

## The Genera of *Tortricidae*. Part III. Nearctic *Chlidanotinae* and *Tortricinae*\*

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Abstract. The paper deals with 67 Nearctic genera (one of *Chlidanotinae*, 66 of *Tortricinae*). The genera treated in preceding parts of this series are only commented. The area of the Nearctic subregion adopted in this paper includes the major part of Mexico, as far as Oaxaca.

Key words: Revision, genera, Nearctic, *Chlidanotinae*, *Tortricinae*, *Tortricidae*, *Lepidoptera*.

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### I. INTRODUCTION

The present part of "The genera of *Tortricidae*" completes the review of the Holarctic *Tortricinae* and *Chlidanotinae*, as the two former parts dealt with all subfamilies of *Tortricidae* of the Palearctic subregion. Like in those parts, one of the most important problems was that of the limits of the areas. In the parallel series, "The catalogue of the species of *Tortricidae*", part 2 (RAZOWSKI 1993) I adapted the approximate southern limits of the Palearctic subregion for the purposes of this series. The limits of the Nearctic subregion were variably treated in the literature but the authors usually included entire Mexico (DE LATTIN 1967) or at least the major part of that country as GARCIA DE MIRANDA and FALCÓN DE GYVES 1977 and HILL 1981 did for the reptils or mammals, respectively. The present interpretation and the map (Fig. 1) are based on these publications and the map by BEUTELSPACHER (1987) in his paper on *Sphingidae* and *Saturniidae* from Veracruz, Mexico. For the practical purposes some smaller areas south of Oaxaca treated usually as Nearctic, are omitted. To the Neotropical region the following states of Mexico and the U.S.A. are included: the southern part of Baja California Sur, Sinaloa, Nayarit, eastern Jalisco, Colima, eastern Michoacan, south-eastern and eastern Guerrero, southern Oaxaca, Veracruz, and southern Florida. Some parts of the Mexican states may be treated as a transition zone. The entire Veracruz is included in the Neotropic of the practical purpose only.

A different, quite practical interpretation, is adopted by the American lepidopterists (eg. HODGES 1983; HEPPNER 1984) who accepted the southern frontier of the U.S.A. as the limit of this

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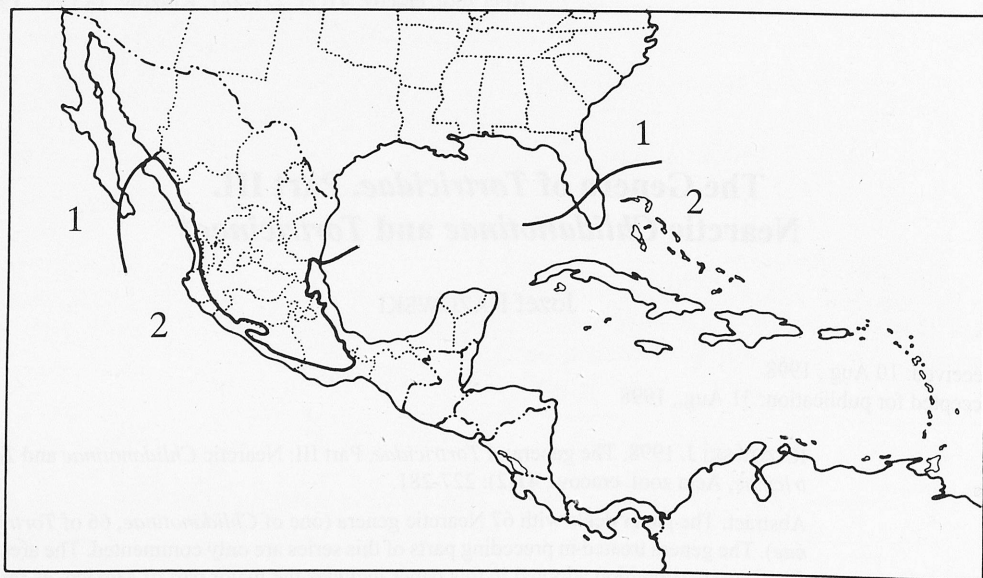


Fig. 1. Boundaries between Nearctic subregion (1) and Neotropical realm (2). Drawn by Marek KOPEĆ.

subregion (or Neotropical region). The inclusion of the large part of Mexico enriches the fauna of Nearctic by southern elements. Many Neotropical genera and species penetrate the southern part of the subregion and certainly will be found north of the 20° of the geographical latitude.

Based on the *Tortricinae* we can confirm the strong affinities between the Palaearctic and Nearctic as concerns the genera and tribes. The degree of affinity of the two subregions based on the species is according to formula of SZYMKIEWICZ (number of species common of two faunas divided by number of species of scantier fauna, multiplied by 100) is low. In some cases it is only 3, being the highest in *Tortricini* – 17. Those figures are smaller (or even inobtainable because of lack of common species) in comparison of Nearctic and Neotropic. All the Palaearctic tribes of *Tortricinae* occur in Nearctic. Of the *Chlidanotinae* only *Hilarographini* are known of the two subregions, as neither *Polyorthini* nor *Chlidanotini* species were found in the Nearctic North America. *Cochylini* are represented in each of the Holarctic subregions by similar numbers of genera (20 and 22) and Nearctic shares 7 genera with Palaearctic. High number of the genera (17) common of Nearctic and Neotropic is caused by the character of the fauna of arid territories of the southern part of this subregion preferred by cochyls. However, there is a small number of species (two only) shared by Neotropic and Nearctic (that of Nearctic and Palaearctic is five). *Tortricini* have in the two subregions one common genus and 10 common species, whilst the connections with the south are quite different: there are two genera and one species in common. The *Cnephasiini* are scarce in the New World and two Nearctic genera seems endemic. There is one genus and two species of this tribe common of the two subregions. *Atterini* is the New World tribe with three Nearctic, eight Neotropical genera and only a few Nearctic species. *Sparganothini* have only one genus in the Palaearctic and 10 genera in each region of the New World. Its affinities with Neotropic are very strong (degree of affinity is 100). *Archipini* are certainly strongly bound with the Old World as the Nearctic fauna is sharing eight genera and one species with the Palaearctic (only two genera with the Neotropical region). The numbers of species introduced from the Palaearctic, practically from Europe, to North America is as follows: *Tortricini* – 4 species, *Cnephasiini* – 3, and *Archipini* – 5.

*Durangarchips* POWELL cited by POWELL et al. (1995) with the date 1991 has never been described.



As in the preceding parts of this series dealing with the tortricids of the Palaearctic the taxa from the Arctic region are included.

**A c k n o w l e d g m e n t s.** My gratitude is due to Dr. P. T. DANG, the Canadian National Collection, Ottawa, Dr. D. R. DAVIS and Dr. R.W. HODGES, the Smithsonian Institution, Washington, D. C., Dr. J. E. RAWLINS, the Carnegie Museum, Pittsburgh, and Mr. K. R. TUCK, the Natural History Museum, London. My special thanks are addressed to Prof. Dr. J. A. POWELL, the University of California, Berkeley who kindly provided a valuable material for study and permitted to copy some of his genitalia drawings. I also thank Mr. M. KOPEĆ for copying some drawings from the literature.

### *Chlidanotinae*

#### *Hilarographini*

In Nearctic occurs only one genus known also from the Oriental and Neotropical regions. In Palaearctic there are three genera.

#### *Thaumatographa* WALSINGHAM

*Thaumatographa* WALSINGHAM, 1897, Trans. ent. Soc. London, **1897**: 58. Type-sp.: *Hilarographa zapyra* MEYRICK, 1886 – by orig. design. – RAZOWSKI, 1987: 147 (redescription).

In Nearctic occurs two species, one of which (*Th. jonesi* BROWER, 1953) is rather widely distributed. The genus is bound with tropics and is known from the Oriental, Australian and Neotropical regions.

### *Tortricinae*

#### *Cochylini*

The most recent diagnoses of this tribe are completed by HORAK (1991) and RAZOWSKI (1994). The Nearctic fauna is insufficiently known and requires a thorough revision. The only revision is by RAZOWSKI (1997) but deals only with the Canadian fauna. The Neotropical cochyliids are better studied (synopsis is by RAZOWSKI 1994).

Twentytwo genera and over 130 species have been described or found in the Nearctic (about 1/3 of the number known from Palaearctic). There are five genera and seven Holarctic species. The affinities with the Neotropical realm are stronger as the two faunas share at least 15 genera. There are, however, only a few species common to the two realms.

#### *Phtheochroa* STEPHENS

*Phtheochroa* STEPHENS, 1829, Syst. Cat. Br. Insects, **2**: 191. Type-sp.: [*Tortrix*] *rugosana* HÜBNER, [1799] – design. by monotypy. Palaearctic. – RAZOWSKI, 1987: 154 (redescription).

Although the species of this genus are easily distinguished no autapomorphy has been found, and thus the diagnosis is not given. Almost all characters are of plesiomorphic importance (e.g. the presence or the uncus, the drooping socius) and convergent or variable (the positions of the accessory bursa and ductus seminalis, the presence of sclerites of the corpus bursae etc).

The Nearctic species are similar to the Palaearctic and the Neotropical species and there are only some differences in the number of the cornuti. An asymmetry of the valvae (especially the sacculi) is noticed exclusively in several New World species (Fig. 2), the left valva being weaker and the sacculus smaller, with a shorter or completely atrophied free termination. The interpretation of variation in some parts of the genitalia e.a. in the size and the shape of median part of the transtilla,

aedeagus, cornutus and uncus requires further study. It may be supposed that they are of infraspecific importance; however, some taxa were described on that basis.

In my paper of 1991 some evolutionary lineages are discussed and some general data and a list of species are provided.

**D i s t r i b u t i o n.** Holarctic and Neotropical regions. Only two species are common of Palaearctic and Nearctic. The ranges of the majority of species are rather limited. 14 species are known from Nearctic, the majority being recorded from its southern part, mainly from Mexico.

### *Henricus* BUSCK

*Henricus* BUSCK, 1943, Bull. S. California Acad. Sci., **42**: 38, new name for *Heinrichia* BUSCK, 1939.

*Heinrichia* BUSCK, 1939, *ibid.*, **38**: 103. Type-sp.: *Phtheochroa macrocarpana* WALSINGHAM, 1895 – by orig. design. & monotypy. – *Irazona* RAZOWSKI, 1964, Annls zool. Warsz., **22**(16): 356. Type-sp.: *Conchylis comes* WALSINGHAM, 1884 – by orig. design. & monotypy. – RAZOWSKI, 1984: 235; RAZOWSKI, 1991: 53 (revisions, synonymy).

Alar expanse 12-25 mm. Labial palpus 1.5-2, smaller in male than in female. Forewing without costal fold; long groups of scales before and behind *mit-costa*. Venation: In forewing all veins separate, *R*<sub>5</sub> to costa near apex, chorda absent; in hindwing *Rr-M*<sub>1</sub> stalked to 1/3, *M*<sub>3</sub>-*CuA*<sub>1</sub> connate or approximate to one another. Coloration: Head, thorax, forewing ground colour and fringes pale, usually white; markings grey, brown or similar, in form of basal blotch, costal remnants of median fascia and subapical blotch fused with large, dorsal suffusion.

Male genitalia (Figs 3-8): Tegumen with large, membranous lateral parts bearing groups of scent scales; socii apical, drooping; uncus atrophied or represented by a small prominence, seldom distinct; vinculum arms not coalesced ventrally; valva broad basally, slender in distal half, with basal portion of costa often broad, provided with long scent scales; sacculus simple, or with dorsal thorns or processes, often with small free termination. Transtilla broad laterally, with median part species-specific, spined apically; juxta very small, fused with broad caulis. Aedeagus large, with pair, often asymmetric ventro-lateral processes; usually one large and several small cornuti in vesica.

Female genitalia (Figs 131,132) characterized by short ovipositor. Sterigma species specific, usually with well developed postostial plate and short, ring-shaped anteostial portion. Colliculum in some species distinct, membranous (rarely with sclerites), occasionally developing sacs (in *H. parmulus* RAZOWSKI, 1991) or lobes. Elongate sclerites often occur in the ductus bursae and corpus bursae; the ductus seminalis is anterior or median, often ventral or lateral, the accessory bursa originates in the ductus bursae, usually ventrally.

Male abdominal scent organs. Prominences of distal edges of sternites six and seven variably developed: in *H. powelli* RAZOWSKI, 1984 the process of the former sternite well developed, in *H. ateleutes* RAZOWSKI, 1991 small, and in *H. hemitelius* RAZOWSKI, 1991 completely reduced. Sternite of subgenital segment is strongly reduced whilst its tergite is large, convex dorsally, strengthened by longitudinal sclerites and provided with distal concavities in which groups of long scent scales occur. The shape, size and number of scales variable specifically. At the level of the mid-part of the valva base long patch of slender scent scales or broad scales forming a peculiar spherical cluster; another elongate patch situated near sacculus bears slenderer, short scales (in *ateleutes*) or broad, long scales often sticking terminally.

**B i o l o g y.** Only CIBRIAN et al. (1986) provide detailed data on biology of *M. melano-leucus* (CLARKE, 1968) and RAZOWSKI (1991) gathers some observations on three species. *H. melano-leucus* is probably bivoltine. First generation emerges in January and February and the moths deposit their eggs on overwintering conelets of *Pinus oyacahuite* var. *veitchii*. The larvae pupate in July in the scales and the moths of second generation fly in August and oviposit on mature cones; pupation takes place in scales or seeds in December; by the end of same month the moths start to fly.

The known food plants of other species belong to conifers (*Cupressus* spp., *Sabina* sp.) and only *H. insolitus* RAZOWSKI & BECKER, 1986 lives in galls of *Ollifiella cristicole* on an oak species.

**D i s t r i b u t i o n.** Endemic in the New World. Of 30 known species 19 are recorded from Mexico; the number of species decreases northwards and only five species are occurring in the U.S.A. (Arizona, California, New Mexico) and three in Canada; the discussed area is inhabited by 17. The southernmost stands of *Henricus* are in Costa Rica (four species known). After examination of the Nearctic material my point of view presented in the above mentioned paper of 1991 had to be changed as concerns the northern border of the repartition of this genus.

**C o m m e n t s.** Diagnosis of this genus has not changed thus it is reported from my paper of 1994. *Henricus* is characterized by means of the following supposed autapomorphies: the connection of bases of socii by means of a cup-shaped ventral sclerite; the presence of very small, thick juxta; the fusion of juxta with caulis; the presence of asymmetric distal processes of aedeagus; the swollen basal portion of valval costa (in many species); the presence of subgenital bunches of scent scales; the presence of medio-lateral bunch of scent scales forming a thick cluster; the presence of ventro-lateral bunch of scent scales connected with specialized plate at the end of vinculum arm. Other characters listed by me (RAZOWSKI, 1984) were correctly treated as convergent. The presence of the sternal scent organs of the abdomen may be regarded as a synapomorphy with several genera close to *Lasiothyris* MEYRICK, 1917. *Henricus* is closely related to Neotropical *Cartagogenia* RAZOWSKI, 1992.

The arrangement of the species (RAZOWSKI, 1991b) is based on the structures of the abdominal scent organs and the genitalia. In more generalized species the subgenital scent organs are simple and resemble those in some *Archipini* or *Tortricini* (cf RAZOWSKI, 1990). Their scales are very slender (*H. charagus* RAZOWSKI, 1991), whilst in more advanced species (*H. rubrograptus* RAZOWSKI, 1991 and the following) they become broader, coalesced, their bunches are often highly transformed and the upper bunch may form a cluster. It seems that this structure may occasionally be reduced.

### *Phalonidia* LE MARCHAND, 1933

*Phalonidia* LE MARCHAND, 1933, Amat. Papill., 6: 242. Type-sp.: *Cochylis affinitana* DOUGLAS, 1846 – by orig. design. Palearctic. – RAZOWSKI, 1987: 159; 1994: 168 (redescriptions).

*Phalonidia* occurs in the Holarctic, Oriental and Neotropical realms. In the former it is morphologically well defined but in the Neotropical realm the differences with six allied genera are rather slight and probably inconstant. 16 Palearctic species and five Nearctic species are described till now, and some new are found in the collections; in the Neotropical region occurs 47 species and many new ones are expected. There are only two described Oriental species. The New World species are usually well differentiated, however, there are a few species showing slight differing characters, or consisting of the groups of forms probably of infrasubspecific character.

**D i s t r i b u t i o n.** Holarctic and Neotropical realms. In the latter spread all over the area, most abundant in Brazil, however, that may depend on a comparatively good exploration of that country.

### *Gynnidomorpha* TURNER

*Gynnidomorpha* TURNER, 1916, Proc. R. Soc. S. Aust., 40: 158. Type-sp.: *Gynnidomorpha mesoxutha* TURNER, 1916 – by monotypy. Australian.

*Piercea* FILIPJEV, 1940, Trudy zool. Inst., Leningr., 6: 171. Type-sp.: *Tortrix permixtana* [DENIS & SCHIFFERMLER], 1775 – by orig. design. Palearctic. – RAZOWSKI, 1987: 160 (redescription, synonymy).

This genus includes one Nearctic species (*P. romonana* (KEARFOTT, 1907)) closely related to transpalearctic *P. minimana* (CARADJA, 1916). Apart from the Holarctic realm *Gynnidomorpha* occurs in the Oriental and Australian regions.



*Saphenista* WALSINGHAM

*Saphenista* WALSINGHAM, 1914, Biologia cent.-am., Lepid. Heterocera, 4: 296. Type-sp.: *Conchylis lac-teipalpis* WALSINGHAM, 1891 – by orig. design. Neotropical. – RAZOWSKI, 1985: 55, redescription.

Alar expanse 7-21 mm. Labial palpus 1-2, seldom 3. Markings and venation as in *Phalonidia*; some veins, e.g. *Rr-M*<sub>1</sub> and *M*<sub>3</sub>-*CuA*<sub>1</sub> in hindwing somewhat variable.

Male genitalia (Figs 9-11): Uncus in form of small convexity of tegumen; socius usually apical, extending distally, with long, setose or hairy free part; base of socii short, strengthened by lateral sclerites; vinculum arms long, separate ventrally, with sharp median process; valva long, slender, with rather well sclerotized basal pocket; sacculus without free termination. Median part of transtilla long, broadening terminally, with latero-apical processes. Adeagus simple, or with subterminal, ventral process; one cornutus in vesica.

Female genitalia (Fig. 133) of two main types: In one group of species simple, usually without sclerites of bursa copulatrix and with short, cup-shaped part of sterigma and variably situated ductus seminalis and accessory bursa. In the subgroup of *cordifera* a sac of ductus bursae occurs. In other type, a collar-like sclerite of ductus bursae develops being accompanied by long, plicate sclerites; accessory bursa very small, originating in the latter, ventrally.

Male abdominal scent organs occur in several species in segments six and seven ventrally. These are short, often bilobed processes situated usually on the former segment.

**B i o l o g y** unknown except for dates and altitudes on which some species were collected.

**D i s t r i b u t i o n.** It occurs mainly in the Neotropical region (84 species) and southern part of the Nearctic subregion (14 species) and there are only two more northern species; based on the examined material the northern limit of distribution of *Saphenista* passes through California and S. Oregon.

**C o m m e n t s.** The supposed autapomorphies of this genus are: the presence of the tooth-like lateral process of the vinculum, a rather well sclerotized pocket-shaped concavity of the base of valva, the expanded laterally apical portion of transtilla and probably, the presence of the subterminal prominence of the aedeagus (atrophied in many species). *Saphenista* is closely related to *Phalonidia* showing some similarities in the structures of the valva, transtilla and socii. The presence of the abdominal scent organs may support a formation of the group which includes the genera from *Phalonidia* to *Mielkeana* (or *Mimeugnosta* RAZOWSKI, 1986) listed by me for the Neotropical region (RAZOWSKI, 1994).

The genus is one of the most abundant cochyline genera.

The differences between the taxa are rather slight as the genitalia are simple. In many cases the external characters are more important than the genital ones. In some cases, e.g. in the Neotropical *S. praefasciata* (MEYRICK, 1932) there is a number of infraspecific forms showing slight differences only.

*Platphalonidia* RAZOWSKI

*Platphalonidia* RAZOWSKI, 1985, Nota lepid., 8(1): 58. Type-sp.: *Phalonia felix* WALSINGHAM, 1895 – by orig. design. Nearctic-Neotropical. – RAZOWSKI, 1994: 224.

Externally the species of *Platphalonidia* are similar to members of *Phalonidia* and *Cochylis*. Labial palpus 1-3, usually 2, alar expanse 10-17 mm.

Male genitalia (Figs 12,13) similar to those in *Phalonidia*, but distal part of tegumen almost completely separated from its main portion; socii strongly reduced, in form of a pair of lateral hairy prominences.

Female genitalia (Figs 134) with sterigma consisting of cup-shaped part membranous dorsally followed by elongate postostial plate; bursa copulatrix as in *Phalonidia*, often with ring-shaped sclerite; ductus seminalis dorsal, extending from middle of corpus bursae; accessory bursa from ductus bursae, dorsal or dorso-lateral.



**E a r l y s t a g e s a n d b i o l o g y** unknown. The host-plants of only two species are known (Neotropical *P. mystica* RAZOWSKI & BECKER 1983, and *P. subolivacea* (WALSINGHAM, 1987)) – *Parthenium hysterophorum*, *Compositae* and *Erechtites hieracifolia*, respectively.

**D i s t r i b u t i o n.** Exclusively the New World, chiefly the Neotropical region; several species occur in southern parts of Nearctic subregion, five ones reaching Alberta and British Columbia, Canada. *P. felix* (WALSINGHAM, 1895) is one of the most widely distributed New World cochyline species, known also from central Mexico. Now, 31 species are known, 14 are found in Nearctic, 17 in Neotropical, and two are common in the two realms.

**C o m m e n t s.** The supposed autapomorphies of *Platphalonidia* are: The presence of the group of scent scales on outer, marginal part of the valva and the incisure of the end part of the transtilla. The reduction of socius and separation of distal part of the tegumen may be included in the transformation series of *Cochylini*. The systematic position of *Platphalonidia* is still insufficiently clear. It shares some characters (the shapes of the valva, cornutus, sterigma and corpus bursae) with *Phalonidia* and some (the reduction of socius, the perpendicular end part of the tegumen, etc) with *Cochylis*. Supposedly, it is an off-shoot of a primitive part of the *Phalonidia* branch.

### *Spinipogon* RAZOWSKI

*Spinipogon* RAZOWSKI, 1967, Acta zool. cracov., **12**(8): 199. Type-sp.: *Spinipogon trivius* RAZOWSKI, 1967 – by orig. design. Neotropical. – RAZOWSKI, 1994: 230 (redescription).

Alar expanse 8-15 mm; labial palpus 1-2. Habitus of *Cochylis* or *Phalonidia*-type. Venation: In forewing all veins separate,  $R_5$  to costa or to apex; in hindwing  $Rs-M_1$  stalked, usually to middle, remaining veins separate.

Male genitalia (Figs 14-22): Tegumen short, broad, with strongly reduced distal portion fused with the socii; in some species an uncus-like terminal process present; vinculum large forming a saccus. Transtilla band-shaped, with more or less distinct median part terminating in processes or thorns; juxta large, broad, resembling that in several *Cochylis*-species. Valva variable in shape, with membranous submedian or postbasal part of costa; sacculus often as long as costal portion of valva, the two areas very often strongly spined. Aedeagus slender; coecum penis moderate; caulis short, postmedian, distal part of aedeagus in many species very slender; cornutus very slender, if present.

Female genitalia (Figs 135, 136): Sterigma usually small, in form of postostial plate accompanied by additional sclerites, often densely spined, or simple; cup-shaped structure situated before ostium bursae may represent the colliculum. Ductus seminalis originating in posterior or median parts of large, usually ventral wart of middle area of corpus bursae; lateral walls of the latter strengthened by numerous spines; accessory bursa ventral, extending from ductus bursae, in some species not located, in one species (*S. atrox* RAZOWSKI & BECKER, 1983) small, curved sac present in its position. Subgenital sternite in some species highly specialized (e.g. in *S. veracruzanus* RAZOWSKI & BECKER, 1986), with slender incisure and submedian lobes of the posterior edge, and with dense spiculation of entire surface.

Male abdominal scent organ in form of dense groups of scales on the dorsal or (and) subventral prominences of the terminal segment.

**B i o l o g y** unknown.

**D i s t r i b u t i o n.** In Nearctic two species realised. The genus is chiefly Neotropical (ca 10 described species), distributed from Guerrero, Mexico and Puerto Rico as far as Southern Brazil (Paraná, Santa Catarina) and Peru.

**C o m m e n t s.** Eleven species included; primarily it was supposed to be closest to *Cochylis* as judged from the strongly reduced distal portion of the tegumen and the structure of the socii. After the description of *Platphalonidia* and realization the process of the reduction of distal portion of the tegumen in several *Cochylini*-genera its affinity with *Cochylis* does not seem so close. *Spinipogon* is probably an off-shoot of the *Phalonidia* branch similarly as *Platphalonidia* is. The sup-

posed autapomorphies of this genus are the presence of the slender saccus, the membranised postbasal, or submedian portion of costa of valva and the large wart-like configuration of corpus bursae with lateral walls plicate, strengthened with numerous spines of at least two sizes. The bottom of the wart is extrusible, membranous except for the median, longitudinal sclerite protecting the base of the ductus seminalis.

Two groups of the species are distinguished. In the group of *veracruzanus* both ventral and dorsal parts of the valva are well developed, armed with spines, the proximal part of the aedeagus is almost uniformly broad, the strigma is slender and the subgenital sternite highly specialized. The membranisation of the postbasal part of the costa of valva is extremely slight. In the species *S. harmozones* RAZOWSKI, 1986 – *H. studiosus* RAZOWSKI & BECKER, 1993 the dorsal part of valva dominates over the ventral part which is characterized by short sacculus and lack the spines. The spines in the former part are delicate and show a tendency to a reduction. The sterigma is plate-shaped, rather not elaborate and the subgenital sternite simple or weakly specialized.

