev.\***  
*Tarache rufescens* Hampson, 1910, **comb. rev.\***  
*Tarache areloides* (Barnes & McDunnough, 1912) (*Acontia*), **comb. n.**  
*Tarache areletta* (Dyar, 1897) (*Acontia*), **comb. n.\***  
*Tarache areli* (Strecker, 1898) (*Acontia*), **comb. n.**  
*Tarache toddi* (Ferris & Lafontaine, 2009) (*Acontia*), **comb. n.**  
*Tarache geminocula* (Ferris & Lafontaine, 2009) (*Acontia*), **comb. n.**  
*Tarache albifusa* (Ferris & Lafontaine, 2009) (*Acontia*), **comb. n.**  
*Tarache arida* (Smith, 1900) (*Acontia*), **comb. n.**  
*Tarache bella* Barnes & Benjamin, 1922, **comb. rev.**  
*Tarache cora* Barnes & McDunnough, 1918, **comb. rev.**  
*Tarache expolita* Grote, 1882, **comb. rev.**  
     *Acontia embolima* Druce, 1889  
*Tarache phaenna* (Druce, 1889) (*Acontia*), **comb. n.\***  
*Tarache idella* (Barnes, 1905) (*Cerathosia*), **comb. n.**  
*Tarache augustipennis* Grote, 1875, **comb. rev.**  
     *Conacontia flavicosta* Smith, 1900, **syn. n.**  
*Tarache huachuca* (Smith, 1903) (*Conacontia*), **comb. n.**  
     *Conacontia orba* Smith, 1903 (*Conacontia*), **syn. n.**  
*Tarache sedata* (H. Edwards, 1881), **comb. rev.**  
     *Acontia gonella* Strecker, 1898  
     *Acontia niveicollis* Smith, 1902  
     *Acontia cacola* Smith, 1907  
*Tarache acerba* (H. Edwards, 1881) (*Fruva*) **comb. rev.**  
     [name preoccupied by *Acontia acerba* Felder & Rogenhofer, 1874 when included in *Acontia* by Poole (1983)]  
     *Acontia acerboides* Poole, 1989, **syn. n.** [becomes a synonym when secondary homonymy with *Acontia acerba* is removed]  
*Tarache axendra* Schaus, 1898, **stat. rev., comb. rev.**  
*Tarache bilimeki* (Felder & Rogenhofer, 1874) (*Acontia*), **comb. n.**  
     *Tarache bilimeci* Hampson, 1910, invalid emendation

- Acontia disconnecta* Smith, 1903, **syn. n.**  
*Tarache mizteca* Schaus, 1898, **comb. rev.\***  
*Tarache major* (Smith, 1900) (*Acontia*), **comb. n.**  
*Tarache lanceolata* Grote, 1879, **comb. rev.**  
*Tarache lucasi* Smith, 1900 (*Acontia*), **comb. n.**  
*Acontia aniluna* Smith, 1905  
*Acontia pima* Smith, 1905  
*Tarache vittamargo* (Dyar, 1912), **comb. rev.\***  
**Acontia** Ochseneheimer, 1816 \*\* [Type species: *Noctua solaris* Denis & Schiffermüller;  
 = *Acontia lucida* (Hufnagel)]  
 = *Stylorache* Hampson, 1910, **syn. n.** [Type species: *Stylorache albida* Hampson]  
 = *Chelichares* Hampson, 1910, **syn. n.** [Type species: *Chelichares nubifera*  
 Hampson]  
*Acontia behrii* Smith, 1900  
*Acontia cretata* Grote & Robinson, 1870  
*Acontia neocula* Smith, 1900  
*Acontia schwarzii* Smith, 1900  
*Tarache schvarzi* Hampson, 1910  
*Acontia fiebrigi* (Zerny, 1916) (*Tarache*) \*  
*Acontia chea* Druce 1898  
*Acontia eudryada* Smith, 1905, **syn. n.**  
*Acontia jaliscana* (Schaus, 1898) (*Tarache*)  
*Acontia coquilleltii* Smith, 1900  
*Acontia micropis* (Druce, 1909) (*Tarache*) \*  
*Acontia albida* (Hampson, 1910) (*Stylorache*), **comb. n.\***  
*Acontia nubifera* (Hampson, 1910) (*Chelichares*), **comb. n.\***  
*Acontia ruffinellii* (Biezanko, 1959) (*Hoplotarache*) \*  
*Acontia viridifera* (Hampson, 1910) (*Hoplotarache*), **comb. n.\***  
**Eusceptis** Hübner, [1823] [Type species: *Eusceptis irretita* Hübner]  
 = *Eugraphia* Guenée, 1852 [Type species: *Eusceptis irretita* Hübner]  
*Eusceptis irretita* Hübner, 1823 \*  
*Noctua melanogramma* (Perty, [1833])  
*Eusceptis koehleri* Todd, 1966 \*  
*Eusceptis obscura* (Schaus, 1898) (*Acontia*) \*  
*Acontia trilinea* (Schaus, 1898)  
*Eusceptis effusa* (Druce, 1889) (*Eugraphia*) \*  
*Eusceptis atriora* Todd, 1966  
*Eusceptis flavifrimbriata* Todd, 1971  
*Eusceptis incomptilinea* Todd, 1971 \*  
*Eusceptis lelae* Todd, 1966 \*  
*Eusceptis splendens* (Druce, 1896) (*Eugraphia*) \*  
*Eusceptis extensa* (Strand, 1913) (*Eugraphia*) \*  
*Eusceptis robertae* Todd, 1966 \*