### *Mielkeana* RAZOWSKI & BECKER

*Mielkeana* RAZOWSKI & BECKER, 1983, Acta zool. cracov., **26**(13): 439. Type-sp.: *Mielkeana gelasima* RAZOWSKI & BECKER, 1983 – by orig. design. Neotropical. – RAZOWSKI, 1994: 237 (redescription).

Externally similar to *Saphenista*. Alar expanse 8-12 mm; labial palpus 1-1.5.

Male genitalia (Figs 23-27) as in *Saphenista* but socii in form of large basal lobes folded ventrally extending distally in a pair of slender, sharp processes; median part of transtilla stout, minutely spined; arms of vinculum simple, short, not fusing apically.

Female genitalia (Fig. 137; known in one species only), characterize with ventral position of the ductus seminalis, lateral accessory bursa and additional ventral sac, all originating at base of ductus bursae.

Male abdominal scent organ in form of large process of sternite six terminating in two lateral lobes, and weak distal prominence of the following sternite.

B i o l o g y unknown.

D i s t r i b u t i o n. Known from Mexico and Brazil, but certainly widely distributed in the Neotropical region. In the Nearctic there is only one species found in Durango.

C o m m e n t s. The genus is an off-shoot of the *Phalonidia* – *Saphenista* branch showing some common characters with the former, viz., the shapes of aedeagus, base of socii or juxta. The shape of socii, the broad median part of transtilla and probably the subsquare sclerite of tuba analis fused with transtilla are the supposed autapomorphies of *Mielkeana*.

### *Eugnosta* HÜBNER, [1825]

*Eugnosta* HÜBNER, [1825], Verz. bekannter Schmett.: 394. Type-sp.: [*Tortrix*] *lathoniana* HÜBNER, [1800], Palaearctic – by subs. design. (FERNALD, 1908: 17). Palaearctic. – RAZOWSKI, 1970: 250 (redescription; Palaearctic species); 1987: 164 (redescription, synonymy, Palaearctic), 1994: 240 (redescription, New World).

*Carolella* BUSCK, 1939, Bull. S. Calif. Acad. Sci., **38**: 104, nom. nov. for *Pharmacis* HÜBNER, 1823, nom. preocc. by *Pharmacis* HÜBNER, 1823, in *Geometridae*. Type-sp.: *Pharmacis sarthana* HÜBNER, 1823, hereditarius. – RAZOWSKI, 1986: 409.

Alar expanse 11-29 mm; labial palpus usually 1.5-2, seldom 3 or 4. Pilifers in New World species absent (POGUE & MICKEVICH, 1990). Venation: In forewing all veins separate,  $R_5$  to costa before apex; in hindwing  $Rs-M_1$  stalked to middle,  $M_3-CuA_1$  short stalked or extending from one point. Silver forewing ground-colour occurring in the majority of Palaearctic species is rare with the New World as realized in only single species (*E. argyrolaca* MEYRICK, 1931). In the New World taxa it is usually creamy or brownish. Their most common markings are the dorsal fascia reaching middle of wing, and subapical or terminal blotch; often end of discal cell marked with dark spot, and a dif-

fuse fascia towards tornus. In another type of markings all the basal and median areas of wing are dark, and subterminal or subapical marks are weaker.

Male genitalia: Tegumen with rather weakly differentiated top part; socius long, sparsely hairy; uncus atrophied; vinculum coalesced ventrally; vava simple; sacculus without free termination; aedeagus usually stout; cornuti: 1-4 capitate spines.

Female genitalia: Sterigma well sclerotized, with cup-shaped anteostial part and lateral arms of postostial portion; positions of ductus seminalis and accessory bursa variable – dorsal or ventral.

**B i o l o g y** little known. Host of one Palaearctic species is *Jurinea* and one Nearctic species was known to feed on *Parthenium hysterophorum*, *Compositae*.

**D i s t r i b u t i o n**. Known from all regions but the Australian. In Palaearctic subregion there are 14 species, in the Nearctic 18, the Neotropical fauna is represented by 12 described species.

**C o m m e n t s**. The system of the New World species is provisional (RAZOWSKI, 1994). The genital differences between the species are often very slight, however, they are easily distinguished externally. Thus the species are grouped rather on basis of their external similarity.

### *Rudenia* RAZOWSKI

*Rudenia* RAZOWSKI, 1985, Polskie Pismo ent., **55**: 519. Type-sp.: *Rudenia paupercula* RAZOWSKI, 1985 – by orig. design. – RAZOWSKI, 1994: 253 (redescription).

Alar expanse 11-15 mm; labial palpus 1-2. Venation as in other genera of this group: In forewing  $R_5$  to costa, chorda absent. In hindwing  $Rr-M_1$  stalked,  $M_3-CuA_1$  separate.

Male genitalia (Figs 28,29): Tegumen rather short, very broad proximally; with distal part elongate, terminating in two flat processes; arms of vinculum not coalesced ventrally. Median process of transtilla slender; aedeagus as in *Lorita* but with lateral depression; cornutus absent.

Female genitalia (Fig. 138): Sterigma, a concave medially plate followed by a scobinate membrane; funnel-like prominence in middle of anteostial edge; colliculum ill-defined, or absent; proximal part of ductus bursae densely folded longitudinally, sclerotized; accessory bursa dorsal or lateral, extending from sclerotized area; ductus seminalis from apex of corpus bursae, or dorso-subapical.

Male abdominal scent organ not found.

**B i o l o g y**. BUSCK (original description) writes that the larvae of *leguminana* were collected in September and bred in February from seedpods of *Gleditschia horrida*.

**D i s t r i b u t i o n**. Nearctic subregion (one species) and the transition zone (three species) to the Neotropical region only (Mexico: Baja California Norte).

**C o m m e n t s**. Originally this genus was treated as close to *Eugnosta*. As the homology of the top part of the tegumen is not clear it was placed (RAZOWSKI, 1994) near *Lorita* basing on the similarity of the female genitalia. The supposed autapomorphies of this genus are the presence of flat processes of the top of tegumen, the funnel like depression of dorsal part of this region of tegumen, the strongly elongate base of sacculus parallel to the vinculum arm, the long concavity of the left side of aedeagus, two rows of small, sclerotized folds in postostial part of sterigma beyond a weakly sclerotized area posterior to the ostium and the sclerotized structure of the end of the aedeagus.

### *Lorita* BUSCK

*Lorita* BUSCK, 1939, Bull. S. Calif. Acad. Sci., **38**: 100. Type-sp.: *Lorita abornana* BUSCK, 1930 = *Phalonia scarificata* MEYRICK, 1917 – by orig. design. – POGUE, 1988: 443, figs 3-6 (abdominal scent organ, head, venat.); RAZOWSKI, 1994: 255 (redescription).



Alar expanse 7-10 mm; labial palpus 1.5-2; venation of the *Phalonidia* type: All venis separate; in forewing  $R_5$  to costa, chorda absent; in hindwing  $Rs-M_1$  stalked to middle or  $2/3$ ,  $M_3-CuA_1$  connate at base; in male of *baccharivora* POGUE, 1988 hindwing costal fold present.

Male genitalia (Figs 30-35): Tegumen high, with distal lobe touching lateral parts of transtilla; uncus fused with socii, bulbous, with single or bifid apical process; arms of vinulum not fused apically; costa of valva convex postbasally; sacculus simple; median part of transtilla large; aedeagus of the *Phalonidia* -type, without cornutus.

Female genitalia (139,140): Cup-shaped part of sterigma membranous dorsally, followed by deep concavity in middle of postostial part; ductus bursae sclerotized to middle; accessory bursa from that sclerite, ventrally; ductus seminalis dorsal, from corpus bursae.

Male abdominal scent organ: Stout process of sixth abdominal sternite, and small convexity of the following sternite.

**E a r l y s t a g e s** described and illustrated by POGUE (1988, figs 26-28 – egg, 13-18, 29-40 – larva, various details, chetotaxy, 20-25, 42-47 – pupa).

**B i o l o g y.** Hosts of *L. baccharivora* and *L. scarificata* are, after POGUE, 1988, *Baccharis hamilifolia* and *Chrysanthemum* sp., *Compositae*, respectively. Several generation yearly.

**D i s t r i b u t e d** from Florida and N. California in the U.S.A. to Brazil, known from the islands of the Caribbean Sea; it also was introduced to Hawaii (Oahu and Kauai). *L. scarificata* is one of the most widely distributed New World *Tortricidae*.

**C o m m e n t s.** In the shape of the aedeagus and the presence of the abdominal scent organs *Lorita* resembles the taxa of the *Phalonidia-Saphenista* -group. Its autapomorphies are the presence of the subterminal, ventral lobes of tegumen connecting the lateral portions of transtilla and the strongly convex costa of valva. The structure of the upper part of tegumen is peculiar. POGUE (1988) calls it the uncus, but it may represent the socii with their apical processes comparable with those in the two preceding genera. In *scarificata* they are fused apically but there is a ventral slit extending as far as the end of the bulbous part. Two species known.

### *Aethes* BILLBERG

*Aethes* BILLBERG, 1820, Enumeratio Insect.: 90. Type-sp.: *Pyralis smeathmanniana* FABRICIUS, 1781 – by subs. design. (FERNALD, 1908: 51). Holarctic. – Redescriptions: RAZOWSKI, 1970: 287; 1987: 167 (based on Palaearctic taxa, synonymy); 1994: 262 (Neotropical species discussed).

**B i o l o g y** of the Nearctic species little known. In the temperate areas there are two or more generations yearly. Hibernation in larval stage; hosts are mainly the *Compositae*.

**D i s t r i b u t i o n.** The majority of species is Holarctic (ca 100) and in the Nearctic subregion occurs 24 species. There are three species common of Nearctic and Palaearctic subregions. The Nearctic species or at least groups of the very closely related species (? or subspecies) are common of the Nearctic subregion and Neotropical region.

**C o m m e n t s.** There are two closely related genera, *Aethes* and *Aethesoides* which characterize with two synapomorphies: The presence of the sender, curved socii on broad, hairy base and the rod-like sclerite coupling tegumen with the valva. *Aethesoides* is more advances, as characterized in its comments. The New World species form similar genital groups as the Palaearctic taxa. Some groups are characteristic of the subregion in question. There are some groups of taxa differing slightly in the genitalia (e.g. in the size and shape of the cornutus, valva or median part of the transtilla) whose status is not yet elucidated.

### *Aethesoides* RAZOWSKI

*Aethesoides* RAZOWSKI, 1964, Annls zool. Warsz., 22(61): 357, figs 4,5 (head, venation). Type-species: *Phalonia distigmatana* WALSINGHAM, 1895 – by orig. design. Neotropical. – *Aethesoides* [sic.!] OBRAZTSOV, 1967, J. N.Y. ent. Soc., 75(1): 2, subs. inc. spell. – RAZOWSKI, 1994: 239 (redescription).



Externally similar to *Aethes*; alar expanse 10-14 mm; labial palpus usually 2. Basal blotch reduced to pair of posterior blotches at dorsum and costa, the latter being often atrophied; second pair of blotches represent median fascia, and is followed by subapical spot or fascia. Occasionally median fascia more complete.

Male genitalia (Figs 36-39). Costal part of valva rod-like, well sclerotized; saccular part long; small caudal lobe between these elements. One cornutus, if present. Lobes of anellus attached to aedeagus developed in some species.

Female genitalia (Figs 141, 142) as in *Aethes* but corpus bursae often with long, ventral sac (a transformed accessory bursa?).

**D i s t r i b u t i o n.** Essentially *Aethesoides* is a Neotropical genus distributed from Mexico to Colombia; two species are Nearctic (reaching north Guerrero, Mexico), eight Neotropical.

**C o m m e n t s.** The valva of this genus characterizes with rod-like costal portion, long sacculus and short, partially membranous median part, with convex caudal edge which may form a small lobe. These characters are treated as the autapomorphies.

### *Cochylidia* OBRAZTSOV

*Cochylidia* OBRAZTSOV, 1956, Mitt. münch. ent. Ges., **46**: 14. Type-sp.: *Tortrix subroseana* HAWORTH, 1811 – by orig. design. Holarctic. – RAZOWSKI, 1987: 169 (redescription).

This genus comprising 9 species is essentially Palaearctic, however, one species occurs in the Oriental region (in Nepal) and one treated till now as transpalarctic (the type-species) is discovered in the Nearctic.

*Cochylidia* characterize with presence of a slender costal part of the valva which, however, differs somewhat from that in *Lincicochylis*. *Cochylidia* certainly belongs in the *Cochylis*-group of genera as showing some common characters with *Cochylis* (cf. comments to that genus).

### *Lincicochylis* RAZOWSKI

*Lincicochylis* RAZOWSKI, 1986, Acta zool. cracov., **29**(16): 384. Type-sp.: *Phalonia argentifusa* WALSINGHAM, 1914 – by orig. design. – RAZOWSKI, 1994: 272 (redescription).

Alar expanse 13-16 mm; labial palpus 1.5.

Male genitalia (Figs 40-42): Tegumen slender with small apical process representing probably the uncus; vinculum arms separate, ventrally fusing with ventro-basal portions of sacculus; valva large with very slender, rigid dorsal part; sacculus folded on valva, with very long ventro-caudal process, extending dorsally into well sclerotized edge terminated in small process; base of sacculus extending proximally, ovate; transtilla with broad median part and strongly reduced lateral portions; juxta with broad median part and weak lateral parts; coecum penis broad, rather short; caulis postmedian; cornutus large, capitate.

Female genitalia (Fig. 143, 144): Sterigma coalesced with colliculum sclerites provided with pair of inner lobes; distal portion of sterigma membranous, hairy; ductus bursae short; ductus seminalis extending from ductus bursae, accessory bursa originating from proximal part of colliculum; corpus bursae with weak sclerite.

**B i o l o g y** unknown.

**D i s t r i b u t i o n.** Known from Mexico.

**C o m m e n t s.** Monotypical genus. The supposed autapomorphies of *Lincicochylis* are the very slender, arch-shaped tegumen, the small median prominence of the tegumen top representing probably uncus, the complete reduction of socii, the presence of split of the proximal surface of the costal part of valva, the very long sacculus folded on discal surface of valva, the elongate-ovate projection of base of the sacculus, the fusion of the latter with vinculum arm, the shape of the sterigma-colliculum complex described above.

*Cochylidichnium* RAZOWSKI

*Cochylidichnium* RAZOWSKI, 1986, Acta zool. cracov., **29**(16): 381. Type-sp.: *Cochylidichnium amulanum* RAZOWSKI, 1986 – by orig. design. – RAZOWSKI, 1994: 272 (redescription).

Alar expanse 10 mm; labial palpus 2; venation not examined.

Male genitalia (Figs 43,44): Tegumen short; socius long, broad basally, with spined terminal part; valva short, with costal part very slender and saccular part rounded, provided with subapical thorn; median part of transtilla long; aedeagus slender; coecum penis moderate; caulis median; cornuti, a series of non-capitate spines.

Female genitalia and biology unknown.

Distribution. Mexico: Guerrero.

Comments. In the male genitalia this monotypical genus resembles *Cochylidia* OBRAZTSOV in having highly specialized costal part of the valva. Judging on the peculiar socii one can suppose that the specialized valva developed in this genus convergently within the *Cochylis*-group of genera. The form and arrangement of the cornuti are treated as their synapomorphies.

*Revertuncaria* RAZOWSKI

*Revertuncaria* RAZOWSKI, 1986, Acta zool. cracov., **29**(16): 377. Type-sp.: *Revertuncaria spathula* RAZOWSKI, 1986 – by orig. design. – RAZOWSKI, 1994: 274 (redescription).

Alar expanse 8 mm; venation as in preceding genera.

Male genitalia (Figs 45-50): Tegumen with fairly large lateral membranization; uncus strong, flattened laterally, directed proximally; socii at uncus base; vinculum as in *Geitocochylis* with even stronger outer ridge; dorsal part of valva long, slender; strong caudal process extending from dorso-postbasal area of disc above distal angulation of sacculus; median part of transtilla minute; no sublateral funnel-like pits of transtilla; cornuti, extremely small spines.

Female genitalia and biology unknown.

Distribution. Known exclusively from Northern Mexico.

Comments. A monotypical genus. Its supposed autapomorphies are the strong, curved, directed proximally uncus, the stout process of disc of valva and the slender, expanding terminally dorsal part of valva. Basal position of apodemes of muscle two on the transtilla and the complete vinculum are of plesiomorphic importance. This genus is probably closest to *Geitocochylis* and because of more differentiated dorsal part of the valva is treated as more specialised. In the structure of the transtilla there are some analogies between its type-species and the Neotropical *Geitocochylis paromala* RAZOWSKI, 1984.

*Geitocochylis* RAZOWSKI

*Geitocochylis* RAZOWSKI, 1984, Bull. Pol. Acad. Sci. (Biol. Sci.), **32**(7-8): 273. Type-sp.: *Geitocochylis gustatoria* RAZOWSKI, 1984 – by orig. design. – RAZOWSKI, 1994: 275 (redescription).

Alar expanse 12-16 mm; labial palpus 1.5. Externally resembling the species of *Cochylis*, eg. Neotropical *C. argentinana* RAZOWSKI, 1967 or Palaearctic *C. hybridella* (HÜBNER, 1799). Venation as in *Cochylis*.

Male genitalia (Figs 51,52): Tegumen rather elongate, with lateral parts membranised subterminally; socii, small latero-terminal, hairy patches or hairy lateral surfaces of the tegumen; distinctly sclerotized, directed proximad uncus-like process on tegumen apically; vinculum uniform; valva broad, with rather weakly differentiated dorsal part; sacculus strong, angulate or with dorso-caudal process; median part of transtilla slender, long, exceptionally (in *G. paromala* RAZOWSKI, 1984) atrophied; pair of submedian funnel-like processes, the apodemes of muscles  $M_2$  present; juxta large;

aedeagus of *Cochylis*-type, with ventral termination varying from species to species; cornuti, two or three compact groups of non-capitate spines.

Female genitalia (Fig. 145): Sterigma large, rounded, with main part convex medially, followed by two plates fused medially; ostium broad, sclerotized part of long ductus bursae large; corpus bursae membranous; ductus seminalis ventral, originating in middle of corpus bursae or in ductus bursae; accessory bursa lateral. Intersegmental membrane between sterigma and subgenital segment large.

**B i o l o g y** unknown; the species probably occurring in two or three generations yearly.

**D i s t r i b u t i o n.** All four species occur in Mexico.

**C o m m e n t s.** The supposed autapomorphies of *Geitocochylis* are the presence of short, distinctly sclerotized, uncus-like process situated on tegumen subapically, the broad fusion of valva with the lateral lobe of transtilla, the deep, funnel-shaped concavities of the latter directed proximally, the secondary flexure area in postbasal part of the costa of valva, and the distinctly sclerotized, broad buckler-shaped sterigma. The genus is close to *Cochylis* and their synapomorphies are the shape of the valva and aedeagus, and the presence of the non-capitate cornuti forming the clusters. *Geitocochylis* is more advanced as the presence of the uncus-shaped process shows. The socii are less specialized than in the mentioned genus, and the distal part of the tegumen is less specialized. The vinculum is complete and that is a plesiomorphic character, but stronger sclerotization of its outer edge speaks of its specialization, however, such characters are to be found in other *Cochylini* and are treated here as convergent.

### *Gryposcleroma* RAZOWSKI

*Gryposcleroma* RAZOWSKI, 1986, Acta zool. cracov., **29**(16): 383. Type-sp.: *Gryposcleroma schidia* RAZOWSKI, 1986 – by orig. design. – RAZOWSKI, 1994: 277 (redescription).

Alar expanse 13 mm, labial palpus 1.5. Venation as in *Cochylis*.

Male genitalia (Figs 53,54): Tegumen somewhat elongate, tapering terminally; uncus large, sharp terminally, with emarginate ventral lobes and with large medio-lateral lobes connecting with transtilla by means of sharp ends; socii absent; vinculum fully developed, with strengthened margins; transtilla, a broad plate without median process; dorsal part of valva slender; sacculus without free termination; aedeagus slender; cornuti, small spines forming a cone-like structure.

Female and **b i o l o g y** unknown.

**D i s t r i b u t i o n.** NE Mexico.

**C o m m e n t s.** The genus is monotypical, closest to *Geitocochylis* and *Revertuncaria*; the presence of uncus, the direction of its tip, the elongate distal part of valva and, the shape of transtilla are probable synapomorphies of *Gryposcleroma* with the two preceding genus. The secondary flexure area of the valva as in *Geitocochylis*. The autapomorphies of this genus are the presence of large lobes membranously connected with tegumen and transtilla, the margins of ventral parts of uncus base, and the long, horizontal basal process of valva.

### *Monoceratuncus* RAZOWSKI

*Monoceratuncus* RAZOWSKI, 1992, Misc.Zool., **14**(1990): 102, nom. n. for *Ceratuncus*. Type-sp.: *Ceratuncus lugens* RAZOWSKI, 1986 – hereditarius. New combinations introduced. – *Ceratuncus* RAZOWSKI, 1986, Acta zool. cracov., **29**(16): 382, nom. praeocc. by *Ceratuncus* PETERSEN, 1957, in *Tineidae*. Type-sp.: *C. lugens* RAZOWSKI, 1986 – by orig. design. – RAZOWSKI, 1994: 277 (redescription).

Alar expanse 7-10 mm; labial palpus 1.5. Venation: In forewing  $R_5$  to costa,  $M_3$ - $CuA_1$  connate; in hindwing  $Rs$ - $M_1$  forked,  $M_3$ - $CuA_1$  separate.

Male genitalia (Figs 55-61): Uncus broad, more or less tapering basally, with slender distal hook directed upwards or backwards; socii absent; vinculum fully developed, with vestigial or small sac-



cus; dorsal part of valva elongate; basal process long; disc with spines or thorns; sacculus without free termination; transtilla constricted medially, usually without trace of median part; aedeagus slender with small, non-capitate cornuti forming a more or less distinct 'cone'.

Female genitalia (Fig. 146): Sterigma large, concave beyond ostium, terminating with more or less distinct lateral prominences between which rounded scobinate sclerite with median concavity; ductus bursae differentiated from corpus bursae, both without sclerites; subgenital membrane forming a sac or two shallow pockets; ductus seminalis originating at base of ductus bursae, ventrally; accessory bursa dorsal, from distal part of the latter. Anterior apophyses short, coalesced with sterigma.

**B i o l o g y** and early stages unknown.

**D i s t r i b u t i o n.** Known from Mexico (six species) and Peru (one species) but certainly widely distributed in the Neotropical realm.

**C o m m e n t s.** Seven species included. There are two groups of species within this genus, one characterized by stout uncus having elongate apex (*M. eriodens* (RAZOWSKI, 1986), *M. cristatus* (RAZOWSKI & BECKER, 1986)), and that with uncus small, constricted basally. In the former the valva is bristled along the costa subdorsally, in the other a group of strong spines is developed. The synapomorphy with other genera of the *Cochylis*-group is the presence of the non-capitate cornuti forming a more or less compact group. The synapomorphies with *Geitocochylis* and *Gryposcleroma* are the flexory membranous area of postbasal part of valva, and the fully developed vinculum, with *Gryposcleroma* and *Revertuncaria* – the form of uncus. Its autapomorphies are the convex dorsal part of uncus, the large hook-like process of its end part and the rounded sclerite in distal portion of sterigma with a characteristic median hole.

### *Mimcochylis* RAZOWSKI

*Mimcochylis* RAZOWSKI, 1985, Nota lepid., 8(1): 61. Type-species: *Mimcochylis planola* RAZOWSKI, 1985 – by orig. design. – RAZOWSKI, 1994: 282 (redescription).

Alar expanse 9–13 mm, labial palpus 1; venation as in *Cochylis* and its allies.

Male genitalia (Figs 62–65): Tegumen with large, lateral, membranous areas and well sclerotized apical part slightly prominent at the top, provided with a small dorsal prominence before end; vinculum arms not coalesced ventrally; valva short, with very slender dorsal part and shorter, rounded saccular portion; transtilla with median part; juxta short; aedeagus long, slender; coecum penis small; caulis anterior; no cornuti in examined species.

Female genitalia (Fig. 147, 148): Ovipositor long; sterigma deeply incised proximally, with poststomial part broad, followed by a pair of slender, hairy patches connected with anterior apophyses, extending from pair of rounded sclerites of poststomial sterigma; membranous subgenital pocket present; ductus bursae in major part well sclerotized with large, tongue-like sac at base; ductus seminalis subdorsal, originating in median area of corpus bursae; ductus of accessory bursa dorsal, extending from distal part of ductus bursae.

**B i o l o g y** unknown.

**D i s t r i b u t i o n.** Southern part of the Nearctic and northern portion of the Neotropical region.

**C o m m e n t s.** The genus comprises four species, of which one is known of the male and three of females. It belongs to the *Cochylis*-group of genera as the shape of its valva, the position of the accessory bursa, the bristled distal patches of sterigma and the presence of membranous subgenital pocket show. The shape of anterior portion of sterigma resembles that in *Geitocochylis*. The dorsal part of the valva is very slender and resembles that in the Palearctic *Cochylidia* OBRAZTSOV. It is, however, less specialized, arranged rather horizontally, without terminal setae. The autapomorphies of *Mimcochylis* are as follows: the top of tegumen with three small prominences, the pres-



ence of subapical, dorsal prominence of tegumen, and the large sac at the end of ventral surface of corpus bursae directed distally.

### *Cochylis* TREITSCHKE

*Cochylis* TREITSCHKE, 1829, Schmett. Eur., 7: 233. Type-sp.: [*Tortrix*] *rubellana* HÜBNER, [1823] = *Tortrix roseana* HAWORTH, 1811 – by subs. design. (CURTIS, 1834, Br. Ent., explanat., pl. 491). Palaearctic. – RAZOWSKI, 1987: 171 (redescription, synonymy); 1994: 284 (redescription, synonymy, Neotropical fauna).

**D i s t r i b u t i o n.** The genus is known from the Holarctic, Oriental and Neotropical realms. In the Nearctic subregion over 30 species were placed, ca 50 are known from whole Holarctic, and 25 from the Neotropical region. Several groups of species discussed in my above mentioned paper (RAZOWSKI, 1987: 173) are noticed in Palaearctic, some other may be distinguished in the New World fauna, but all require re-consideration. The genus was compared in the mentioned paper with Palaearctic *Diceratura* DJAKONOV, 1923 and *Cochylidia* OBRAZTSOV, 1956 (supposed synapomorphies: the presence of the non-capitate cornuti and the cone-like cluster of short spines in vesica, the sac of intersegmental membrane attached to sterigma, the shape of sterigma, the position of accessory bursa). The two mentioned genera are, however, more advanced as having specialized, rod-like costal part of valva. The autapomorphies of this genus are not found.

### *Tortricini*

In the Nearctic subregion this tribe is represented by two genera one of which (*Apotoforma*) is tropical, reaching northward Florida and Texas and the other is known from all but Australian regions (there is one introduced species).

### *Apotoforma* BUSCK

*Apotoforma* BUSCK, 1932, Ent. Am., 13: 153. Type-sp.: *Oxygrapha rotundipennis* WALSINGHAM, 1897 – by orig. design. Neotropical.

*Emeralda* DIAKONOFF, 1960, Verh. kon. ned. Akad. Vet., Natuur., 53: 190. Type-sp.: *Emeralda cimelia* DIAKONOFF, 1960 – by orig. design. Afrotropical. – RAZOWSKI, 1966: 159; 1993: 183 (redescriptions, revisions).

Alar expanse 8-15 mm; labial palpus 1.3- ca 2; forewing elongate-ovate. Venation: in forewing  $R_5$  terminating in costa before apex,  $M_3$ - $CuA_1$  stalked to 1/3,  $M_2$  absent; in hindwing  $Rs$  close to  $M_1$ ,  $M_2$  absent,  $M_3$  separate from  $CuA_1$ .

Male genitalia (Figs 66-68): Uncus developed, broad, variable in shape from species to species; socius vestigial or absent; tuba analis with a weak sclerotic fascia or strong ventral sclerite, in a few species distinctly expanding apically; transtilla, a weakly sclerotized band. Valva short, with strongly reduced, rather weakly sclerotized costa; brachiola very large; sacculus slender, long, with free termination and dorsal process provided with spines (in one species bifid). Aedeagus in major part weakly sclerotized; cornuti short, capitate spines, thorn-like or thin, long.

Female genitalia (Fig. 149, 150): Main, distal part of papilla analis separated from proximal portion by means of a short membrane; sterigma large, concave medially, with large lateral lobes; apophysis anterior reduced to a small prominence or functionally replaced by a process of lateral edge of sterigma, rarely plesiomorphic, long. Ductus bursae simple, or provided with a ventral, median sac; signum, a small dentate plate, or wanting.

**B i o l o g y.** Host plant of *A. rotundipennis* (WALSINGHAM, 1897) are two species of *Acacia*.

**D i s t r i b u t i o n.** Known from Afrotropical (four species) and Neotropical regions (five species from the islands of the Caribbean Sea, 15 from the continent). Only one species is Nearctic and ranges northward to Florida and Texas.

**C o m m e n t s.** The supposed autapomorphies of *Apotoforma* are presence of the lateral lobes of sterigma, the reduction or absence of apophysis anterior and a development of the rod-like sclerite of tuba analis. All these characters are inconstant. The synapomorphies with some other, Afrotropical and Oriental genera of the *Eboda*-group are the membranous division of papilla analis, the sclerotization of the upper part of aedeagus and the absence of the hindwing vein  $M_2$ .

### *Acleris* HÜBNER

*Acleris* HÜBNER, [1825], Verz. bekannter Schmett.: 384. Type-sp.: [*Tortrix*] *aspersana* HÜBNER, [1817] – by subs. design. (FERNALD, 1908, Genera *Tortricidae*: 12). Palearctic. – RAZOWSKI, 1987: 181 (redescription, synonymy).

Known from all but Australian region (*A. comariana* (ZELLER, 1846) has been introduced to greenhouses in New Zealand), but is most abundant in Palearctic (130 species). In Nearctic occur 61 species distributed mainly in the northern and central parts of the continent. Nine species are Holarctic in distribution (*A. hastiana* (LINNAEUS, 1758), *A. arctica* (GUENÉE, 1845), *A. scabrana* (DENIS & SCHIFFERMÜLLER, 1775), *A. maccana* (TREITSCHKE, 1835), *A. emargana* (FABRICIUS, 1775)), *A. logiana* (CLERK, 1759), *A. schalleriana* (LINNAEUS, 1761) represented by its subspecies *A. schalleriana viburnana* (CLEMENS, 1860)). *A. implexana* (WALKER, 1863) is known in this region as the nominate subspecies, and its ssp. *ferrumixtana* (BENANDER, 1934) is European. The areas of the particular species are rather wide, e.g. of *hastiana* which ranges southward as far as S. California. In the southern part of this subregion the number of species is low and in the Neotropical region there are only three described species.

### *Cnephasiini*

Of 20 known *Cnephasiini* genera only four occur in this subregion of which *Cnephasia* CURTIS, 1826 is introduced to North America. *Decodes* and *Decodina* are endemic in the New World. *Tortricodes* GUENÉE, 1845 in which some Nearctic species were placed is not an American genus. It seems that the tribe is typical of the Holarctic region as only a few species of *Decodes* ranges in Mexico and *Decodina* was found in Neotropic (Sinaloa, Mexico).

### *Eana* BILLBERG

*Eana* BILLBERG, 1820, Enumeratio Insect.: 90. Type-species: *Tortrix penziana* THUNBERG, 1791 – by subs. design. (FERNALD, 1908: Genera *Tortricidae*: 51). Palearctic. – RAZOWSKI, 1987: 197 (redescription, synonymy).

A Holarctic genus represented in Nearctic by only one subgenus, *Eutrachia* with its four species occurring rather in the northern part of the subregion, and in higher mountains. Two species are Holarctic in distribution, one is endemic, very closely related to Palearctic *Ae. argentana* (CLERK, 1759). Two other subgenera, the monotypical *Subeana* OBRAZTSOV, 1962 and *Eana* s.str. with ca 30 species are exclusively Palearctic.

### *Decodes* OBRAZTSOV

*Decodes* OBRAZTSOV, 1961, J. Lepid. Soc., 14(1960): 113. Type-sp.: *Tortricodes fragariana* BUSCK, 1919 – by orig. design. – POWELL, 1980: 78 (redescription).

Labial palpus ca 1.5, cylindrical; postantennal spurs well developed, rudimentary or absent. Coloration of the *cnephasiine* type; costal fold absent. Venation: In forewing all veins separate;  $R_5$  to termen just beneath apex, chorda originating from base of  $R_1$ ; in hindwing  $Rs-M_1$  stalked to  $1/3$ ,  $M_3$  wanting, bases of  $M_2 - CuA_1$  far from one another.

Male genitalia (Figs 69-72): Uncus slender, in majority of species long; socius well developed, usually of medium size; gnathos arm fairly short, slender; terminal plate developed. Valva strongly

broadening basally, with costal base enlarged or expanding dorsally, remaining part of costa simple, rarely concave postmedially and expanding terminally; sacculus slender, simple or with variably shaped, often very long, curved free termination, in some species with broad terminal plate or spines. Median part of transtilla large, helmet-like or incised apically, often armed with thorns. Aedeagus simple, slender, or with latero-terminal process.

Female genitalia (Fig. 151-153): Ovipositor floricomous; postostial part of sterigma forming slender lateral arms or broad, proximal part of sterigma weakly developed, or cup-shaped; colliculum developed in a few species; ductus bursae simple, slender, or with submedian sclerite; ductus seminalis originating at base of ductus bursae or from a lobe of distal portion of corpus bursae; signum stellate or band-shaped, if present.

**B i o l o g y.** The species fly in spring or in summer and fall, with diapause in pupal stage through summer or summer-fall-winter, or in egg stage in winter. Food plants are *Fagaceae*, *Ericaceae* and *Saxifragaceae*.

**D i s t r i b u t i o n.** Known from Northern Territories in Canada southward to Oaxaca?, Mexico.

**C o m m e n t s.** *Decodes* (19 described species) were divided by POWELL (1980) into five groups differing in the shape of wings, genitalia, biology and food plant preference. It has some characters common with *Eana* and *Cnephasia* but certainly is more advanced than the former.

#### *Decodina* POWELL

*Decodina* POWELL, 1980, *Pacif. Insects*, **22**(1-2): 110, fig. 3 (venation). Type-sp.: *Decodina mazatlana* POWELL, 1980 – by orig. design.

Alar expanse ca 10 mm; externally resembling *Decodes*. Head without postantennal spurs. Venation: In forewing  $R_4$  terminating in apex, chorda atrophying at base; in hindwing stalk of  $Rs-M_1$  longer than in mentioned genus,  $M_2$  closer  $M_3$  at base.

Male genitalia (Figs 73, 74) as in *Decodes* but transtilla with large lateral lobes each armed with dorsal group of small thorns.

Female genitalia (Fig. 154) as in *Decodes* but with submedian patches of small spurs beyond postostial part of sterigma.

**B i o l o g y** unknown; flight in summer.

**D i s t r i b u t i o n.** Known from Mexico: Guerrero, and Sinaloa (Neotropical).

**C o m m e n t s.** Very close to *Decodes* differing only in the above mentioned characters.

#### *Cnephasia* CURTIS

*Cnephasia* CURTIS, 1826, *Br. Ent.*, 3, expl. pl. 100. Type-species: *Tortrix logiana* HAWORTH, 1811 = *Olethreutes pasiuana* HÜBNER, [1822] – by subs. design. (FERNALD, 1908, *Genera Tortricidae*: 4). Palearctic. – RAZOWSKI, 1987: 200 (redescription, synonymy).

This genus is exclusively Palearctic as the two species known from this subregion were introduced. The species of *Cnephasia* are distributed chiefly in the western part of Palearctic and in Central Asia, as only one taxon reaches Far East incl. Japan.

#### *Euliini*

Thirteen genera occur in this subregion and only one (*Eulia*) is Holarctic in distribution. RAZOWSKI (1987) included in this tribe only two Palearctic genera, but then four further genera were added by YASUDA & RAZOWSKI (1991). None of them is close to the New World taxa. The affinities with the Neotropical realm are closer than with Palearctic as they share at least three genera



(*Apolychrosis*, *Dorithia*, *Cuproxena*) and much more species. The present arrangement is based on the paper by BROWN & POWELL (1991).

### *Apolychrosis* AMSEL

*Apolychrosis* AMSEL, 1962, Zschr. Angew. Ent., **49**: 395. Type-species: *Apolychrosis schwerdtfegeri* AMSEL, 1962 – by orig. design., monotypic. Neotropical. – POGUE, 1986: 19 (redescription).

Ocellus and chaetosema present. Venation: In forewing all veins separate,  $R_5$  to termen, at discal cell distance  $M_2-M_3$  almost twice larger than  $M_3-CuA_1$ ;  $CuA_2$  posterior to base of  $R_1$ ; chorda from before mid-distance  $R_1-R_2$  terminating beneath base of  $R_4$ . In hindwing  $Rs-M_1$  separate,  $M_3-CuA_1$  stalked to 1/4.

Male genitalia (Figs 75, 76) with uncus fairly large, tapering terminally; uncus slender, simple; socius drooping, moderate; vinculum fully developed, broad. Valva slender, somewhat constricted postbasally, armed with ventro-postmedian and terminal spines. Aedeagus simple with long coecum penis; cornuti absent; transtilla broad, constricted medially; juxta broad, with spined slenderer, elaborate dorsal portion.

Female genitalia (Fig. 155): Ovipositor moderate, apophyses rather long; sterigma, a poststrial rather weakly sclerotized plate; ostium small; colliculum short; ductus bursae fairly long, membranous; ductus seminalis from distal portion of corpus bursae; signum and accessory bursa missing.

**B i o l o g y** (POGUE, 1986; CIBRIAN et al., 1986). Larvae in cones of some conifers.

**D i s t r i b u t i o n**. CS Mexico (four species) and Guatemala (one species).

**C o m m e n t s**. Previously placed in *Cnephasiini* (POWELL, 1964; POGUE, 1986) to which it shows some external and genital similarities, then transferred to *Euliini* (BROWN & POWELL, 1991).

### *Eulia* HÜBNER

*Eulia* HÜBNER, [1825], Verz. bekannter Schmett.: 392. Type-sp.: *Phalaena Tortrix ministrana* LINNAEUS, 1758 – design. by monotypy. Holarctic. – RAZOWSKI, 1987: 205 (redescription).

This monotypical genus in which numerous species were incorrectly described is Holarctic, occurring rather in northern parts of North America.

### *Acroplectis* MEYRICK

*Acroplectis* MEYRICK, 1927, Exotic Microlepid., **3**: 370. Type-sp.: *Acroplectis haemanthes* MEYRICK, 1927 – by monotypy. – POWELL, 1964: 116 (redescription).

Alar expanse 13–16 mm; labial palpus ca 1.5; antenna densely, minutely bristled. Forewing slender, without costal fold. Venation: In forewing  $R_4-R_5$  connate similarly as  $M_2-M_3$ ; in hindwing  $Rs-M_1$  long-stalked,  $M_3-CuA_1$  separate, closer at median cell than  $M_2-M_3$ .

Male genitalia (Figs 77, 78): Uncus strong, broadening terminally, weakly hairy; socius very long, well sclerotized along outer edge, hairy; gnathos simple, with slender arm and large terminal plate. Valva slender, fairly long, with distinct costa; sacculus simple in form of a sclerotized ventral edge of valva. Transtilla transverse band-shaped sclerite with up-curved edge; juxta elongate. Aedeagus rather small, with short coecum penis; cornuti, a group of small, capitate spines.

Female genitalia (Fig. 156): Papilla analis slender; apophyses fairly long; sterigma broad, rounded proximally, with slender lateral arms; ostium broad; ductus bursae rather short; corpus bursae with group of thorns; ductus seminalis extending from distal part of corpus.

**B i o l o g y** and food plants unknown.

**D i s t r i b u t i o n**. This monotypical genus was recorded from semidesert territories of southwestern part of the U.S.A. (Texas, New Mexico, California).



**C o m m e n t s.** The systematic position of *Acroplectis* is still unclear; POWELL (1964, 1983) placed it in *Cnephasiini* near *Anopina*, but that time the tribe *Euliini* was not distinguished. Its inclusion in this tribe seems justifiable, but the position remains doubtful.

### *Quasieulia* POWELL

*Quasieulia* POWELL, 1981, Pan-Pacif. Ent., **62**(4): 392. Type-sp.: *Quasieulia macguffini* POWELL, 1981 – by orig. design.

**Venation:** In forewing all veins separate, *CuP* rudimentary; in hindwing *Sc* + *R*<sub>1</sub> separate from *Rs*, basal humeral vein absent, *Rs* stalked with *M*<sub>1</sub>, *M*<sub>3</sub> – *CuA*<sub>1</sub> connate.

**Male genitalia** (Figs 79,80): Tegumen heavily sclerotized; uncus simple, slender; socius drooping, with basal attachment; arm of gnathos broadened terminally. Valva elongate, rounded distally, with simple costa and sacculus without free termination; pulvinus separate from transtilla; this last simple, narrowing medially; vinculum broad medially. Aedeagus simple, small; single cornutus in vesica present.

**Female genitalia** (Fig. 157): Eighth tergite small; papilla analis slender; apophyses rather short, slender. Sterigma, a rather small spined plate, provided with median longitudinal split, with broad lateral parts and proximal prominence in middle; colliculum long, slender, partially sclerotized; ductus seminalis dorsal, extending from anterior portion of this last; ductus bursae slender, fairly long; signum funnel-shaped, with broad, dentate basal portion and flat keel inside the corpus bursae.

**E a r l y s t a g e s a n d b i o l o g y** unknown.

**D i s t r i b u t i o n.** The type-species is Nearctic, two other species are known from the Neotropical region.

**C o m m e n t s.** BROWN & POWELL (1991) suppose that this genus is close to *Acroplectis* as sharing two synapomorphies, viz., the absence of the foretibia hair pencil in male and the small number (or absence) of non-deciduous setae on the valva. From *Acroplectis* it differs in having two autapomorphies, the free lateral processes of gnathos, and the lack of ocelli.

### *Apotomops* POWELL & OBRAZTSOV

*Apotomops* POWELL & OBRAZTSOV, 1986, Pan-Pacif. Ent., **62**(4): 396. Type-sp.: *Olethreutes wellingtonana* KEARFOTT, 1907 – by orig. design.

**Antennal setae** very small. **Venation:** In forewing all veins separate, *CuP* short; in hindwing *Sc* + *R*<sub>1</sub> separate from *Rs*, this last close to *M*<sub>1</sub> at base, or stalked, *M*<sub>3</sub> – *CuA*<sub>1</sub> short-stalked; *CuP* developed. Sexual dimorphism slight: Male forewing somewhat broader than that in female.

**Male genitalia** (Figs 81,82): Uncus broad, expanding at base and distally; socius slender, setose; gnathos arm slender, terminal plate well developed, slender; vinculum fully developed, slender. Costa of valva long, terminal part of valva rounded, ventral edge beyond sacculus long, weakly sclerotized; sacculus with long process provided with apical thorn, folding on disc of valva. Transtilla, a slender simple band; juxta elongate. Aedeagus short, broad, slightly depressed dorsally, expanding distally; coecum penis and caulis small; one long cornutus present.

**Female genitalia** (Fig. 158): Ovipositor short; papilla analis broad; apophyses fairly long. Sterigma, a shallow plate marked with pair of concavities, with cup-shaped part short; ductus bursae short, with large, in major part sclerotic, ventro-lateral sac (part of colliculum?); corpus bursae elongate, minutely spined; signum absent; ductus seminalis originating at colliculum.

**E a r l y s t a g e s a n d b i o l o g y** unknown.

**D i s t r i b u t i o n.** Southern part of the subregion. Two species described, one from western U.S.A., the other from Texas with its area extending into N. Mexico. Further species expected in Mexico.

**C o m m e n t s.** BROWN & POWELL (1991) join this genus with Neotropical *Bonagota* RAZOWSKI, 1986 in a separate group mainly on basis of the presence of a large sac of the ductus bursae and treat *Proeulia* CLARKE, 1962 (also tropical) as its sister group. The autapomorphy of *Apotomops* is the shape of uncus, a supposed synapomorphy with *Bonagota* is the depression of the dorsal surface of aedeagus.

### *Paraptila* MEYRICK

*Paraptila* MEYRICK, 1912, Trans. ent. Soc. London., 1911: 677. Type-sp.: *Paraptila argocosma* MEYRICK, 1912 – by monotypy. Neotropical. – BROWN, 1990, J. Lepid. Soc., 44(4): 257 (redescription).

**Venation:** In forewing all veins separate,  $R_5$  to beyond apex, equidistant to  $R_4$  and  $M_1$  at discal cell;  $CuA_2$  opposite ca 2/3 distance between bases of  $R_1$ - $R_2$ , chorda and M-stem absent; in hindwing  $Rs$ - $M_1$  stalked to 1/3;  $M_3$ - $CuA_1$  connate.

**Male genitalia** (Figs 83,84): Tegumen broad with moderate pedunculi; uncus very long, very slender (with one exception), distinctly sclerotized, expanding basally; socius broad dorsally, slenderer in ventral and median portions, pendant, arched at base; dorsal parts clothed with long scales, ventral protrusion with weaker scales and hairs. Gnathos arm slender, terminal plate very slender, long, sharp. Vinculum slender. Valva large, simple, with distinct costa; sacculus slender, without free termination. Transtilla slender with small, anterior median fold and distinct lateral processes; juxta small, simple. Aedeagus stout, extending ventro-laterally, with broad coecum penis; caulis very small; usually a single, very strong cornutus present.

**Female genitalia** (Fig. 159): Papilla analis rather broad with distinct anterior, slender portion; apophyses posteriores in majority of species (excepting *argocosma*) very broad, vedge-shaped; sterigma broad, with well developed anteostial part, often with distinct lateral sclerotization; ductus bursae short, rather weakly differentiated, often with distinct sclerite; corpus bursae often entirely membranous, in type-species with distinct spines; ductus seminalis postmedian originating dorsally.

**B i o l o g y**, early stages and food-plants unknown.

**D i s t r i b u t i o n.** Five species are known from the Neotropical region, two species occur in central part of Mexico: from Veracruz to Colima.

**C o m m e n t s.** The supposed autapomorphies of this genus are the coloration of the forewing (pale, cornucopia-shaped patch of ground-colour at costa), the thin hook-shaped terminal part of gnathos and the sack-shaped posterior apophyses (in *argocosma* slender, plesiomorphic). BROWN (1990) suggests that this genus is the sister group of the Neotropical *Terinebrica* RAZOWSKI, 1987. However, the synapomorphies of the two are not clear, and there are many distinct differing characters.

### *Anopina* OBRAZTSOV

*Anopina* OBRAZTSOV, 1962, Am. Mus. Novitates, Nr. 2082: 2. Type-sp.: *Tortrix triangulana* KEARFOTT, 1908 – by orig. design. – POWELL, 1964: 118 (redescription).

**Venation:** In forewing all veins separate,  $R_5$  to termen, chorda in some species developed, originating beyond base of  $R_1$ ; in hindwing  $Rs$ - $M_1$  separate or stalked to beyond middle, remaining veins separate, positions  $M_2$  –  $M_3$  –  $CuA_1$  variable. Foreleg pencil in male absent.

**Male genitalia** (Figs 85-91): Tegumen rather slender; vinculum simple, broadest medially; uncus slender, fairly short, occasionally slightly broadening beyond base, scarcely hairy terminally; socius small, submembranous, drooping; gnathos arm slender, broadening terminally, with terminal plate developed. Valva slender, with well developed costa; sacculus often large, with free terminal part, processes or thorns; often ventro-basal part of valva large, sclerotic. Transtilla, a broadening medially plate, occasionally marked with thorns. Aedeagus slender, with terminal process, small caulis and often long coecum penis; juxta simple.

Female genitalia (Figs 160, 161): Papilla analis slender; apophyses short; sterigma a variably developed plate with lateral, anterior and median sclerites and minutely spined lobes; colliculum weak; ductus bursae slender, rather short; corpus bursae without sclerites; ductus seminalis from postmedian part of this last.

**E a r l y s t a g e s** unknown. **B i o l o g y** of one species was described by POWELL (1964); food plants of the type-species is *Salix babylonica* and *Ulmus procera*.

**D i s t r i b u t i o n.** This genus is known of Nearctic (14 species) ranging from Ontario, Canada in the north, and from Neotropical realm southward as far as Guatemala, but the majority of species occur in Mexico (mainly in Guerrero).

**C o m m e n t s.** The species are easily distinguished by the shapes of some parts of genitalia but the majority of those characters are of plesiomorphic or convergent importance. It is supposed that the shape of the sacculus (however, variable) and dorsal portion of valva and the presence of spined lobes of the strigma are the apomorphies of this genus.

### *Neoeulia* POWELL

*Neoeulia* POWELL, 1986, Pan-Pacif. Ent., **62**(4): 389. Type-species: *Phalonia dorsistriatana* WALSINGHAM, 1884 – by orig. design.

**Venation:** In forewing all veins separate, *CuP* developed, chorda and *M* inside median cell rudimentary; in hindwing *Rs* and *M*<sub>1</sub> stalked, *M*<sub>3</sub> and *CuA*<sub>1</sub> separate, *CuP* developed.

**Male genitalia** (Figs 92, 93): Uncus simple, slender, not hairy; socius small, drooping; arm of gnathos with large, dentate latero-terminal lobes and small terminal plate; vinculum simple, slender. Valva elongate, with well developed costa armed with subdorsal, dentate process; sacculus short, with small free termination. Transtilla a slender transverse band. Aedeagus short, bent; a sclerotized band in vesica.

**Female genitalia** (Fig. 162): Ovipositor short; papilla analis elongate-ovate; eighth tergite broad; apophyses fairly short, slender. Sterigma large, broadened, minutely spined, with small anterior angles and short lateral processes; colliculum small, strengthened with inner, U-shaped sclerite; ductus bursae very short; corpus bursae with large posterior lobe marked with a curved, band-shaped sclerite; corpus bursae without sclerites; ductus seminalis from base of lobe.

**E a r l y s t a g e s** and **b i o l o g y** unknown.

**D i s t r i b u t i o n.** U.S.A.: Arizona, and Mexico: Durango.

**C o m m e n t s.** This genus is certainly close to the *Chrysoxena*-group and BROWN & POWELL (1991) record the lack of the foretibia hair pencil as their synapomorphy. The most advanced state in the transformation series of the *Chrysoxena* group is a short labial palpus (with segment two less than 1.5 times eye diameter). In *Neoeulia* this character is treated as reversal. The shapes of sterigma and presence of the sclerite in distal part of corpus bursae are the probable synapomorphies of the genera close to *Chrysoxena*, and *Neoeulia*. Also the gnathos shows some similarity with those genera, e.g. in *Bidorpitia* BROWN, 1991, however, this character may prove of convergent importance. The transtilla in the two genera is simple. The autapomorphy of *Neoeulia* is probably the sclerotized structure of the costal region of valva.

### *Dorithia* POWELL

*Dorithia* POWELL, 1964, Univ. California Publ. Ent., **32**: 116. Type-sp.: *Tortrix semicircularana* FERNALD, 1882 – design. by monotypy. – J. W. BROWN & POWELL, 1991: 25 (redescription, monograph).

**Forewing markings** with two lines forming a cross, first of them accompanied by parallel anterior line; ground-colour usually yellowish. **Venation:** In forewing all veins separate, *R*<sub>5</sub> to termen beneath apex, chorda atrophied; in hindwing *Rs-M*<sub>1</sub> close to one another at base, *M*<sub>3</sub>-*CuA*<sub>1</sub> originating in one point. Abdominal dorsal pits absent (except in one species).