*Eusceptis paraguayensis* (Draudt 1939) (*Eugraphia splendens* form) \*

***Pseudalypia*** H. Edwards, 1874 [Type species: *Pseudalypia crotchii* H. Edwards]

*Pseudalypia crotchii* H. Edwards, 1874

*Pseudalypia crotchii* var. *atrata* H. Edwards, 1884

***Spragueia*** Grote, 1875 [Type species: *Agrophila leo* Guenée]

= *Heliocontia* Hampson, 1910 [Type species: *Emmelia apicella* Grote]

= *Mnesipyrga* Meyrick, 1913 [Type species: *Mnesipyrga trichostrota* Meyrick]

*Spragueia magnifica* Grote, 1883

*Spragueia dama* (Guenée, 1852) (*Agrophila*)

*Agrophila transmutata* Walker, 1865

*Agrophila trifariana* Walker, 1865

*Spragueia pardalis* Grote, 1881

*Spragueia cleta* (Druce, 1889) (*Agrophila*)

*Spragueia perstructana* (Walker, 1865) (*Agrophila*)

*Emmelia felina* Herrich-Schäffer, 1868

*Emmelia trigidula* Herrich-Schäffer, 1868

*Agrophila phaenna* Druce, 1889

*Agrophila mata* Druce, 1898

*Spragueia guttata* Grote, 1875

*Spragueia onagrus* (Guenée, 1852) (*Agrophila*)

*Spragueia leo* (Guenée, 1852) (*Agrophila*)

*Spragueia jaguaralis* Hampson, 1910

*Spragueia funeralis* Grote, 1881

*Spragueia obatra* (Morrison, 1875) (*Tarache*)

*Spragueia plumbifimbriata* Grote, 1877

*Agrophila velata* Strecker, 1898

*Spragueia apicalis* (Herrich-Schäffer, 1868) (*Emmelia*)

*Emmelia apicella* Grote, 1872

*Agrophila truncatula* Zeller, 1873

*Fruva accepta* H. Edwards, 1881

*Mnesipyrga trichostrota* Meyrick, 1913

*Spragueia margana* (Fabricius, 1794) (*Pyrallis*)

*Grapholita subapicana* Walker 1863

*Agrophila rudisana* Walker 1865

*Spragueia inornata* Grote 1882

*Spragueia sordida* Grote, [1883]

*Emmelia variegata* Möschler 1890

*Emmelia variegata* var. *ochracea* Möschler, 1890

*Spragueia canofusa* Hampson, 1898

*Spragueia tarasca* Schaus, 1904

*Spragueia basipuncta* (Schaus, 1914) (*Helicontia*) \*

*Spragueia creton* Schaus, 1923 \*

*Spragueia plumbeata* Schaus, 1923



*Spragueia grana* (Dognin, 1897) (*Agrophila*) \*

*Spragueia lepus* (Guenée, 1852) (*Agrophila*) \*

*Aphusia marmorea* Butler, 1879

*Spragueia inversa* Schaus, 1904

*Spragueia taragma* Schaus, 1904

*Helicontia lepus* subsp. *concordens* Dyar, 1914

*Spragueia pantherula* (Herrich-Schäffer, 1868) (*Emmelia*) \*

*Emmelia uncinula* Herrich-Schäffer, 1868

*Spragueia pyralidia* (Schaus, 1898) (*Tarache*) \*

*Spragueia speciosa* (Draudt, 1936) (*Heliacontia*) \*

*Spragueia turca* Köhler, 1979 \*

*Spragueia valena* (Druce, 1889) (*Acontia*) \*

***Trogotorna*** Hampson, 1910 [Type species: *Trogotorna persecta* Hampson]

*Trogotorna persecta* Hampson, 1910 \*

### Unknown species (types lost)

*Acontia decisa* Walker, [1858] TL: Brazil

*Acontia quadrata* Walker, 1866 TL: Brazil