Male genitalia (Figs 94): Uncus long, hooked, thin apically, broadening at base; socius large, drooping, long hairy; gnathos with pair of distal lobes, without terminal plate. Valva rather weakly sclerotized, with delicate costa and terminal third tapering apicad; ventro-basal part of valva extending ventro-proximally, with at least one dorso-basal process or thorn, its distal portion may form a typical sacculus; pulvinus usually small, if present. Transtilla, two curved lateral lobes, often each terminating in submedian process connected by means of weaker median sclerite. Aedeagus small, slender, with broad basal part (coecum penis) provided with large apodemes of protractor muscles; cornuti wanting.

Female genitalia (Fig. 163): Sterigma broad with complicate, minutely spined median and submedian sclerites situated in large membranes forming a more or less distinct pocket; colliculum often with a sclerite; ductus bursae short; corpus bursae with postmedian broadening armed with elongate sclerite often terminating in base of ductus bursae; ductus seminalis originating at distal part of corpus bursae; accessory bursa not found.

**E a r l y s t a g e s** described by J. W. BROWN & POWELL (op.cit.) on basis of two species. **B i o l o g y**: Three species were bred by the mentioned authors from *Quercus lobata*, *Fagaceae*.

**D i s t r i b u t i o n**. Nearctic genus with 17 described species with a few representatives reaching Costa Rica.

**C o m m e n t s**. *Dorithia* with five other chiefly Neotropical genera form a compact group. Certainly it is closest to *Cuproxena*. The *Chrysoxena*-group of genera is characterized (BROWN & POWELL, 1991) by two apomorphies, viz., the absent ocellus and the antennal setae 1.8 times segment diameter. I could add one synapomorphy of this group: The presence of the sclerite in distal half of corpus bursae, occasionally wanting.

### *Cuproxena* POWELL & J. W. BROWN

*Cuproxena* POWELL & J. W. BROWN 1991 [in] J. W. BROWN & POWELL, Univ. California Publ., Ent., **111**: 48, fig.8 (venation). Type-sp.: *Cuproxena cornuta* J. W. BROWN & POWELL, 1991 – by orig. design.

**Venation**: In forewing  $R_4$  to before apex,  $R_5$  to termen, approximate basally;  $M$  – stem vestigial; in hindwing  $R_s$  separate from  $M_1$ ,  $M_3$  –  $CuA_1$  connate or short-stalked. One pair of abdominal pits on second segment.

Male genitalia (Figs 95-98): Uncus slender, in one species with ventral spine at base; socius submembranous, long-scaled; gnathos occasionally with terminal plate; valva in one Neotropical species with pair of long processes, postbasally.

Female genitalia (Fig. 164) as in *Dorithia*; ductus seminalis usually extending from ductus bursae.

Early stages, biology and food-plants unknown.

**D i s t r i b u t i o n**. A Neotropical genus reaching northward to Central Mexico, in the south to Argentina.

**C o m m e n t s**. 27 species of this genus were placed in four species groups by BROWN & POWELL (1991). Its autapomorphy is the costal, semicircular or triangular forewing marking, and the presence of abdominal pits.

### *Odonthalitus* RAZOWSKI

*Odonthalitus* RAZOWSKI, 1990, SHILAP Revista lepid., **18**(71): 209. Type-sp.: *Odonthalitus lacticus* RAZOWSKI, 1990 – by orig. design.

**Venation**: All veins separate; in forewing three last radial veins rather approximate at discal cell.

Male genitalia (Figs 99-101): Tegumen rather broad, pedunculi slender, with lateral lobes; uncus, two slender rods extending from top part of tegumen, distinctly separated from one another; so-

cius with median base; long lobes in distal part of gnathos; vinculum arms not fusing ventrally. Costa of valva well sclerotized; basal process slender; pulvinus absent; transtilla membranous; cornuti not found.

Female genitalia (Figs 165,166): Papillae anales coalesced with one another and with plate of posterior apophyses; sterigma fused with eighth tergite to form a complete ring, with membranous anteostial plate; accessory bursa present; no signum.

Distribution: Mexico: Durango.

**C o m m e n t s.** This monobasic genus has a rather separate position within the tribe. Its supposed autapomorphies are the shapes of uncus and gnathos, the fusion of sterigma with eighth tergite, and the shape and the fusion of papillae anales.

### *Hyptiharpa* RAZOWSKI

*Hyptiharpa* RAZOWSKI, 1990, Misc. zool., **14**: 106. Type-sp.: *Hyptiharpa hypostas* RAZOWSKI, 1990 – by orig. design.

Venation. In forewing all veins separate;  $R_5$  to termen below apex, trace of chorda at  $1/3$  distance  $R_1 - R_2$ ;  $CuA_2$  originating opposite mid-length  $R_1 - R_2$ ; in hindwing  $M_3 - CuA_1$  very close to one another at discal cell. No sexual dimorphism.

Male genitalia (Figs 102,103): Tegumen broad, rather short with short pedunculi; uncus well sclerotized, without terminal brush; gnathos absent; socius base beyond middle of its length. Vinculum fully developed. Valva broad with costa well sclerotized except for its terminal portion; sacculus large, with a hook directed basally; pulvinus absent, fold indistinct; anellus minutely spined. Median part of transtilla long, sclerotized. Aedeagus and juxta simple, membranous ventrally; coecum penis rounded; caulis bilobe; opening for ductus ejaculatorius ventro-proximal; cornuti absent.

Female genitalia (Fig. 167): Ovipositor short; sterigma a sclerotized plate concaving medially, with long lateral ribs not connecting with apophyses anteriores; ostium in anterior part of subgenital segment; colliculum ill-defined; ductus seminalis postmedian; accessory bursa and signa absent.

**B i o l o g y** and early stages unknown.

**D i s t r i b u t i o n:** Mexico: Sinaloa and Chihuahua.

**C o m m e n t s.** Monotypical genus of unknown affinities. Its probable autapomorphies are the shapes of sacculus, the presence of membranous, plicate and setose ventral portion of the disc of valva, the form of the proximal part of aedeagus, the form of the subgenital segment of the female and the shape of sterigma. The genitalia show some distinct reductions, e.g. atrophy of the gnathos.

### *Hypenolobosa* RAZOWSKI

*Hypenolobosa* RAZOWSKI, 1990, Misc. zool., **14**: 107. Type-sp.: *Hypenolobosa glechoma* RAZOWSKI, 1990 – by orig. design.

Venation as in *Hyptiharpa*.

Male genitalia (Figs 104-106): Similar to those in *Hyptiharpa* but socius drooping, gnathos present, however ill-defined, transtilla without median part but with concave ventral portion. Very large, well sclerotized lobe dorsally to sacculus connecting ventral portion of transtilla is its probable autapomorphy.

Female genitalia, early stages and biology unknown.

**D i s t r i b u t i o n:** Mexico: Chihuahua.

### *Atteriini*

The diagnosis of this tribe is completed by POWELL (1986). *Atteriini* occur exclusively in the New World and are a tropical tribe, with eight Neotropical genera and ca 50 species. In this subregion only two genera and three species were found.

#### *Templemania* BUSCK

*Templemania* BUSCK, 1940, Bull. Calif. Acad. Sci., **39**: 91. Type-sp.: *Tortrix animosana* BUSCK, 1907 – by orig. design. Neotropical.

Sexual dimorphism slight except the antenna which is pectinate in male, simple in female. Coloration: Forewing whitish to orangeous with numerous black transverse striae. Venation: In forewing all veins separate, in hindwing  $M_3 - CuA_1$  connate.

Male genitalia (Figs 107, 108): Tegumen long, with short pedunculus; vinculum simple; uncus well sclerotized, distinctly expanding terminally; socius large, dorso-lateral, with broad proximal portions; gnathos strong, with large terminal part. Valva long, rounded apically, upcurved; costa well developed; sacculus slender, one third length of valva, connecting with elongate sclerite reaching beyond middle of disc. Transtilla with two dorsal, spined prominences; juxta rather small, extending dorsally. Aedeagus simple, slender; coecum penis fairly small; cornuti, several deciduous spines.

Female genitalia (Fig. 168): Terminal segment of abdomen clothed with transformed scales; sterigma broad, rather short, membranous towards ductus bursae, with membranous anteostial portion; ductus bursae slender; colliculum long, slender, strengthened by anterior sclerite just at base of ductus seminalis; transverse fold of ventral part of corpus bursae small, weakly sclerotized; signum thorn-like with broad base.

Early stages unknown; biology: Oviposition behavior described by POWELL (1976b).

Distribution. Four species known from Mexico; two of them are tropical (from Veracruz).

#### *Tinacrusis* POWELL

*Tinacrusis* POWELL, 1986, Pan-Pacif. Ent., **62**(4): 386. Type-sp.: *Homona aquila* BUSCK, 1914 – by orig. design.

Antenna simple, short bristled; ocellus usually absent.

Venation: In forewing  $M$ -stem, with trace of bifurcation, terminating at  $M_2$ , chorda present, however, weakly developed in male,  $CuP$  present, two last radial veins free or stalked; in hindwing  $Sc-Rs$  separate,  $Rs-M_1$  approximate or connate,  $M_3-CuA_1$  in male connate, in female separate;  $CuP$  developed. Sexual dimorphism strong, shown in size, shape of forewings, and coloration.

Male genitalia (Figs 109, 110) as in *Templemania*; uncus slender or with large apical broadening, provided with ventral setae; socius large, with three types of scales (long, thin, thick and flat broadening terminally).

Female genitalia (Fig. 169) as in *Templemania*.

Early stages and biology. No data.

Distribution. Mexico (one species is Nearctic, from Oaxaca, the other from Veracruz); POWELL, 1986 mentions undescribed species close to *T. apertana* WALSINGHAM from Nuevo Leon) and Central America (Panama, Guatemala).

Comments. Originally compared with Neotropical *Anacrusis* ZELLER, 1877. POWELL also suggests that *Tinacrusis* may prove its subgenus. It differs, however, in having the sinuate costa of forewing both in male and female, sexual dimorphism (occurring in their markings, coloration,



presence of elaborate setulae of the male antenna), and, in the genitalia, in lack of well developed sacculus. On the other hand I cannot find any genital difference between *Tinacrusis* and *Templemania*. The two genera differ only in the occurrence of the sexual dimorphism. Venation is insufficiently studied in *Templemania* but does not show any larger difference to that in the discussed genus.

### *Sparganothini*

Of eleven genera known from Nearctic only one (*Sparganothis*) is Holarctic in distribution. The tribe also occurs in Central and South America where is represented by ten genera. Four genera are exclusively Nearctic, four are Neotropical, and six genera were recorded from the two realms. The New World is abundant both in genera and species, whilst in the other continents the tribe is poorly represented or absent (Australia). The present arrangement of genera is based chiefly on the checklist of Neotropical *Tortricidae* (POWELL, RAZOWSKI, BROWN, 1995). The diagnoses of the genera recently described by POWELL are in great part based on his paper of 1986. *Niasomini* were treated as a separate tribe (e.g. by POWELL, 1964) but this taxon is certainly synonymous with *Sparganothini* as stated by same author (POWELL, 1985) when examining *Synnoma* and *Syllonoma*. These genera probably represent a specialized off-shoot of the *Sparganothis* branch as the reductions of some parts of the genitalia show.

### *Amorbia* CLEMENS

*Amorbia* CLEMENS, 1860, Proc. Acad. nat. Sci. Philad., 1: 352. Type-sp.: *Amorbia humerosana* CLEMENS, 1860 – by monotypy.

*Hendecastema* WALSINGHAM, 1879, Illustr. Lepid. Heterocera Br. Mus., 4: 4. Type-sp.: *Hendecastema cuneanum* WALSINGHAM – 1879, by orig. design.

*Ptychamorbia* WALSINGHAM, 1891, Proc. zool. Soc. London., 1891: 497. Type-sp.: *Tortrix exustana* ZELLER, 1866 – by orig. design.

Ocellus absent; tongue long; antenna bristled. Venation: In forewing last two radial veins stalked. Sexual dimorphism distinct. Dorsal abdominal pits present.

Male genitalia (Figs 111, 112): Uncus well sclerotized, simple, rather slender; socius large, with broad, weakly sclerotized, scaled and hairy dorso-median part, and distinctly sclerotized ventral portion; subscaphium connected with tegumen by means of slender sclerotic bands. Vinculum broad, rather weakly sclerotized ventrally. Valva elongate, rounded distally; disc with minute folds, hairy, scaled; costa well developed, long; sacculus simple, variably long; pulvinus broad fusing with transtilla; this last provided with median spinose area, expanding dorso-medially. Aedeagus simple with coecum penis and caulis small.

Female genitalia (Fig. 170): Papilla analis fairly broad, with weakly differentiated anterior portion; apophyses slender, fairly long. Sterigma concave medially, with lateral parts more or less elongate, and membranous anteostial part; colliculum small, marked with inner sclerite; ductus bursae moderately short; ductus seminalis dorsal, extending from posterior half of this last; signum plate-shaped, folded.

**E a r l y s t a g e s a n d b i o l o g y.** Some data provided by MACKAY (1962).

**D i s t r i b u t i o n.** Nearctic (five described species) and, chiefly, Neotropical region (over 20 species).

### *Coelostathma* CLEMENS

*Coelostathma* CLEMENS, 1860, Proc. Acad. nat. Sci. Philad., [1]: 355. Type-sp.: *Coelostathma discopunctana* CLEMENS 1860 – by monotypy.

Ocellus present; antenna of male plumose, short bristled in female; tongue in male as long as labial palpus, weak in female. Venation: In forewing last two radial veins stalked. Sexual dimorphism rather distinct, expressed in shape of wings and size. Dorsal abdominal pits present.

Male genitalia (Figs 113, 114): Uncus slender, long; socius with elongate distal part, without sclerotized anterior process; transtilla simple, or with small dorsal prominence; sacculus long.

Female genitalia (Fig. 171): Sterigma broad, in major part weakly sclerotized; colliculum differentiated; corpus bursae with large posterior sclerite; signum absent.

**E a r l y s t a g e s** and **b i o l o g y** unknown to me except that the larva of *discopunctana* is polyphagous.

**D i s t r i b u t i o n.** One widely distributed species known from Nearctic, four Neotropical species reaching south as far as southern Brazil.

### *Platynota* CLEMENS

*Platynota* CLEMENS, 1860, Proc. Acad. nat. Sci. Philad., [1]: 347. Type-sp.: *Platynota sentana* CLEMENS, 1860 = *Hypena idaeusalis* WALKER, 1859 – by monotypy.

*Cerorrhineta* ZELLER, 1877, Horae Soc. ent. Ross., 13: 116. Type-sp.: *Cerorrhineta callidana* ZELLER, 1877 – by monotypy. Neotropical. *Cerorrhineta* KIRBY, 1878, Zool. Rec., 15 (Insecta): 227, subs. inc. spell.

*Phyllacteritis* MEYRICK, 1922, Exotic Microlepid., 2: 499. Type-sp.: *Phyllacteritis dioptrica* MEYRICK, 1922 = *Hypena idaeusalis* WALKER, 1859 – by monotypy.

Costal fold long. Venation: In forewing  $R_4$ - $R_5$  long stalked, usually to 2/3, remaining veins separate,  $M$ -stem distinct, chorda probably atrophied; in hindwing  $R_s$ - $M_1$  stalked at least to 1/3, at discal cell distance  $M_2$ - $M_3$  twice larger than between veins  $R_3$  and  $M_1$ .

Male genitalia (Figs 115, 116): Uncus well sclerotized, simple, rather slender; socius large, with broad, weakly sclerotized, scaled and hairy dorso-median part, and distinctly sclerotized ventral portion; subscaphium connected with tegumen by means of slender sclerotic bands. Vinculum broad, rather weakly sclerotized ventrally. Valva elongate, rounded distally; disc with minute folds, hairy, scaled; costa well developed, long; sacculus simple, variably long; pulvinus broad fusing with transtilla; this last provided with median spinose area, expanding dorso-medially. Aedeagus simple with coecum penis and caulis small.

Female genitalia (Fig. 172): Papilla analis fairly broad, with weakly differentiated anterior portion; apophyses slender, fairly long. Sterigma concave medially, with lateral parts more or less elongate, and membranous anteostial portion; colliculum small, marked with inner sclerite; ductus bursae moderately short; ductus seminalis dorsal, extending from posterior half of this last; signum plate-shaped, folded.

**E a r l y s t a g e s** and **b i o l o g y.** Larva described by MACKAY (1962), polyphagous (e.g. feeding on banana, azalea, pineapple, vanilla, solanum, various shrubs).

**D i s t r i b u t i o n.** Occurring in the New World only; 14 species are known from this subregion, over 20 are Neotropical; a few species are common of the two areas.

### *Sparganopseustis* POWELL & LAMBERT

*Sparganopseustis* POWELL & LAMBERT, 1986, Pan-Pacif. Ent., 62(4): 376. Type-sp.: *Sparganopseustis martinana* POWELL, 1986 – by orig. design.

Ocelli well developed or strongly reduced. Venation: In forewing  $R_4$ - $R_5$  stalked or separate,  $CuP$  also varying, often a trace,  $M$ -stem present, cubital pecten and costal fold in male absent; in hindwing  $Sc$  separate from  $Sc+R_1$ , this former stalked with  $M_1$ ,  $M_3$ - $CuA_1$  short stalked or connate. Abdominal pits on second segment, if developed. Sexual dimorphism distinct expressed in size and coloration; male labial palpus with scale tuft and coremata between abdominal terga two and three, or modified scales of upper surface of hindwing.

Male genitalia (Figs 117, 118): Uncus slender, more or less expanding terminally; distal parts of socii coalesced, proximal parts broadening, bristled terminally; vinculum well sclerotized. Valva more or less broad; costa well developed; sacculus often with free termination. Juxta small; transtilla, a transverse band usually expanding medially, with thorns. Aedeagus simple; cornuti typical of the tribe.

Female genitalia (Fig. 173): Papilla analis broad, flat, proximal portion weakly differentiated; apophyses slender, moderate. Sterigma rather large, broad, with rounded proximal corners, weakly sclerotized near ostium; colliculum short, with inner sclerite; ductus bursae expanding towards corpus bursae, this last armed with large, folded sclerite in distal half of corpus, at base of a small, often rudimentary pouch; ductus seminalis just before colliculum.

Early stages and biology not described. Food plants unknown.

Distribution. Known from the U.S.A.: Arizona to Peru. Only the type-species is Nearctic, remaining 11 described species are tropical.

### *Sparganothina* POWELL

*Sparganothina* POWELL, 1986, Pan-Pacif. Ent., **62**(4): 380. Type-sp.: *Sparganothis xanthista* WALSINGHAM, 1913 – by orig. design.

Ocellus in male rudimentary or absent. Venation: In forewing all veins separate, median stem and  $CuA_1$  absent; in hindwing  $Rs - M_1$  short stalked, other veins separate; cubital hair pecten absent. No costal fold; dorsal pits absent. Sexual dimorphism slight; female somewhat larger than male.

Male genitalia (Figs 124): Uncus slener, weakly expanding terminally; socius broad, weakly sclerotized, with extending distal parts; gnathos (after original description) is a weak transverse ridge dorsad to socii. Valva broad, slender beyond sacculus, this last broad, angulate, with small apical process; costa well developed; pulvinus rudimentary. Transtilla, a strongly sclerotized band with lateral and median spurs. Aedeagus simple with long coecum penis.

Female genitalia (Fig. 175): Papilla analis moderate, with rather weakly differentiated proximal part; apophyses slender. Sterigma a concave, scobinate plate extending in middle proximally; ductus bursae fairly short; corpus bursae with subterminal plate-shaped, semicircular sclerite.

Early stages and biology unknown.

Distribution. The two known species occur in Guerrero, Mexico. The data on two undescribed Mexican species mentioned (POWELL, 1986) from Sinaloa and Veracruz, and two South American taxa speak of a broad reparticion of the genus in the Neotropical realm.

### *Sparganothis* HÜBNER

*Sparganothis* HÜBNER, [1825], Verz. bekannter Schmett.: 386. Type-sp.: [*Tortrix*] *luteolana* HÜBNER, [1796-99] = *Tortrix pilleriana* [DENIS & SCHIFFERMLLER], 1775 – by subs. design. (FERNALD, 1908, Genera Tortricidae: 14). – RAZOWSKI, 1987: 203, redescription.

This genus is widely distributed in the New World; in the Nearctic there are 35 described species, in Neotropic – 11. The Palearctic fauna is rather poor as comprising only five species.

### *Sparganothoides* LAMBERT & POWELL

*Sparganothoides* LAMBERT & POWELL, 1986, Pan-Pacif. Ent., **62**(4): 375. Type-sp.: *Sparganothis hydeana* KLOTS, 1936 – by orig. design.

Antenna with large setulae in male; ocellus well developed. Venation: In forewing all veins separate,  $M$ -stem rudimentary, terminating between first two median veins,  $CuP$  present; in hindwing  $SC+R_1 - Rs$  approaching to one another,  $Rs-M_1$  variable, adjacent, connate or short-stalked,  $M_3-CuA_1$  connate. Costal fold in some species developed, cubital hair pecten atrophying in male, developed in female. Sexual dimorphism weak (costal fold, long antennal setulae in male).



Male genitalia (Fig. 119): Uncus slender, often expanding terminally, or forked; socius with well developed ventral part often expanding in distal portion. Transtilla, a finely spined band. Valva broad, costa and sacculus well developed and sclerotized. Aedeagus simple.

Female genitalia (Fig. 174): Papilla analis moderate, with anterior part weakly differentiated. Sterigma well sclerotized dorsally and anteriorly to ostium, without any proximal processes; ductus bursae rather short, broadening towards corpus bursae, this last scobinate, with band-shaped, straight signum.

E a r l y s t a g e s a n d b i o l o g y unknown.

D i s t r i b u t i o n. The New World only: From Arizona, U.S.A. to Costa Rica. Apart from ca 15 described species POWELL (1986) announces several further taxa.

### *Synnoma* WALSINGHAM

*Synnoma* WALSINGHAM, 1879, Illustr. Lepid. Heterocera Br. Mus., 4: 24. Type-sp.: *Synnoma lynosyrana* WALSINGHAM, 1879 – by orig. design.

Male antenna strongly pectinate, female antenna simple, filiform. Venation as in two following genera. Sexual dimorphism distinct, seen also in the shape of wings and coloration; females flightless, with very large abdomen. Vestiture dense; forewing with groups of appressed scales.

Male genitalia (Figs 120,121): Uncus large, tapering terminad, with a few weak hairs at apex; socius very large, with weakly sclerotized distal and median parts and well sclerotized, long ventral portions bristled distally; hairs and three types of scales on weakly sclerotized areas; vinculum strong, sclerotic, broad medially. Valva simple, with well developed costa, sacculus simple, short, pulvinus well developed, hairy and scaled. Transtilla broad, with large area of strong thorns; juxta rather short, broad. Aedeagus small, with short coecum penis and caulis; cornuti not realised.

Female genitalia (Fig. 176): Papilla analis broad, with small proximal portion; apophyses long, thick. Sterigma concave medially, with distinct proximal corners; ventro-lateral edges well sclerotized; cup-shaped part of sterigma broad, partially membranous; colliculum well developed, sub-membranous; ductus bursae broad; ductus seminalis originating in colliculum, dorsally; signum in examined specimens absent (however, figured by POWELL, 1985).

E a r l y s t a g e s a n d b i o l o g y described by POWELL (1976), the larva also by MACKAY (1962). Host-plants are various composites but mainly *Chrysothamnus*, *Gutierrezia* and *Haplopalpus*.

D i s t r i b u t i o n. A monotypical genus distributed in Western States from Oregon and Montana to California and Texas.

### *Synalocha* POWELL

*Synalocha* POWELL, 1985, J. Res. Lepid., 24(1): 62, figs 2 (antenna). Type-sp.: *Synalocha gutierreziae* POWELL, 1985 – by orig. Design.

Antenna of male serrate, with long setae, in female simple, with very small setulae; dorsal scales in single band by segment; ocellus and chaetosema developed. Venation: In forewing two last radial veins stalked,  $R_4$  terminating in costa,  $R_5$  in termen, remaining veins separate from one the other, median stem weak, chorda absent; in hindwing  $Sc+R_1$  stalked with  $R_5$ ; cubital pecten developed; costal fold absent.

Male genitalia (Figs. 125,126): Uncus short, fairly broad, strongly sclerotized; distal part of socius hairy, not scaled, small, ovate, ventral part long, well sclerotized, spinulose, broadening terminad. Valva simple; pulvinus weak; sacculus simple, without free termination. Transtilla, a rather uniform, broad band with large area of dorsal thorns, folding dorsally and ventrally. Aedeagus simple, bent, flared distally; coecum penis short; several cornuti in vesica.

Female genitalia (Fig. 178): Ovipositor short; papilla analis rather slender, with short anterior portion; apophyses fairly short, moderately thick. Sterigma, a broad concave plate with emarginate anterior edge; colliculum large, with inner sclerite; ductus bursae broad; signum thorn-like, expanding, funnel-shaped towards surface of corpus bursae.

**E a r l y s t a g e s and b i o l o g y** described by POWELL (1985). Larvae feed on *Gutierrezia sarothrae* and *G. microcephalum*, *Asteridae*. Multivoltine.

**D i s t r i b u t i o n.** Known from the U.S.A.: Texas, New Mexico, Arizona.

**C o m m e n t s.** Originally compared with *Synnoma*; together with *Syllonoma* and *Niasoma* they form a small group with similar wing venation, the type of strigma and signum. All of them are probably bound with *Asteridae*.

### *Syllonoma* POWELL

*Syllonoma* POWELL, 1985, J. Res. Lepid., **24**(1): 65. Type-sp.: *Syllonoma longipalpana* POWELL, 1985 – by orig. design.

Male antenna serrate, long bristled, female antenna simple, with very small setulae. Maxillary palpus rudimentary; ocellus and chaetosema well developed. Forewing without costal fold, with rows of erect scales. Venation: In forewing last two radial veins long-stalked,  $R_5$  to termen beneath apex;  $M$ -stem distinct from third of discal cell, terminating near  $M_2$ ; in hindwing  $Sc+R$  stalked with  $Rs$ , crossvein missing;  $Rs - M_1$  and  $M_3 - CuA_1$  connate.

Male genitalia (Figs 122, 123): Uncus strongly curved, bifid, without ventral bristles; vinculum complete, slender; dorsal part of socius completely reduced (or represented by a few hairs), ventral arm well developed, bristled terminally. Valva broad basally, tapering and slightly sclerotized distally; costa delicate; sacculus well sclerotized forming a sclerotic ridge extending to costa postmedially; pulvinus rudimentary. Transtilla strongly expanding medially, not dentate. Aedeagus as in *Synalocha*; cornuti, according to the original description, two slender spines attached basally.

Female genitalia (Fig. 177): Papilla anallis slender, broadening anteriorly. Sterigma a shallow plate sclerotized proximally, with two submedian concavities; colliculum membranous, broader than ductus bursae; signum, a distinct thorn.

**E a r l y s t a g e s and b i o l o g y** unknown.

**D i s t r i b u t i o n.** U.S.A.: North Carolina and South Carolina.

**C o m m e n t s.** Externally similar to *Synalocha*, with similar venation, aedeagus and signum; the socii are more strongly reduced. The autapomorphies of *Syllonoma* are the bifid uncus and the peculiar sclerite of the disc of valva.

### *Niasoma* BUSCK

*Niasoma* BUSCK, 1940, S. Calif. Acad. Sci., **39**: 95. Type-sp.: *Platynota metallicana* WALSINGHAM, 1895 – by orig. design.

Male antenna bipectinate, female antenna simple.

Venation: In forewing  $R_5-R_3$  stalked, in hindwing  $Rs-M_1$  connate, other veins separate, cubital pecten present. Forewing surface with large tufts and rows of erect scales. Sexual dimorphism rather slight; two colour phases in both sexes occur (POWELL, 1985).

Male genitalia (Figs 127, 128): Tegumen broad with well developed distal portion bearing strong uncus and slender, rather short socii; vinculum simple, complete. Valva broad; costa long; sacculus slender, expanding in distal part, forming a spined free termination. Transtilla large, armed with two dorso-lateral processes, narrowing medially where a weak proximal fold developed; juxta simple. Aedeagus slender, curved, provided with row of thorns; coecum penis small; cornuti, several very slender capitate spines, with apical attachment points.

Female genitalia (Fig. 179): Papilla analis slender; apophyses fairly short. Sterigma large, extending laterally, with small proximal fold membranous medially, provided with a pair of submedian lobes; colliculum weakly sclerotized, ductus seminalis lateral; ductus bursae fairly long; signum thorn-like.

**E a r l y s t a g e s:** Larva described by POWELL (1985). **B i o l o g y:** Multivoltine species feeding on *Asteraceae*.

**D i s t r i b u t i o n.** Southern U.S.A.: Florida, Gulf States.

**C o m m e n t s.** Systematic position of *Niasoma* requires further study; POWELL (1964) erected for it a separate, monobasic tribe *Niasomini*, then (1985) included it in *Sparganothini* (to which it was originally assigned) mentioning that the larvae match the diagnosis by MACKAY (1962).

### *Ramapesiini*

In this, formally undescribed taxon, belongs one genus introduced to North America, mentioned below.

#### *Batodes* GUENÉE

*Batodes* GUENÉE, 1845, *Annls Soc. ent. Fr.*, (2)3: 174. Type-sp.: *Paedisca dumerillana* DUPONCHEL, 1836 = *Tortrix angustiorana* HAWORTH, [1811] – design. by monotypy. – RAZOWSKI, 1987: 210 (redescription).

This genus is known from the western part of the Palaearctic (three species). Its type-species was introduced to Canada.

### *Archipini*

*Archipini* have a world-wide repartition, but the majority of taxa occur in the Oriental region. In Palaearctic, the best explored area, there are only 25 genera of which 12 are known from the Oriental realm. Of 11 genera recorded from this subregion eight are Holarctic in distribution, *Cacoecimorpha* was introduced, and only one (*Cudonigera*) is endemic. Two genera, viz., *Clepsis* and *Argyrotaenia*, are widely distributed in the New World, as found in almost entire South America. *Ptycholoma* STEPHENS, 1829 mentioned from North America is exclusively a Palaearctic genus.

#### *Archips* HÜBNER

*Archips* HÜBNER, [1822], *Syst.-alphab. Verz.*: 58. Type-sp.: *Phalaena Tortrix xylosteana* LINNAEUS, 1758 – by subs. design. (OBRAZTSOV, 1954, *Tijdschr. Ent.*, 97(3): 175). Palaearctic. – RAZOWSKI, 1987: 221 (redescription, synonymy).

This large genus (over 80 species) is widely distributed in the Holarctic and Oriental realms. In the Nearctic there are 17 aboriginal species and one (the type-species) acclimatised in Canada. They are scarce in the southern part of the subregion as only seven species are known from the southern states of the U.S.A., from Florida to California, and none from Mexico. This genus was revised by me in 1977 (the species redescribed) and characterized in this series in 1987.

#### *Argyrotaenia* STEPHENS

*Argyrotaenia* STEPHENS, 1852, *List Specimens Br. Animals Br. Mus.*, 10: 67. Type-sp.: *Tortrix politana* HAWORTH, [1811] = *Tortrix pulchellana* HAWORTH, [1811] – by subs. design. (FERNALD, 1908, *Genera Tortricidae*: 36). Palaearctic. – RAZOWSKI, 1987: 220 (redescription, synonymy).

In Palaearctic *Argyrotaenia* is represented by only one species but in the New World it is abundant. There are 38 described Nearctic species and a similar number of the Neotropical species.



***Choristoneura* LEDERER**

*Choristoneura* LEDERER, 1859, Wien. Ent. Mschr., **3**: 242. Type-sp.: [*Tortrix*] *diversana* HÜBNER, [1817] – design. by monot. Palaearctic. – RAZOWSKI, 1987: 223 (redescription, synonymy).

The genus is Holarctic in distribution, with 23 Palaearctic and 17 Nearctic species. Two species are Holarctic. It does not extend much southward and only a few species were found in the transition zone to or in the Oriental realm (one in Yunnan, China and two in Kashmir). Monograph of *Choristoneura* is by RAZOWSKI, 1992.

***Cudonigera* POWELL & OBRAZTSOV**

*Cudonigera* POWELL & OBRAZTSOV, 1977, J. Lepidopterist's Soc., **31**(2): 119, figs 1 – 4 (head, venat., genit.). Type-sp.: *Tortrix houstonana* GROTE, 1873 – by orig. design.

Venation as in *Choristoneura*; male antenna not serrate.

Male genitalia (Figs 129, 130) as in mentioned genus but with long, slender terminal part of gnathos and slender process of median portion of transtilla.

Female genitalia (Fig. 180) as in mentioned genus, but eighth tergite very large, helmet-shaped, strongly sclerotized; outer edges of papillae anales directed ventrad; bases of apophyses posteriores connected with a basal sclerite of papillae.

E a r l y s t a g e s and b i o l o g y described by MACKAY (1962). Host is *Juniperus*.

D i s t r i b u t i o n. Western U.S.A.

C o m m e n t s. Evidently an off-shoot of the *Choristoneura*-branch of *Archipini*, with specialized ovipositor and processes of the gnathos and transtilla. Monobasic; the species is variable in coloration.

***Pandemis* HÜBNER**

*Pandemis* HÜBNER, [1825], Verz. bekannter Schmett.: 388. Type-sp.: [*Tortrix*] *textana* HÜBNER, [1796-99] = *Pandemis corylana* FABRICIUS, 1794 – by subs. design. (FERNALD, 1908, Genera Tortricidae: 15, 58). Palaearctic. – RAZOWSKI, 1987: 227 (redescription, synonymy).

*Archaeopandemis* MUTUURA, 1978, Can. Ent., **110**: 569. Type-sp.: *Archaeopandemis borealis* FREEMAN, 1965 – by orig. design.

The genus is known from the Holarctic and Oriental realm, however, there are some Afrotropical taxa which most probably will be included in this genus (in preparation). In Palaearctic occur 15 species, seven species are Nearctic and two are introduced to North America.

***Syndemis* HÜBNER**

*Syndemis* HÜBNER, [1825] Verz. bekannter Schmett.: 382. Type-sp.: [*Tortrix*] *musculana* HÜBNER, [1796-99] – by subs. design. (FERNALD, 1908, Genera Tortricidae: 11). Palaearctic. – RAZOWSKI, 1987: 228 (redescription).

Known of one Transpalaearctic species and one very close Nearctic species.

***Lozotaenia* STEPHENS**

*Lozotaenia* STEPHENS, 1829, Syst. Cat. Br. Insects, **2**: 169. Type-sp.: *Pylalis forsterana* FABRICIUS, 1781 – by subs. design. (WESTWOOD, 1840, Introd. Mod. Classif. Insects, **2**, Synopsis Genera Br. Insects: 107). Palearctic. – RAZOWSKI, 1987: 229 (redescription).

Holarctic genus with four Nearctic and ten closely related Palaearctic species. The American species are known in the northern part of the subregion, from Alaska to Wyoming and North Carolina, but analogically to the Old World species may be discovered more southwards in the mountains.

*Cacoecimorpha* OBRAZTSOV

*Cacoecimorpha* OBRAZTSOV, 1954, Tijdschr. Ent., **97**(3): 182. Type-sp.: [*Tortrix*] *pronubana* HÜBNER, [1976-99] – by orig. design. Palearctic. – RAZOWSKI, 1987: 230 (redescription).

Monotypical, Westpalearctic. Its species has been introduced in North America.

*Aphelia* HÜBNER

*Aphelia* HÜBNER, [1825], Verz. bekannter Schmett.: 390. Type-sp.: *Pyralis viburniana* FABRICIUS, 1787 – by subs. design. (FERNALD, 1908, Genera Tortricidae: 15,53). Palearctic. – RAZOWSKI, 1987: 230 (redescription, synonymy). *Xenotemna* POWELL, 1964, Univ. Calif. Publ. Ent., **32**: 145. Type-sp.: *Tortrix pallorana* ROBINSON, 1869 – by monotypy.

The genus is Holarctic (three subgenera and 21 species), represented in Nearctic subregion by two subgenera, viz., *Zelotherses* with one species, and *Aphelia* s.str. – with four species. It occurs from Alaska to Texas. The genus is revised by RAZOWSKI (1981).

*Clepsis* GUENÉE

*Clepsis* GUENÉE, 1845, Anns Soc. ent. Fr., (2) **3**: 168. Type-sp.: *Tortrix rusticana* TREITSCHKE, 1830 = 24 [*Tortrix*] *senecionana* HÜBNER, [1818-19] – by orig. design. Palearctic. – RAZOWSKI, 1987: 237 (redescription).

The genus is widely distributed in the Holarctic region and also is found in the Oriental and Neotropical regions. The majority of species (52) are Palearctic, in the Nearctic there are 23 species, and ones two are known of the two subregions. Two species are introduced from Europe. There are 19 Neotropical species belonging in a group described by CLEMENS, 1860, for *peritana* as *Smicrotes*. Of 34 known species of this group only six are Nearctic. Ten species were found in South America. Revision of the World fauna is in two papers: RAZOWSKI, 1979a, and 1979b.

*Adoxophyes* MEYRICK

*Adoxophyes* MEYRICK, 1881, Proc. Linn. Soc. N.S.W., **6**: 429. Type-sp.: *Adoxophyes heteroidana* MEYRICK, 1881 – design. by monot. Australian. – RAZOWSKI, 1987: 240 (redescription).

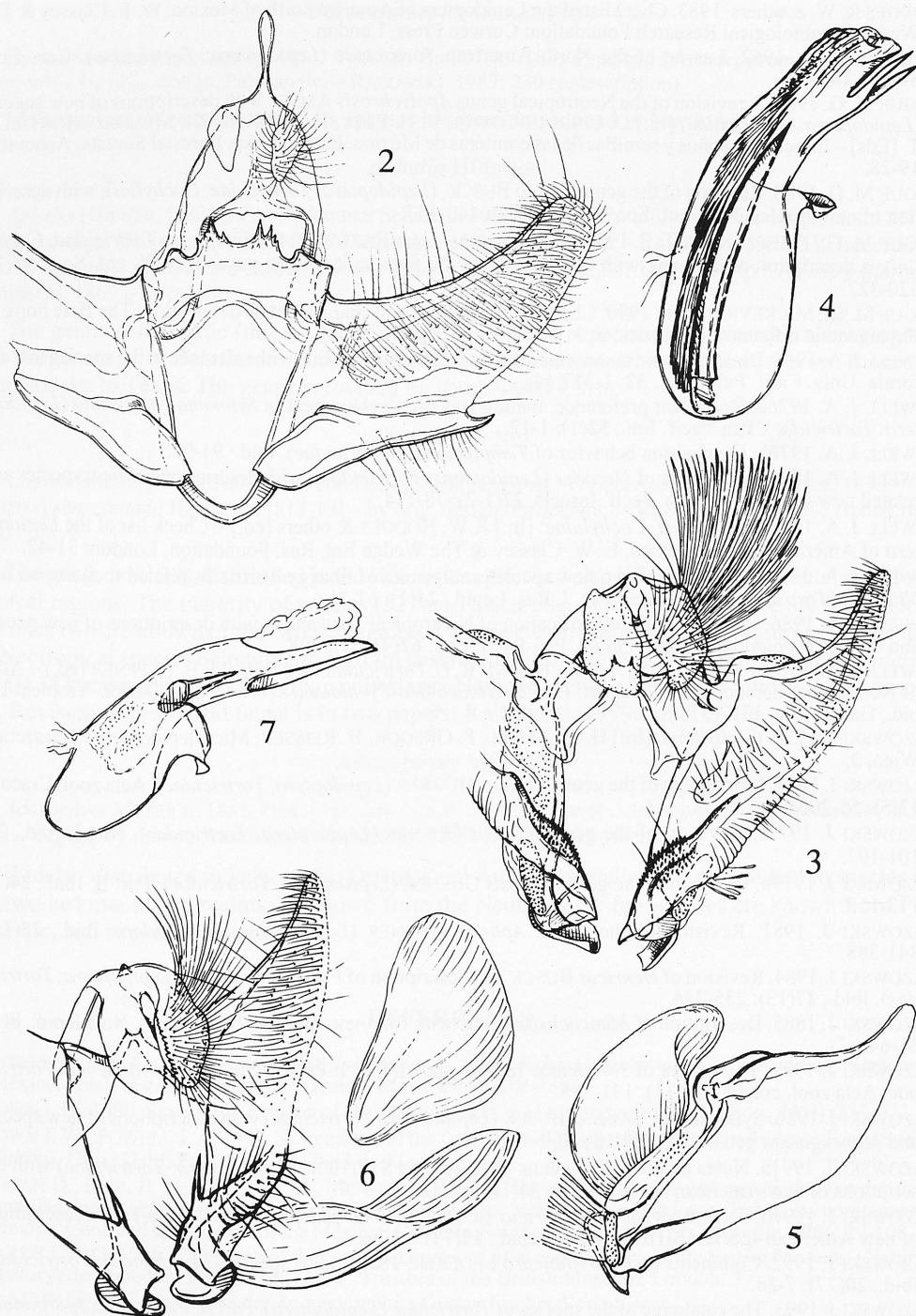
Widely distributed in Palearctic, Oriental and Australian realms, most abundant in species in the two last mentioned realms. Unknown from the Neotropic. A few species are known from Palearctic, and two are Nearctic.

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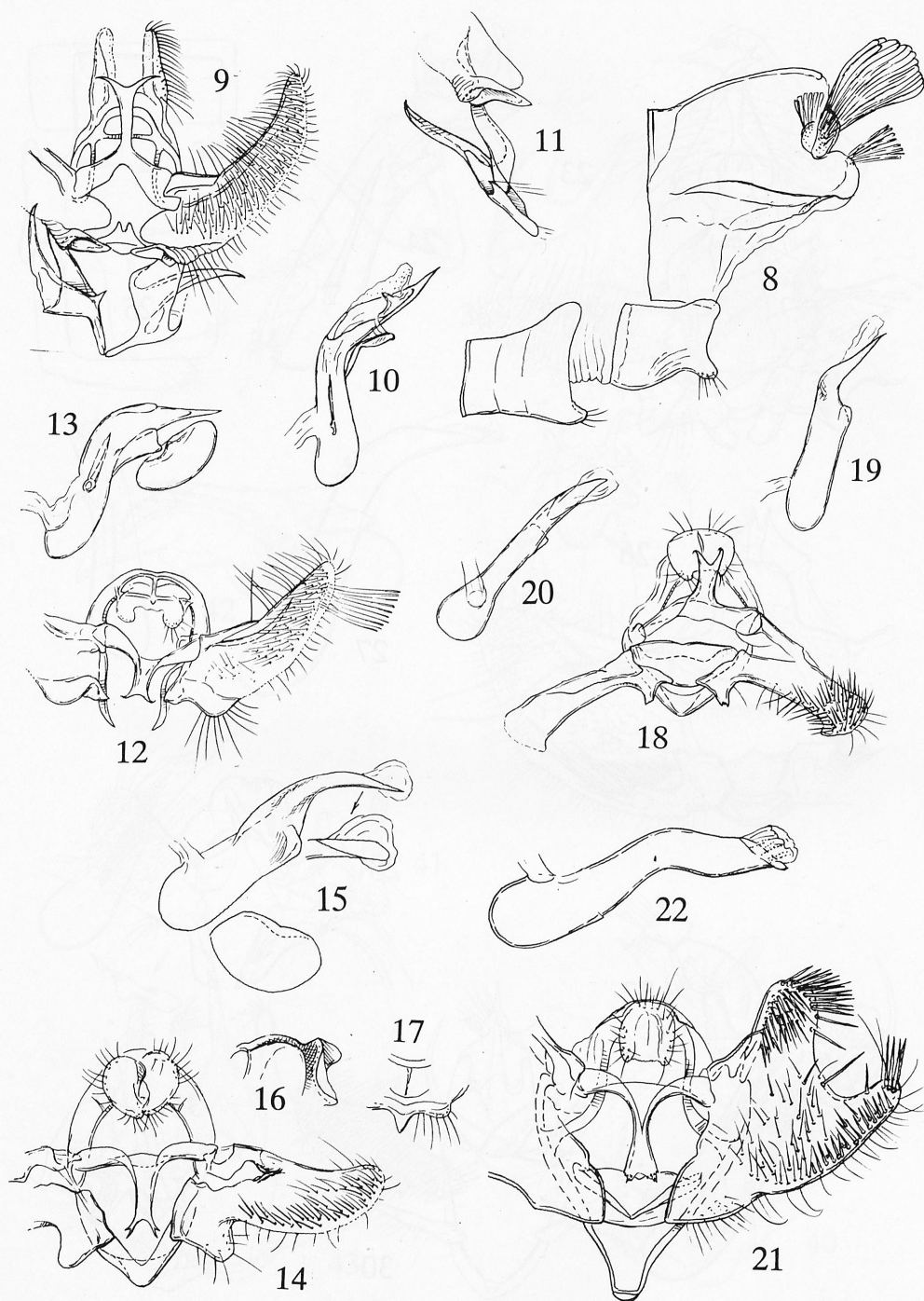
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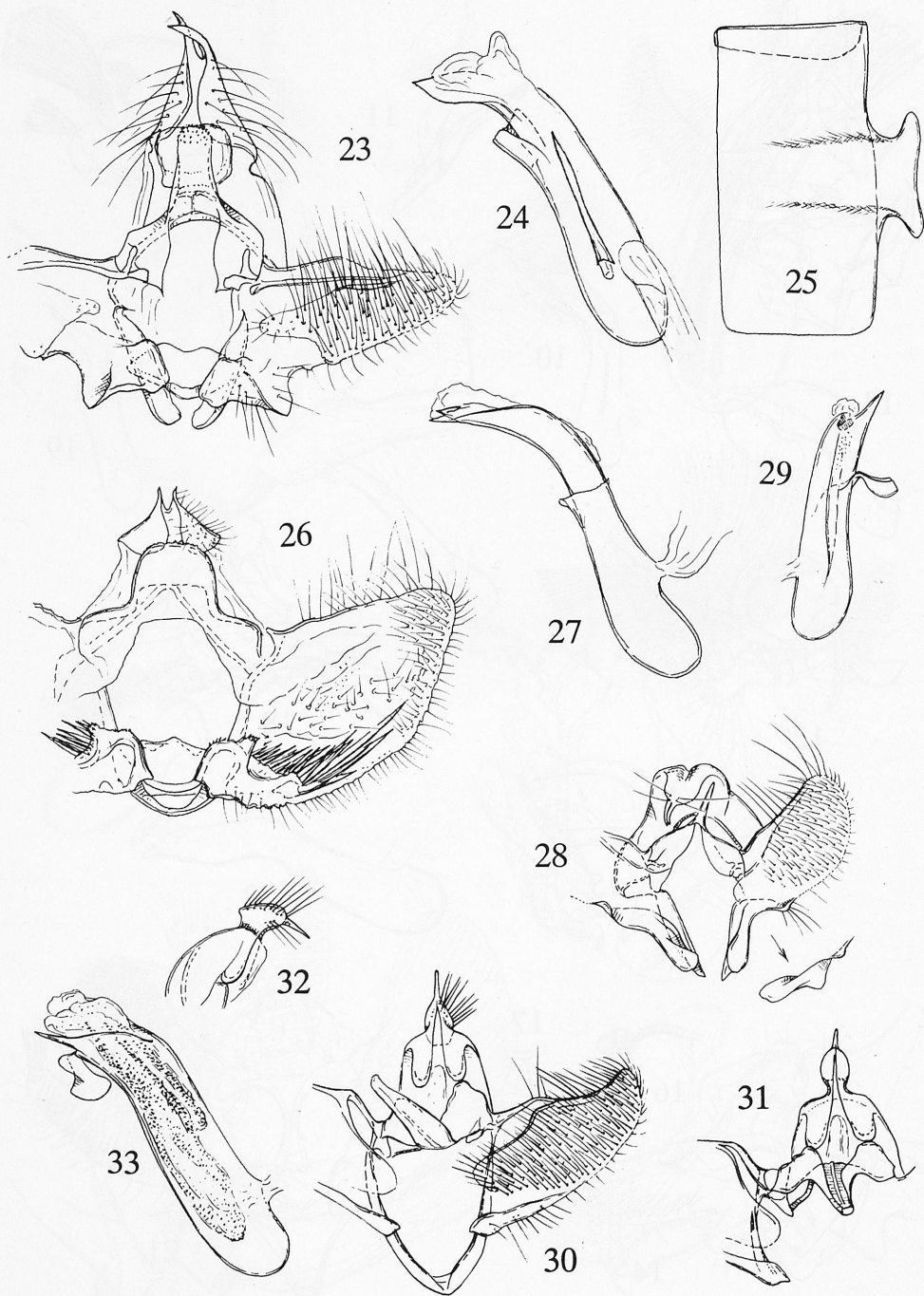




Figs 2-7. Male genitalia: 2 – *Phtheochroa* RAZOWSKI; 3-6 – *Henricus powelli* RAZOWSKI, Mexico: Nuevo Leon (5, scent organs and valva); 7 – *H. turbulus* (MEYRICK), Mexico: Chiapas.

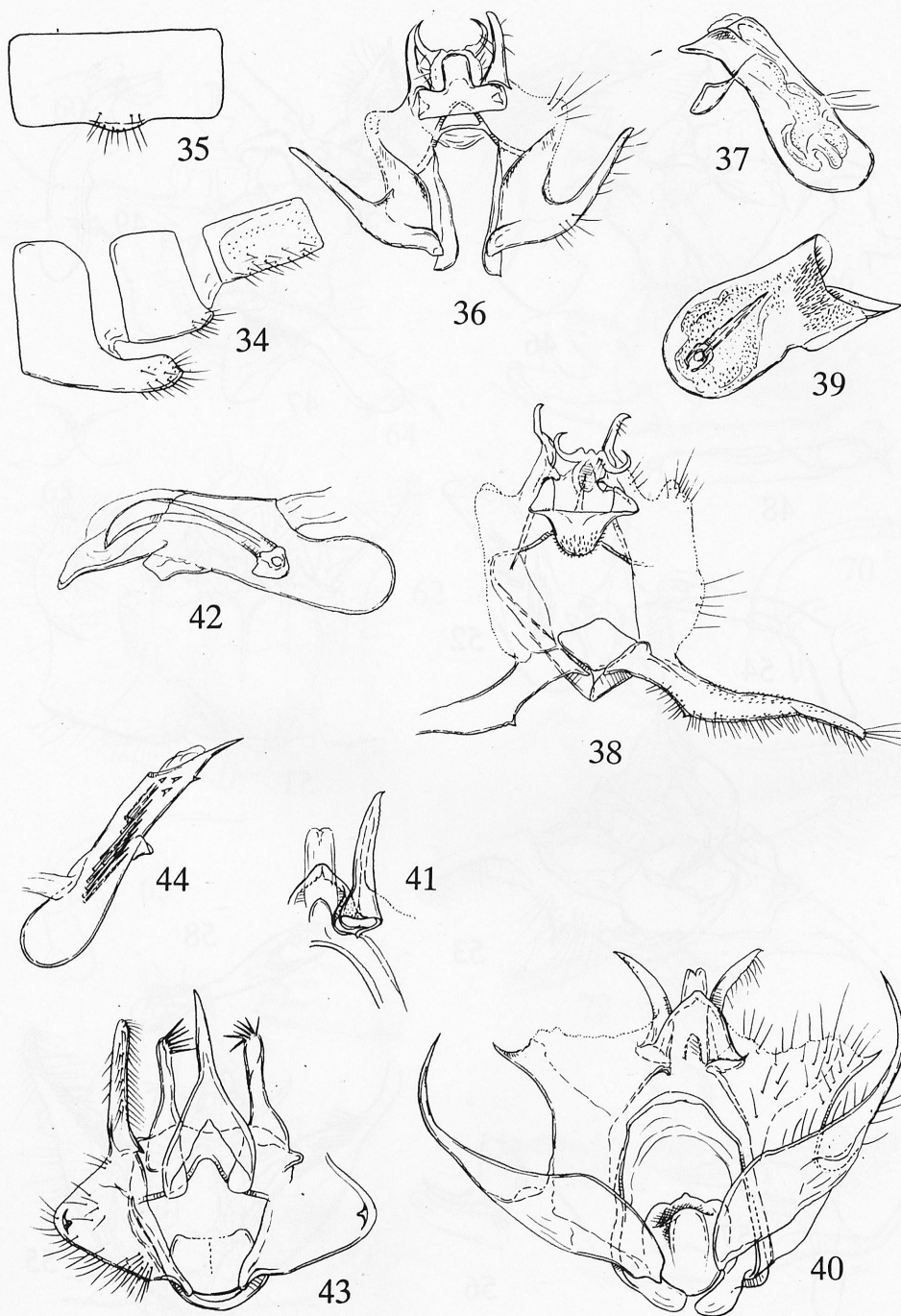


Figs 8-22. Male genitalia: 8 – *Henricus inspergatus* RAZOWSKI & BECKER, scent organs of end of abdomen, Mexico: Chiapas; 9-11 – *Saphenista livida* RAZOWSKI, Mexico: Durango; 12,13 – *Platphalonidia californica* RAZOWSKI, Mexico: Baja California Norte; 14-17 – *Spinipogon harmozones* RAZOWSKI, Mexico: Nuevo Leon; 18-20 – *S. ialtris* RAZOWSKI, Mexico: Veracruz; 21,22 – *S. veracruzanus* RAZOWSKI & BECKER, Mexico: Veracruz.

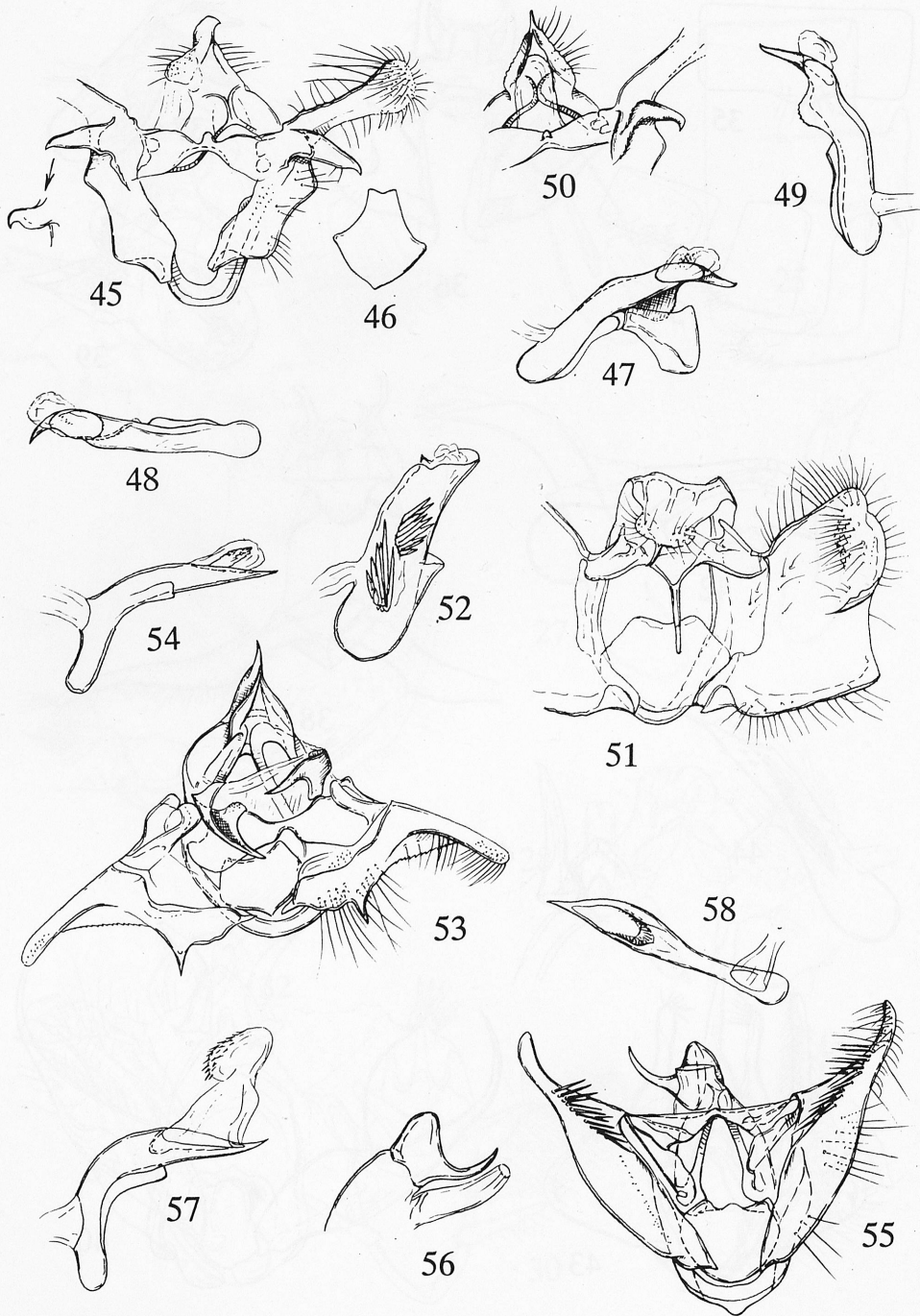


Figs 23-33. Male genitalia: 23,24 – *Mielkeana gelasima* RAZOWSKI & BECKER, Brazil: Paraná; 25 – *M. angysocia* RAZOWSKI & BECKER, Costa Rica; 26,27 – *M. perbella* RAZOWSKI, Mexico: Durango; 28,29 – *Rudenia paupercula* RAZOWSKI, Mexico: Baja California Norte; 30-33 – *Lorita scarificata* (MEYRICK), Mexico: Baja California Norte.

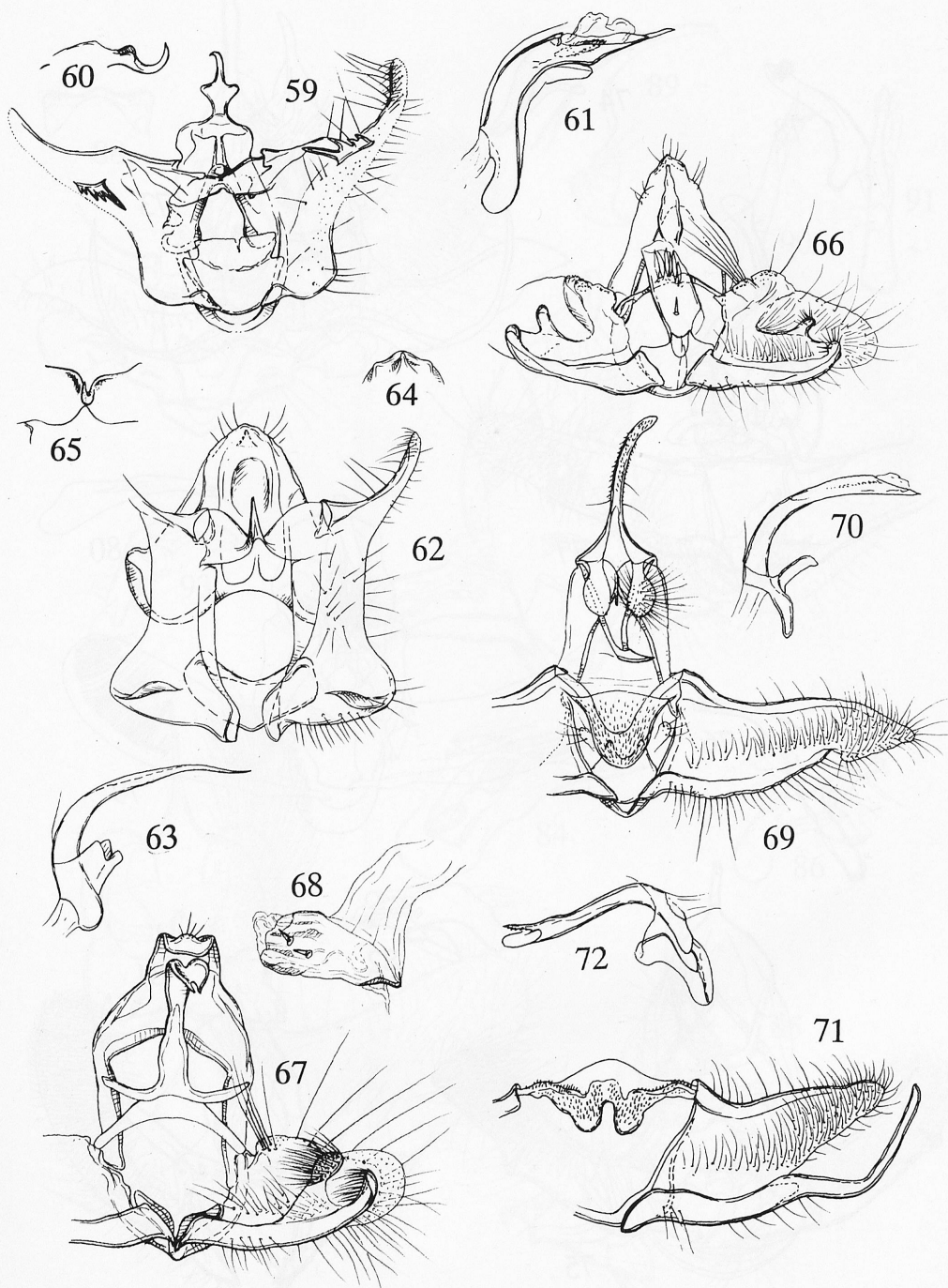




Figs 34-44. Male genitalia and scent organs: 34,35 – *Lorita scarificata* (MEYRICK), scent organs, Mexico: Baja California Norte; 36,37 – *Aethesoides hondurassica* RAZOWSKI, Honduras; 38,39 – *Ae. allodapa* RAZOWSKI, Mexico: Guerrero; 40-42 – *Lyncicochylis argentifusa* (WALSINGHAM), Mexico: Nayarit; 43,44 – *Cochylidichnium aemulanum* RAZOWSKI, Mexico: Guerrero.

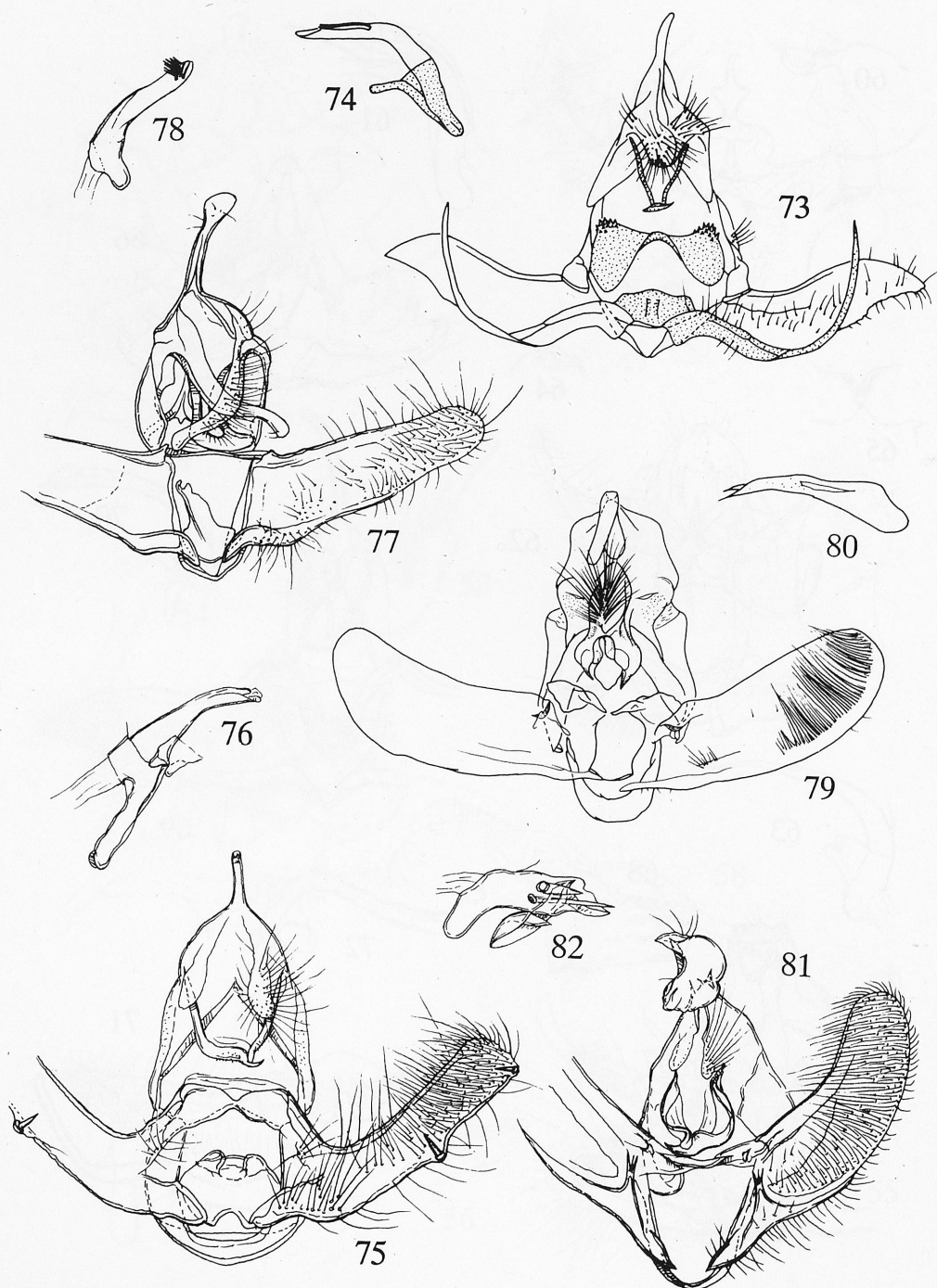


Figs 45-58. Male genitalia: 45-50 – *Revertuncaria spathula* RAZOWSKI, Mexico: Sonora; 51,52 – *Geitocochylis gustatoria* RAZOWSKI, Mexico: Durango; 53,54 – *Gryposclerona schidia* RAZOWSKI, Mexico: Nuevo Leon; 55-58 – *Monoceratuncus lugens* RAZOWSKI, Mexico: Puebla.

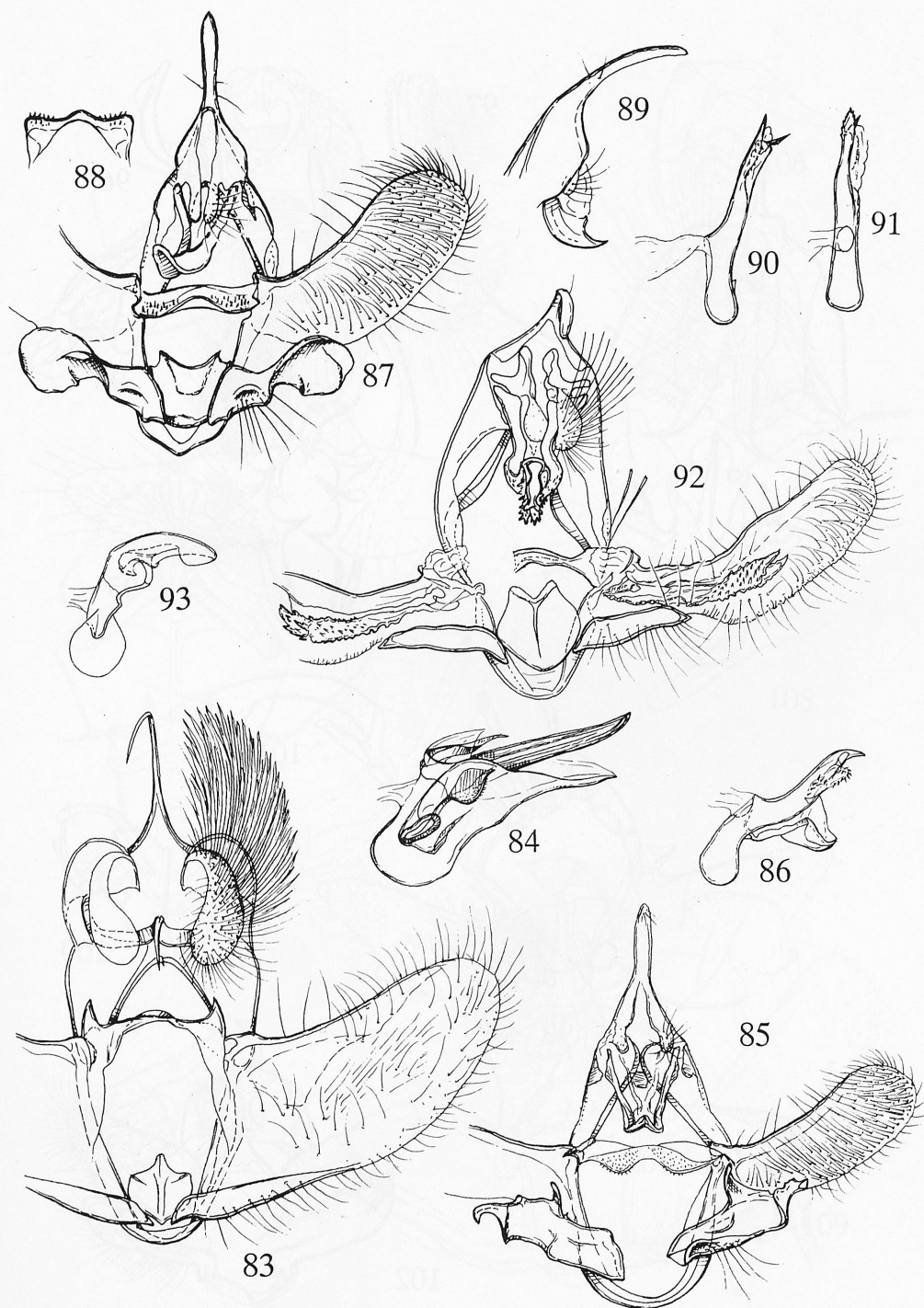


Figs 59-72. Male genitalia: 59-61 – *Monoceratuncus cristatus* RAZOWSKI & BECKER, Mexico: Veracruz; 62-65 – *Mimochylis planola* RAZOWSKI, Mexico: Baja California Norte; 66 – *Apotoforma rotundipennis* (WALSINGHAM), U.S.A.: Florida; 67, 68 – *A. ?cydna* RAZOWSKI, Mexico: Veracruz; 69, 70 – *Decodes fragarianus* (BUSCK), USA: California; 71, 72 – *D. horarianus* (WALSINGHAM), Canada: Ontario.

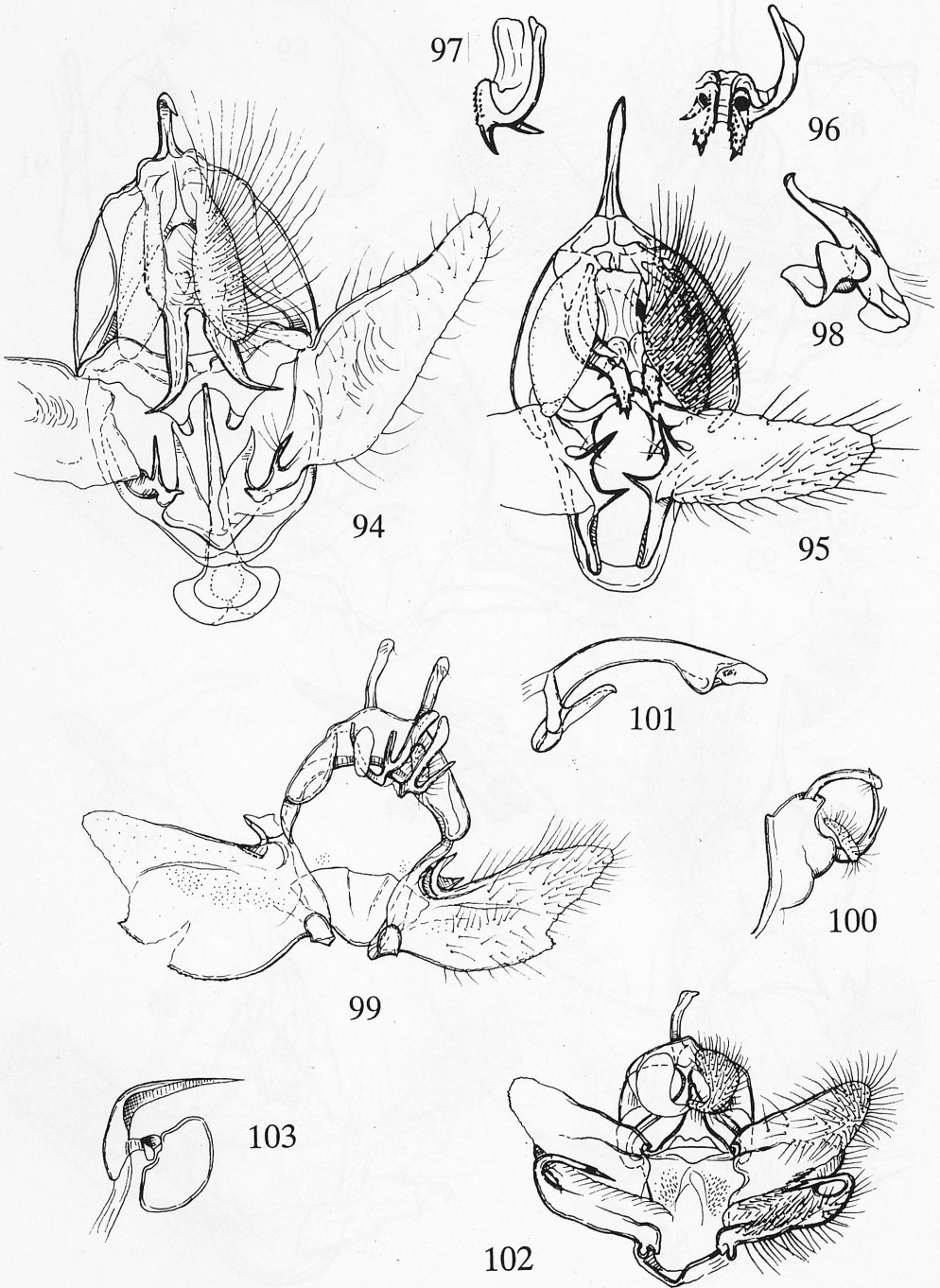




Figs 73-82. Male genitalia: 73,74 – *Decodina mazatlana* POWELL, after POWELL, 1980; 75,76 – *Apolychrosis synchysis* POGUE, Mexico: Chiapas; 77,78 – *Acroplectis haemanthes* MEYRICK, U.S.A.: Texas; 79,80 – *Quasieulia mcguffini* POWELL, after POWELL, 1986; 81,82 – *Apotomops wellingtonana* (KEARFOTT), Canada: British Columbia.

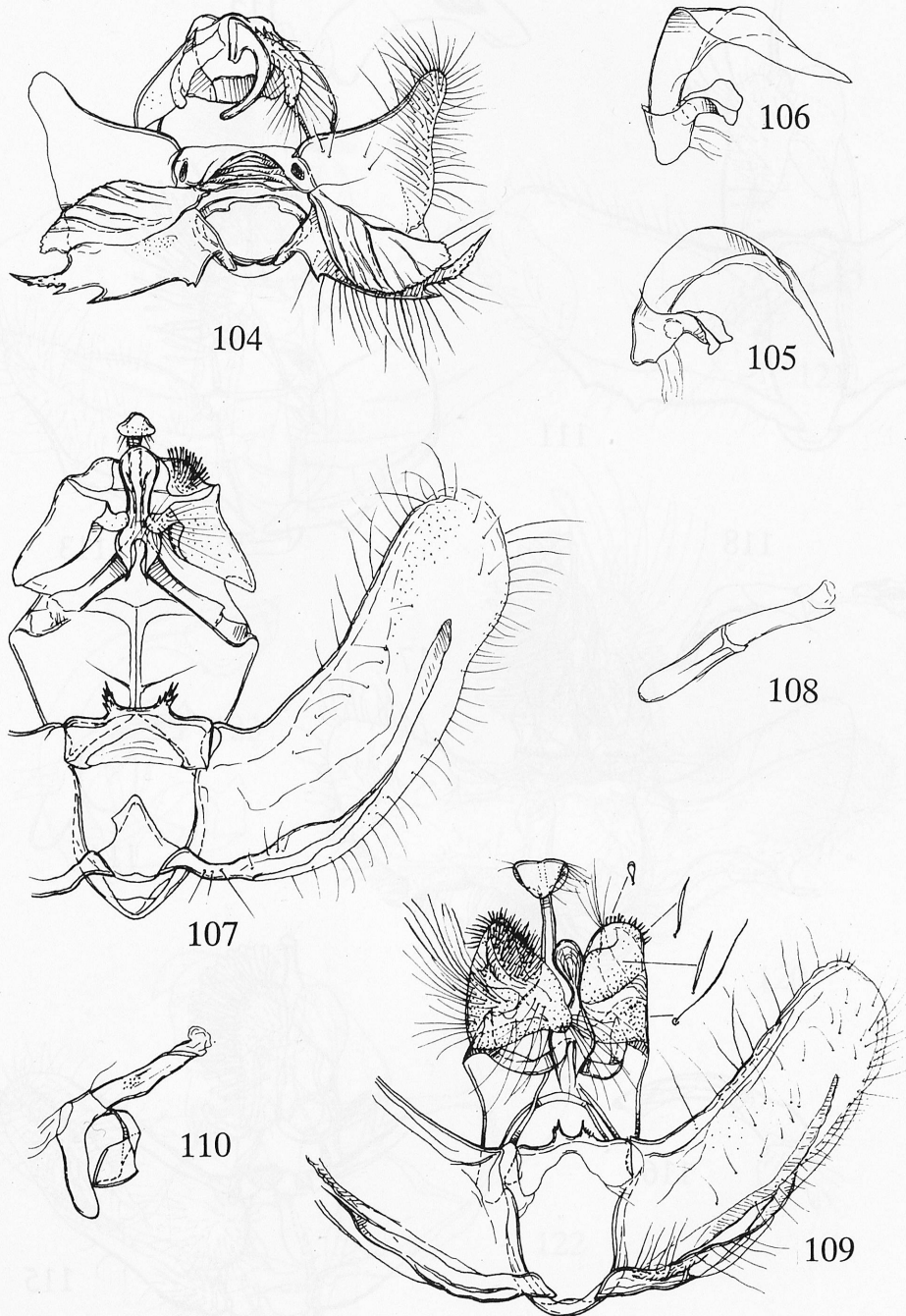


Figs 83-93. Male genitalia: 83,84 – *Paraptila infusoria* MEYRICK, Ecuador, type; 85,86 – *Anopina ednana* (KEARFOTT), Canada: Quebec; 87-91 – *Anopina triangulana* (KEARFOTT), U.S.A.: California; 92,93 – *Neoelia* sp. near *dorsimaculana* (WALSINGHAM), Mexico: Veracruz.

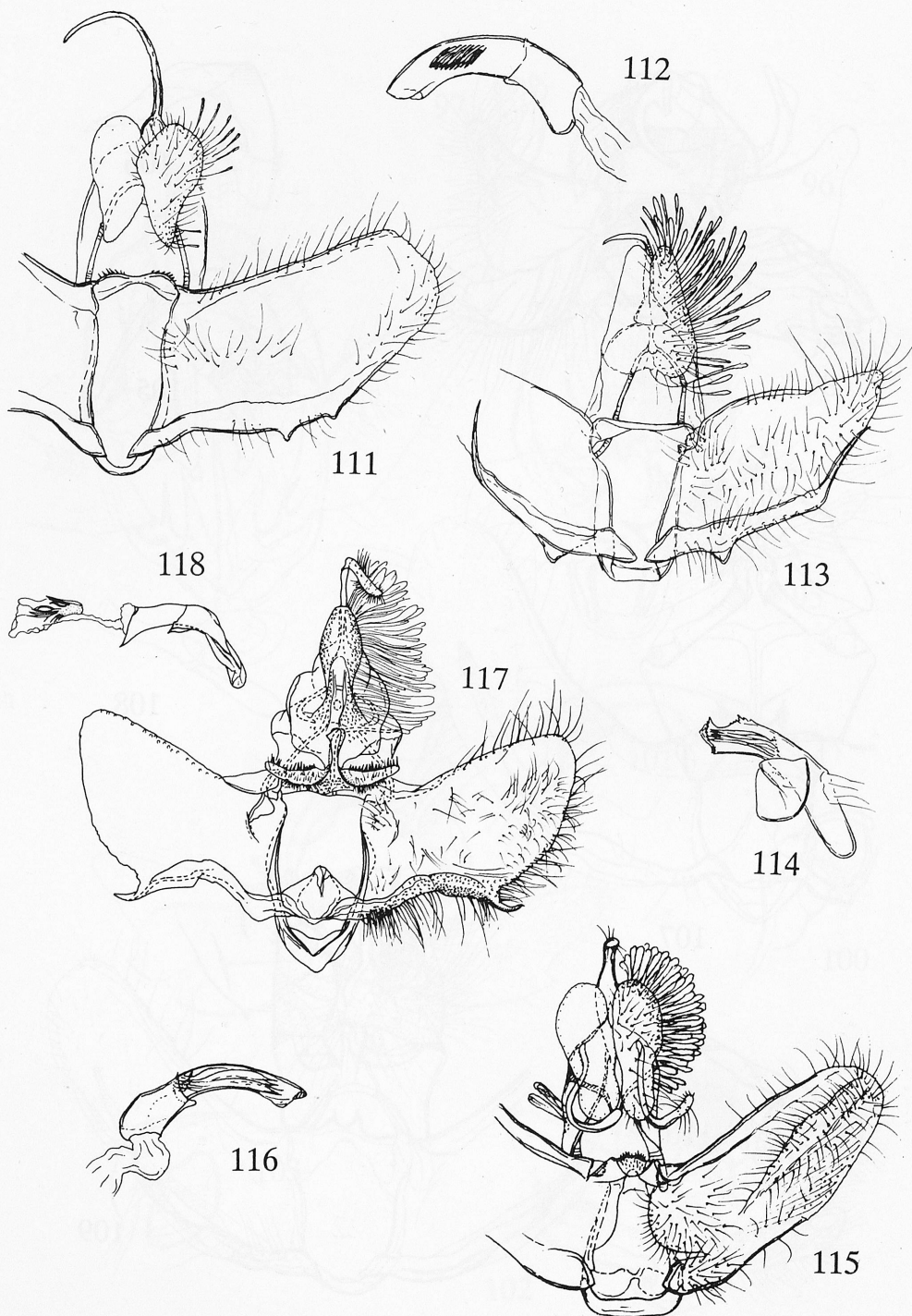


Figs 94-103. Male genitalia: 94 – *Dorithia crucifer* (WALSINGHAM), Guatemala; 95-98 – *Cuproxena auga* RAZOWSKI & BECKER, Brazil: Paraná; 99-101 – *Odonthalitus lacticus* RAZOWSKI, Mexico: Durango; 102, 103 – *Hyptiharpa hypostas* RAZOWSKI, Mexico: Sinaloa, after RAZOWSKI, 1991.

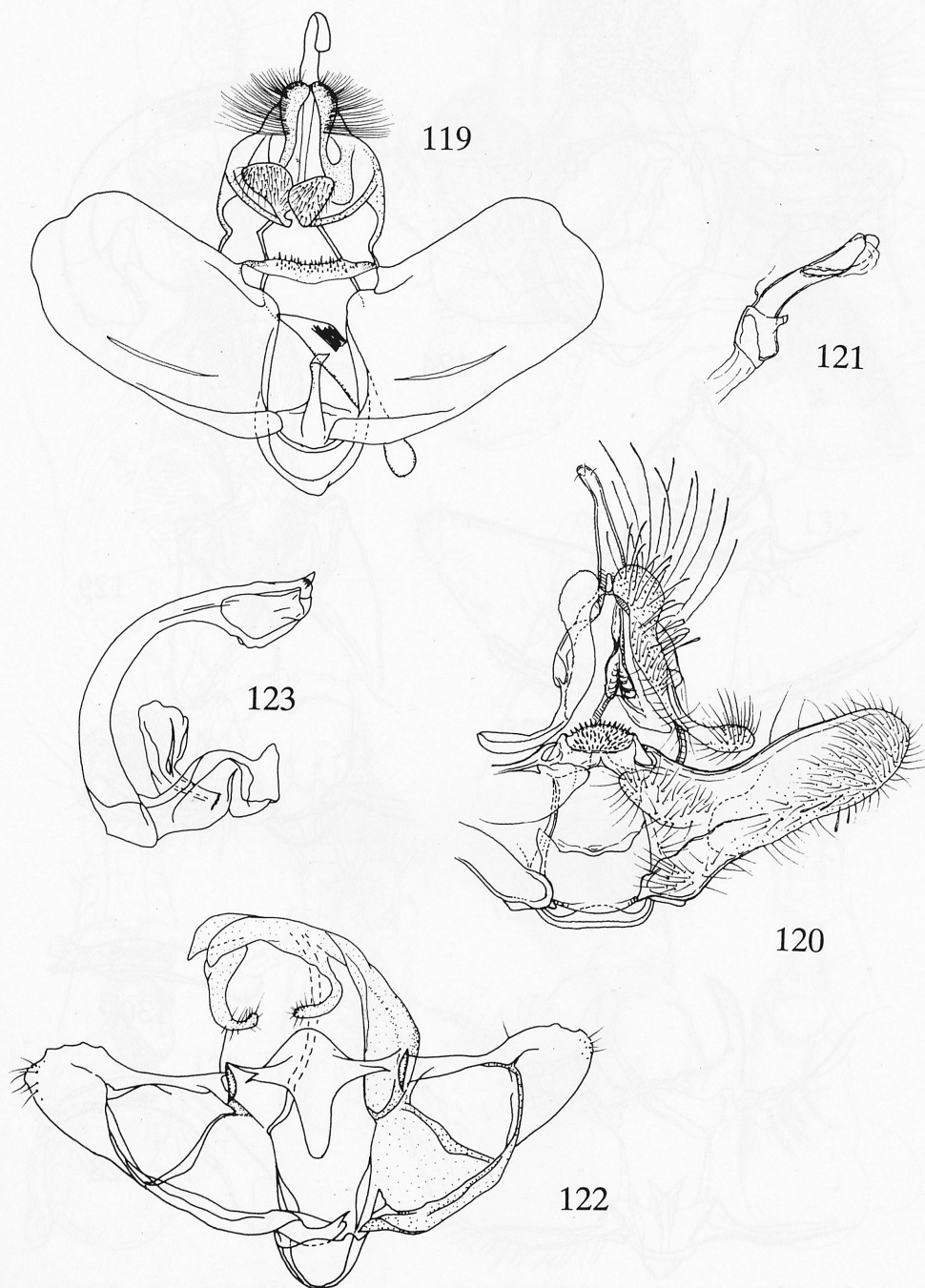




Figs 104-110. Male genitalia: 104-106 – *Hypenolobosa glechoma* RAZOWSKI, 1991, Mexico: Chihuahua, after RAZOWSKI, 1991; 107, 108 – *Templemania rhythmogramma* (MEYRICK), Mexico: Zacualpan; 109, 110 – *Tinacrusis sebasta* (WALSINGHAM), Mexico: Puebla.

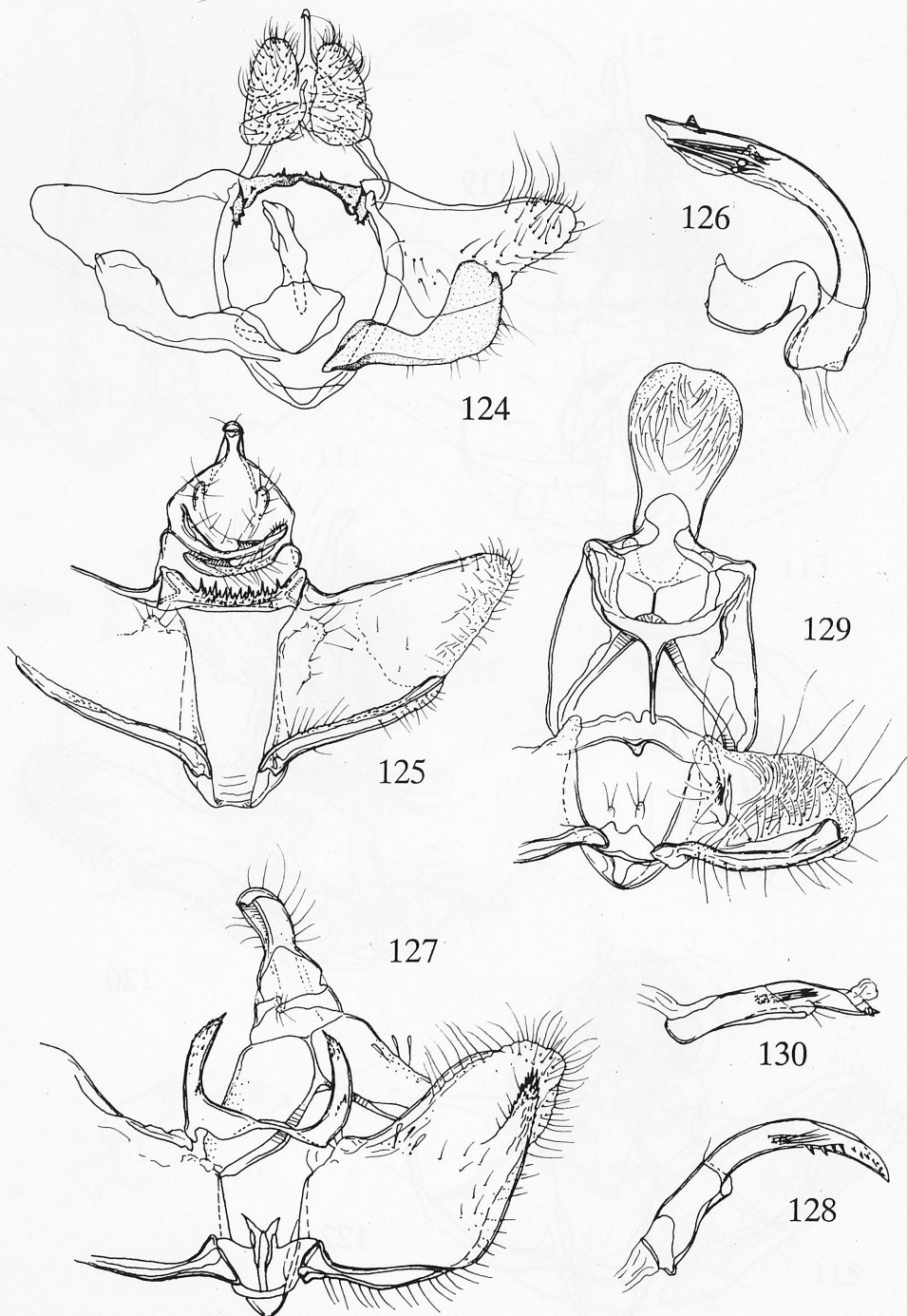


Figs 111-118. Male genitalia: 111,112 – *Amorbia concavana* (ZELLER), Panama; 113,114 – *Coelostathma discopunctana* CLEMENS, Canada: Toronto; 115,116 – *Platynota idaeusalis* (WALKER), Canada: British Columbia; 117,118 – *Sparganopseustis martinana* POWELL, Mexico: Durango, after POWELL, 1986.

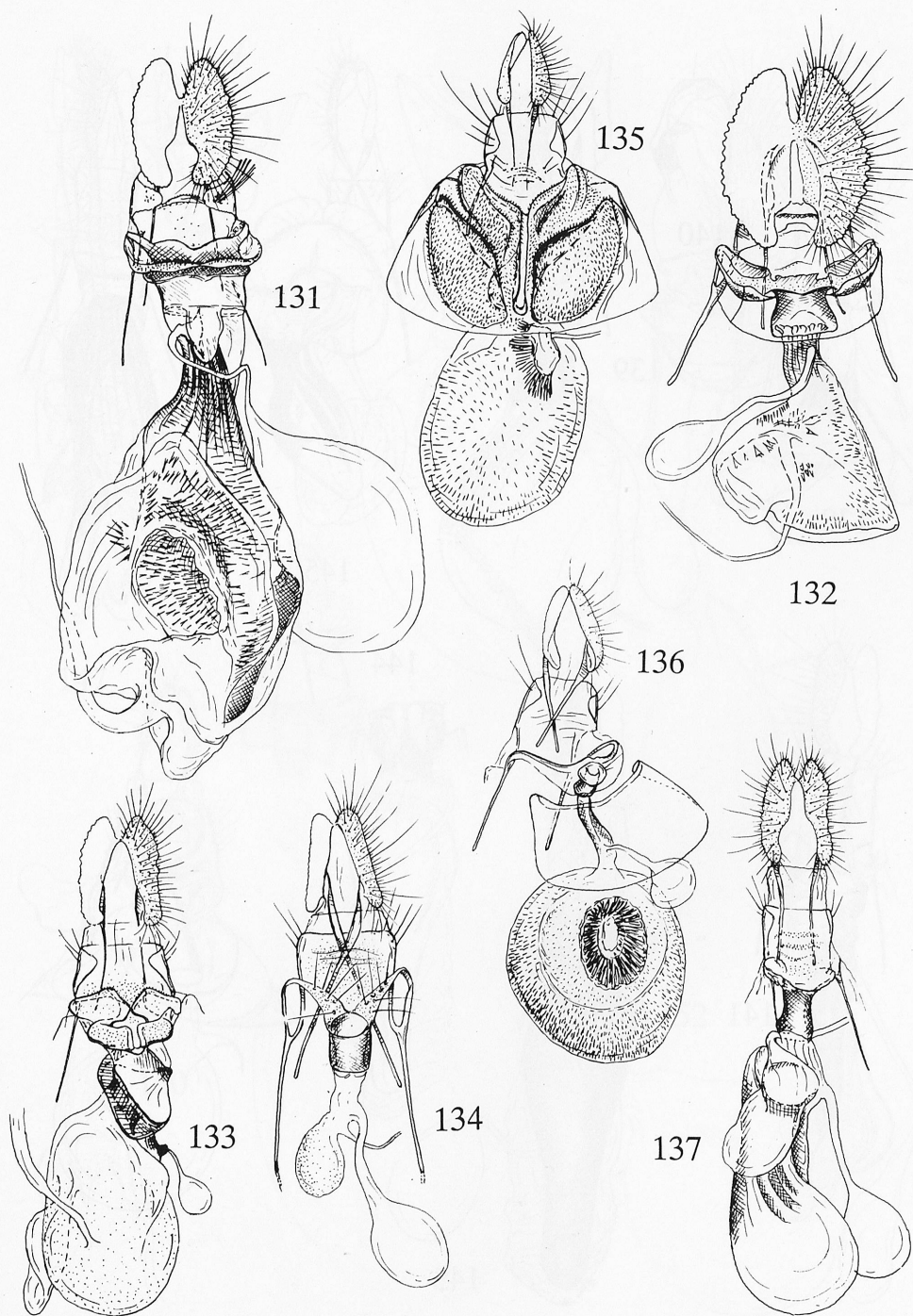


Figs 119-123. Male genitalia: 119 – *Sparganothoides hydeana* (KLOTS), U.S.A.: New Mexico, after KLOTS, 1936; 120, 121 – *Synnoma lynosyrana* WALSINGHAM, U.S.A.: Nevada; 122, 123 – *Syllonomoma longipalpana* POWELL, U.S.A.: South Carolina, after POWELL, 1985.

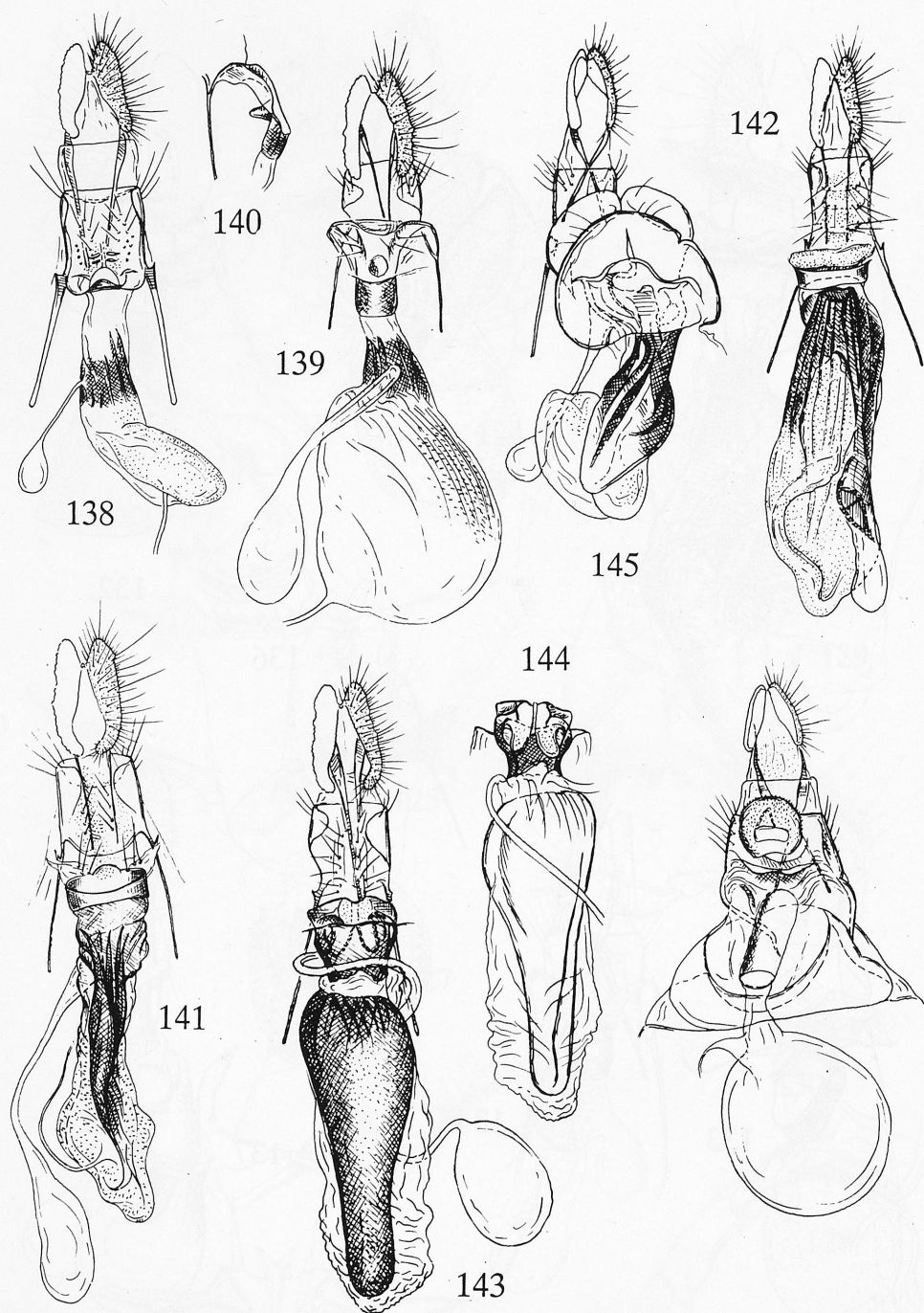




Figs 124-130. Male genitalia: 124 – *Sparganothina xanthista* (WALSINGHAM), Mexico: Guerrero, after POWELL, 1986; 125, 126 – *Synalocha gutierreziae* POWELL, U.S.A.: New Mexico; 127, 128 – *Niasoma metallica* (WALSINGHAM), U.S.A.: California; 129, 130 – *Cudonigera houstonana* (GROTE), U.S.A.: Texas.

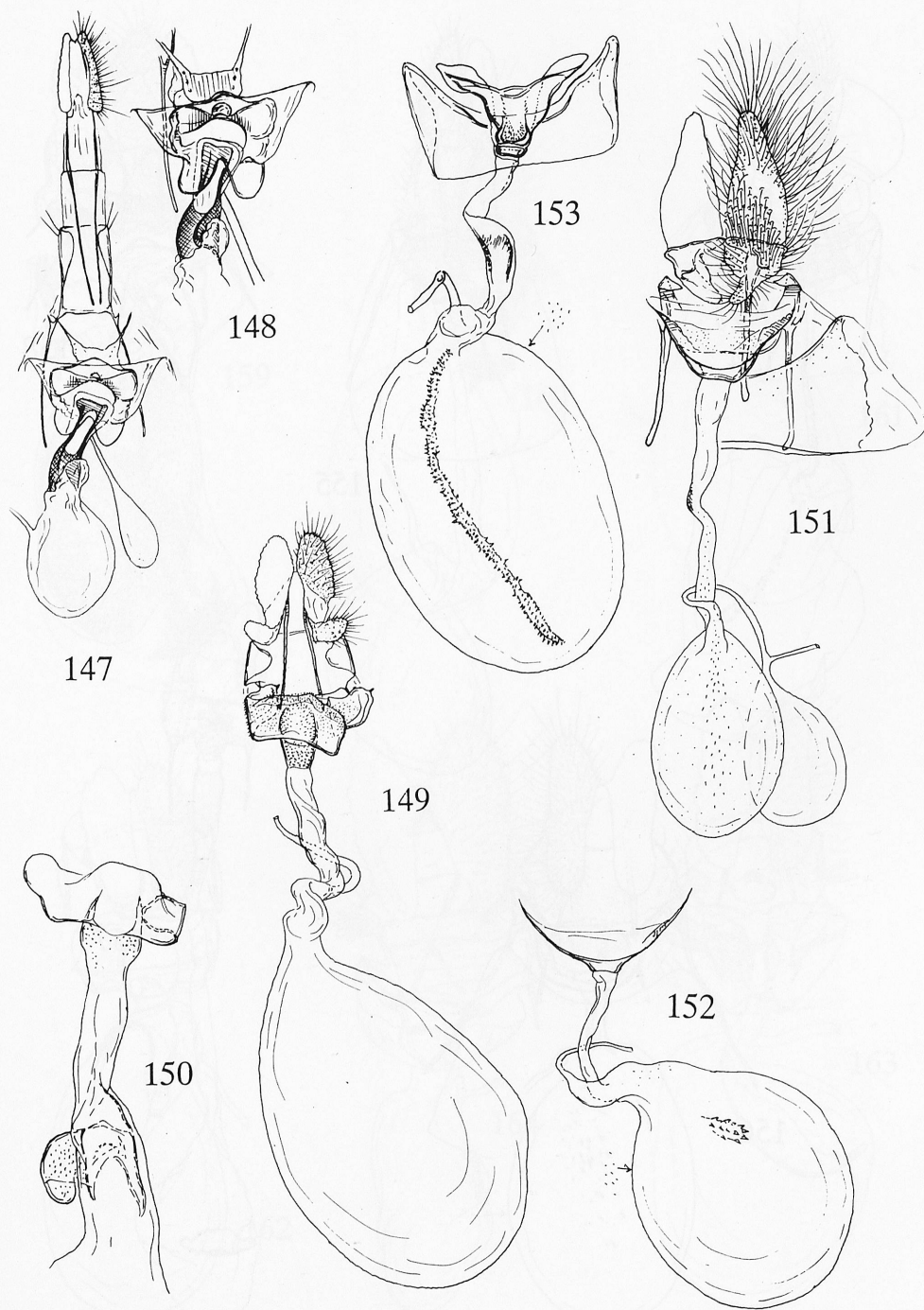


Figs 131-137. Female genitalia: 131 - *Henricus powelli* RAZOWSKI, Mexico: Nuevo Leon; 132 - *H. palimpsestus* RAZOWSKI & BECKER, Mexico: Veracruz; 133 - *Saphenista illimis* RAZOWSKI, Mexico: Sinaloa; 134 - *Platphalonidia californica* RAZOWSKI, Mexico: Baja California Norte; 135 - *Spinipogon harmozones* RAZOWSKI, Mexico: Nuevo Leon; 136 - *S. elaphroterus* RAZOWSKI & BECKER, Costa Rica; 137 - *Mielkeana gelasima* RAZOWSKI & BECKER, Brazil: Paraná.

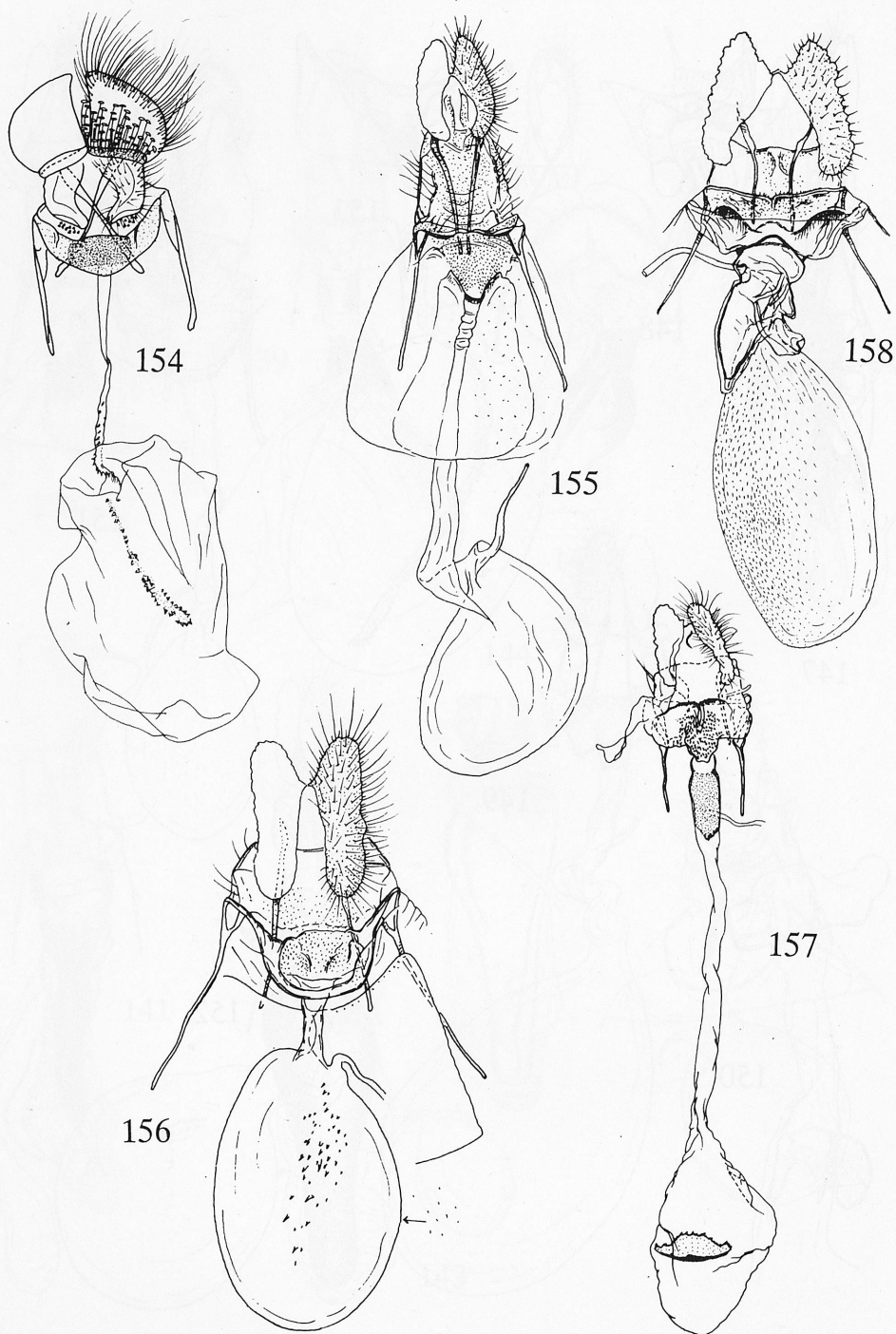


Figs 138-146. Female genitalia: 138 – *Rudenia paupercula* RAZOWSKI, Mexico: Baja California Norte; 139, 140 – *Lorita scarificata* (MEYRICK), Mexico: Durango; 141 – *Aethesoides hodurassica* RAZOWSKI, Honduras; 142 – *Ae. timia* RAZOWSKI & BECKER, Mexico: Veracruz; 143, 144 – *Lincicochylis argentifusa* (WALSINGHAM), Mexico: Nayarit; 145 – *Geitocochylis gustatoria* RAZOWSKI, Mexico: Durango; 146 – *Monoceratuncus tantulus* RAZOWSKI & BECKER, Mexico: Guerrero.

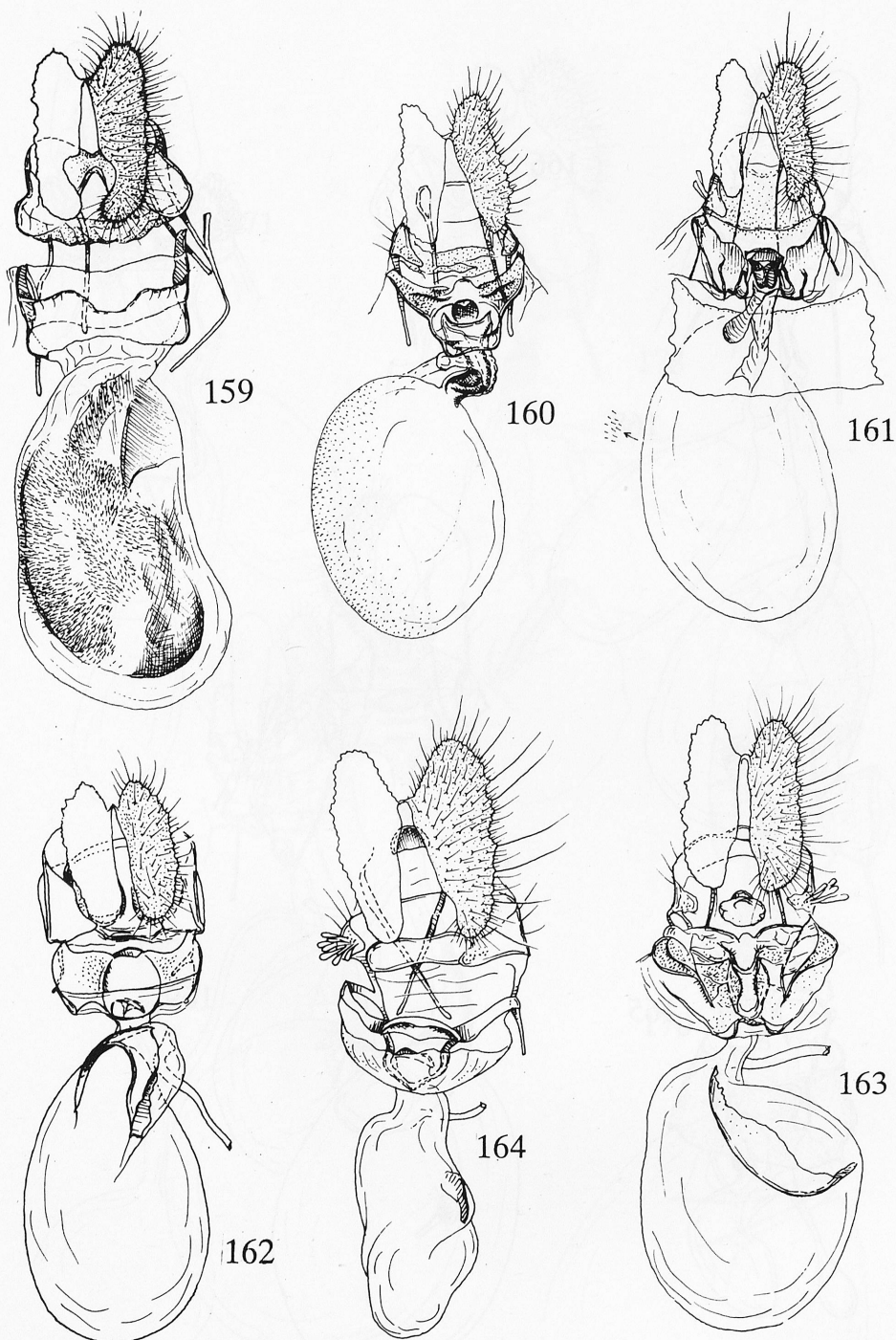




Figs 147-153. Female genitalia: 147, 148 – *Mimcochylis plagiusa* RAZOWSKI, Mexico: Durango; 149 – *Apotoforma rotundipennis* (WALSINGHAM), Jamaica; 150 – *A. jamaicana* RAZOWSKI, Jamaica; 151 – *Decodes fragarianus* (BUSCK), U.S.A.: California; 152 – *D. basiplaganus* (WALSINGHAM), U.S.A.: California; 153 – *D. macswaini* POWELL, Mexico: Nuevo Leon.

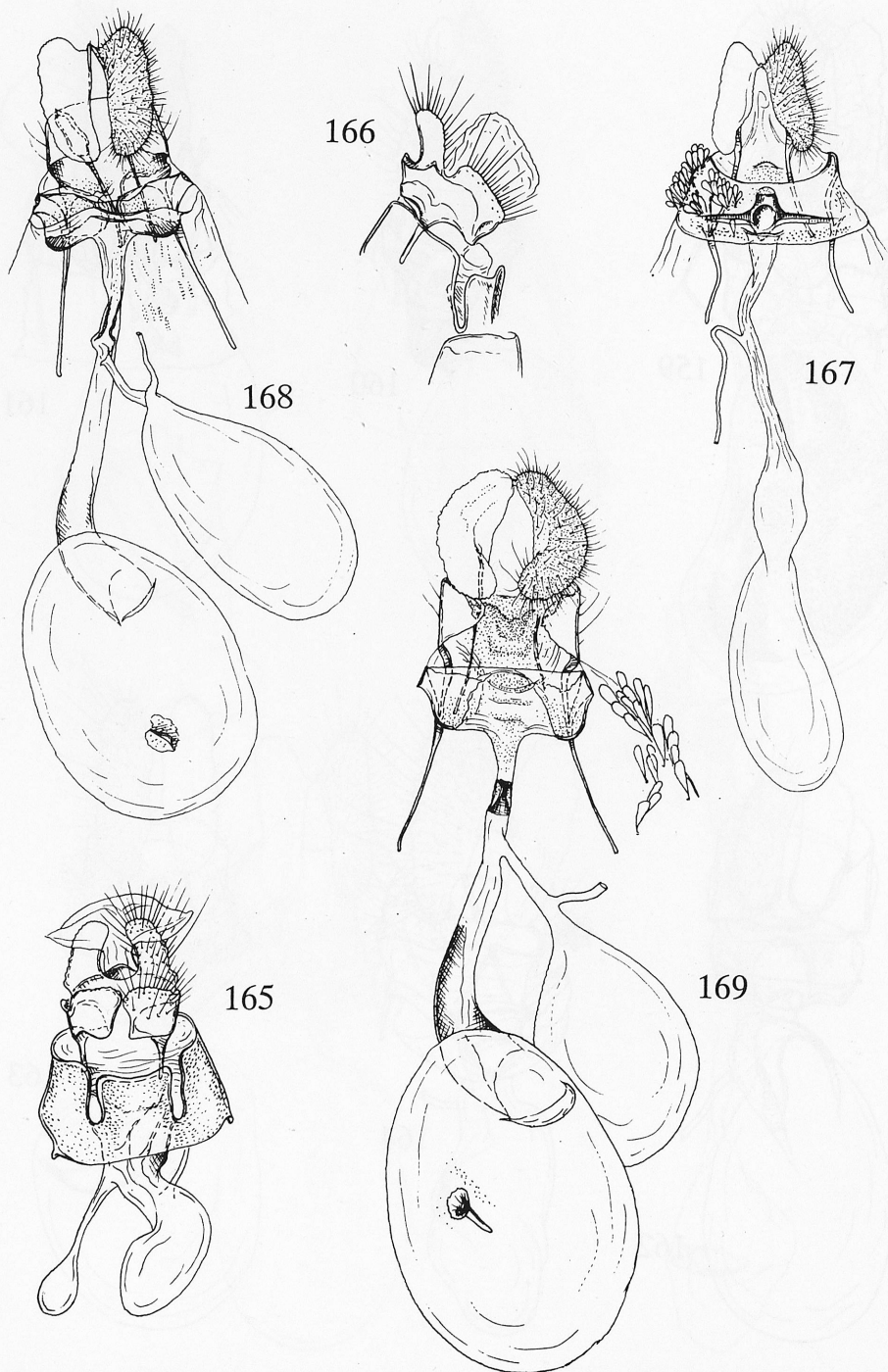


Figs 154-158. Female genitalia: 154 – *Decodina mazatlana* POWELL, Mexico: Sinaloa, after POWELL, 1980; 155 – *Apolychrosis synchysis* POGUE, Mexico: Chihuahua, paratype; 156 – *Acroplectis haemanthes* MEYRICK, U.S.A.: Arizona; 157 – *Quasieulia mcguffini* POWELL, Mexico: Durango, after POWELL, 1986; 158 – *Apotomops wellingtonana* (KEARFOTT), Canada: British Columbia.

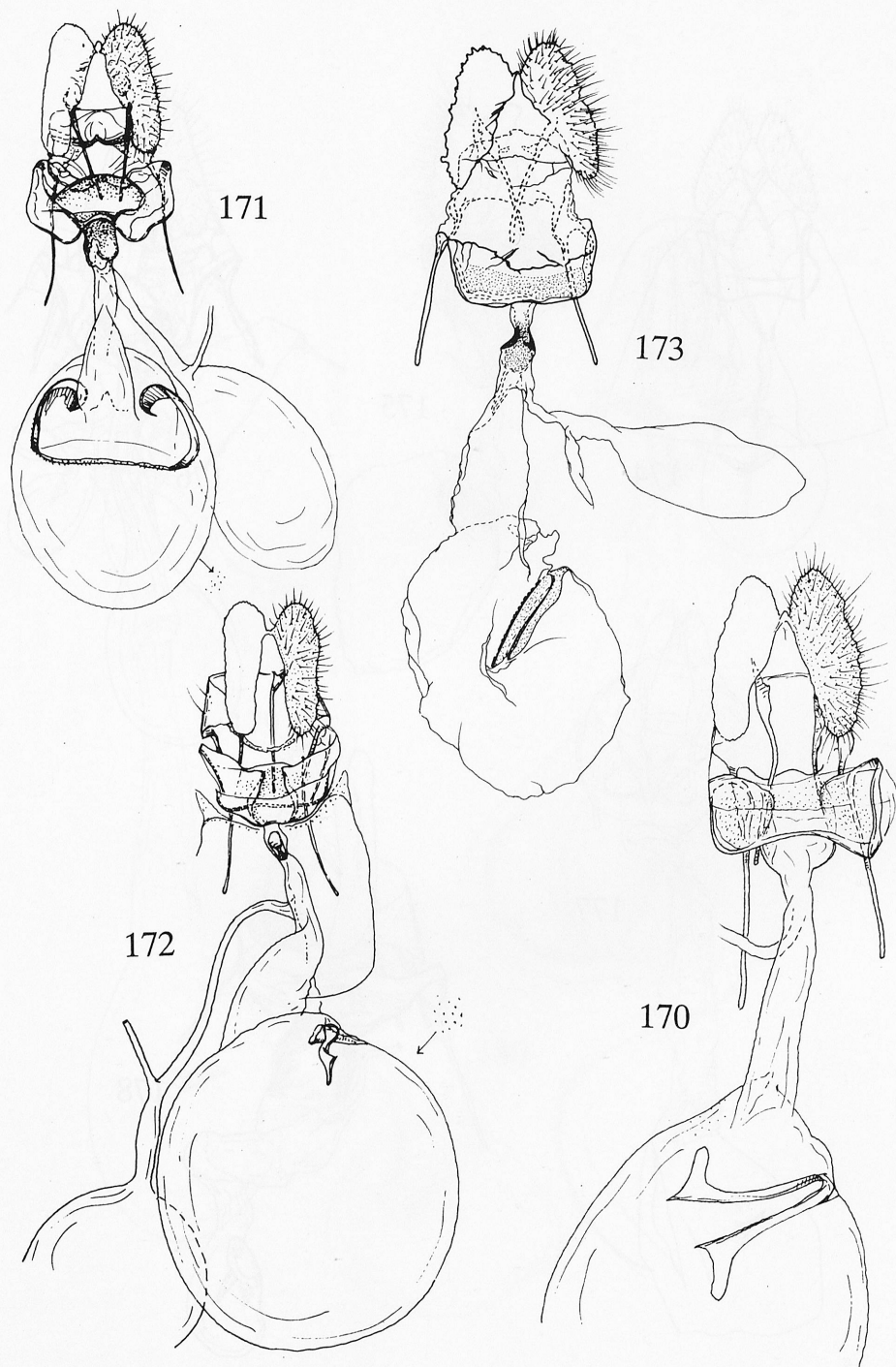


Figs 159-164. Female genitalia: 159 – *Paraptila argocosma* MEYRICK, Colombia; 160 – *Anopina ednana* (KEARFOTT), Canada: Nova Scotia; 161 – *A. arizonana* (WALSINGHAM), U.S.A.: Arizona; 162 – *Neoeulia ?dorsistriatana* (WALSINGHAM), Mexico: Durango; 163 – *Dorithia semicircularana* (FERNALD), U.S.A.: New Mexico; 164 – *Cuproxena anielae* (RAZOWSKI & BECKER), Brazil: Santa Catarina.

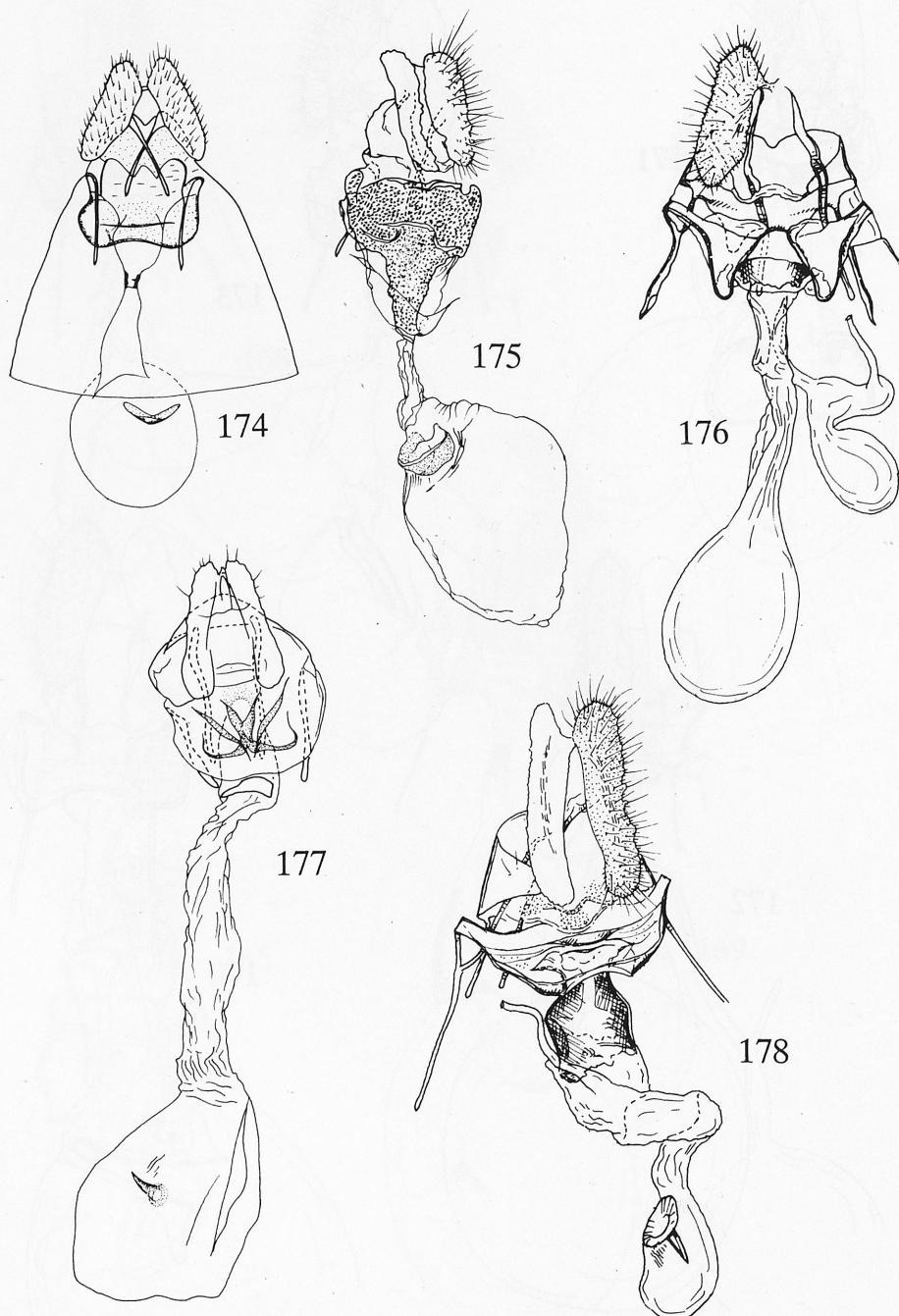




Figs 165-169. Female genitalia: 165,166 – *Odonthalitus lacticus* RAZOWSKI, Mexico: Durango; 167 – *Hyptiharpa hypostas* RAZOWSKI, Mexico: Sinaloa, after RAZOWSKI, 1991; 168 – *Templemania animosana* (BUSCK), Mexico: Veracruz; 169 – *Tinacrusis sebasta* (WALSINGHAM), Mexico: Puebla.

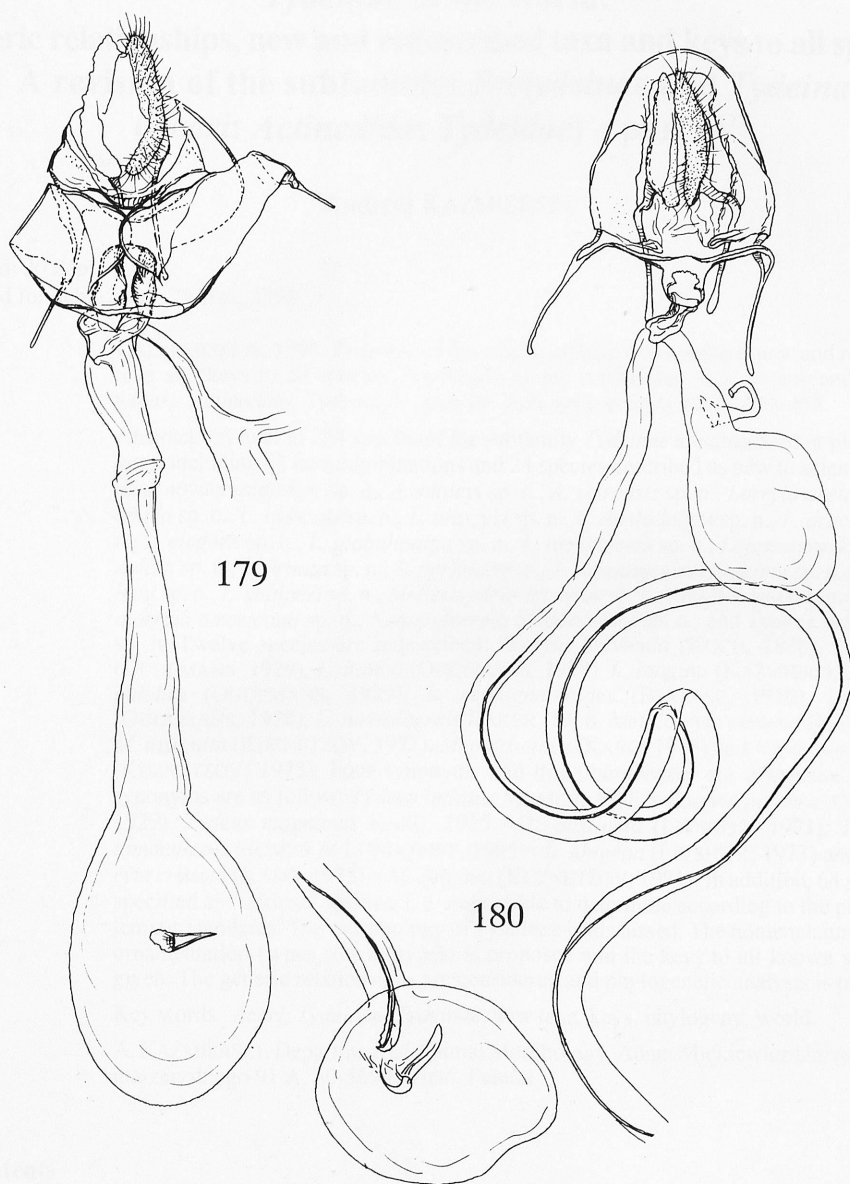


Figs 170-173. Female genitalia: 170 – *Amorbia rectilineana* (ZELLER), Panama; 171 – *Coelostathma parallelana* WALSINGHAM, Canada: Toronto; 172 – *Platynota idaeusalis* (WALKER), Canada: British Columbia; 173 – *Sparganopseustis martinana* POWELL, Mexico: Durango, after POWELL, 1986.



Figs 174-178. Female genitalia: 174 – *Sparganothoides hydeana* (KLOTS), U.S.A.: New Mexico, after KLOTS, 1936; 175 – *Sparganothina xanthista* (WALSINGHAM), after POWELL, 1986; 176 – *Synnoma lynosyrana* WALSINGHAM, U.S.A.: Nevada; 177 – *Syllonoma longipalpata* POWELL, South Carolina, after POWELL, 1986; 178 – *Synalocha gutierreziae* POWELL, U.S.A.: New Mexico.





Figs 179 – 180. Female genitalia: 179 – *Niasoma metallicana* (WALSINGHAM), U.S.A.: Mississippi; 180 – *Cudonigera houstonana* (GROTE), U.S.A.: Arizona.

