

TWO NEW SPECIES OF *EUCOSMA* HÜBNER (TORTRICIDAE) FROM TEXAS

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ABSTRACT. Two new species in the family Tortricidae, *Eucosma griselda* and *Eucosma salaciana*, are described. Imagines and male and female genitalia are figured. Imagines and female genitalia of *Eucosma ridingsana* Robinson are also figured.

Eucosma griselda A. Blanchard & E. Knudson, new species

Head: Front ochreous brown. Vertex light ochreous. Labial palpi exceeding front by one eye diameter, ochreous brown with prominent tuft on second segment. Antennae simple, lightly pubescent, ochreous brown.

Thorax: Patagia and tegulae ochreous brown. Mesonotum silvery white with central third ochreous brown. Posterior tuft silvery white.

Abdomen: Light ochreous brown.

Forewing (Figs. 1, 2): Ground color ochreous brown with 6 or 7 well defined silvery patches, each bordered by a single row of dark brown scales. In the female (Fig. 2), the costal silvery patch nearest the base is partially or completely divided near its midportion by an extension of ground color from the costa. In the male (Fig. 1), this costal patch is not interrupted and does not extend as far basad as in the female. The bar-like median basal silvery patch is thicker in the male than in the female. Fringe light ochreous.

Hindwing (Figs. 1, 2): Pale brown. Fringe whitish brown.

Length of forewing: *Males:* (N = 28), 11.1-13.9 mm, average 12.7 mm. *Females:* (N = 15), 10.0-13.7 mm, average 12.6 mm.

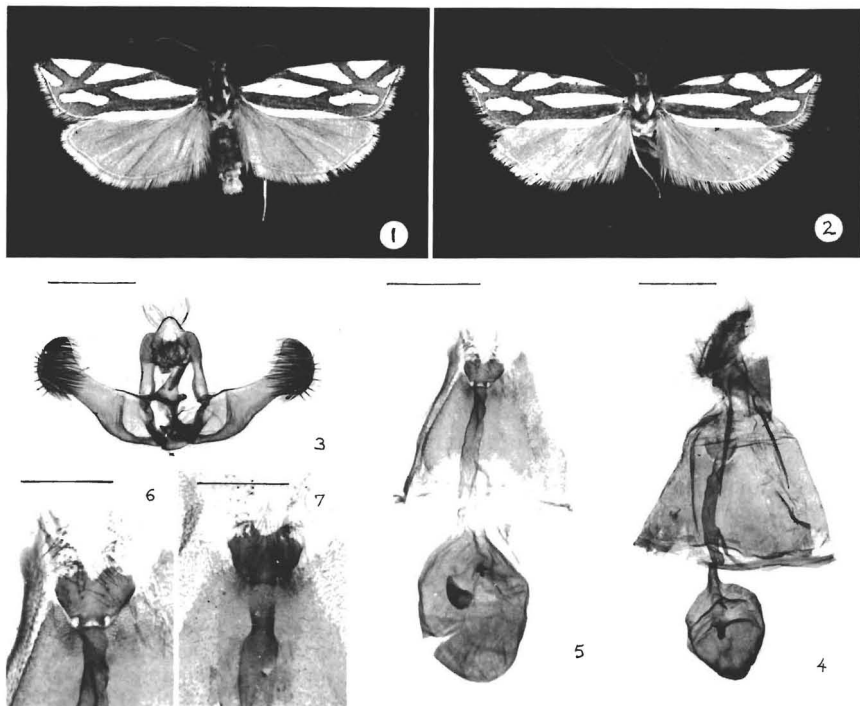
Venation: *Forewing:* Termen straight to very slightly concave. Veins R4 and R5 well separate at their bases. Veins M2, M3, and Cu1 nearly parallel, not approximate at termen. *Hindwing:* Veins M3 and Cu1 stalked for $\frac{2}{3}$ or much more of their lengths, rarely united to termen.

Male genitalia (Fig. 3): Slide A.B. 594, from paratype, Big Bend Nat. Park, Brewster Co., Texas, 14-V-66.

Female genitalia (Figs. 4-11): Fig. 4 is a view of the entire genitalia and Fig. 5 shows the genitalia following removal of the ovipositor, 8th segment, and tergite of the 7th segment. Figs. 6-11 are enlargements of the ostium bursae region in a series of preparations like that of Fig. 5.

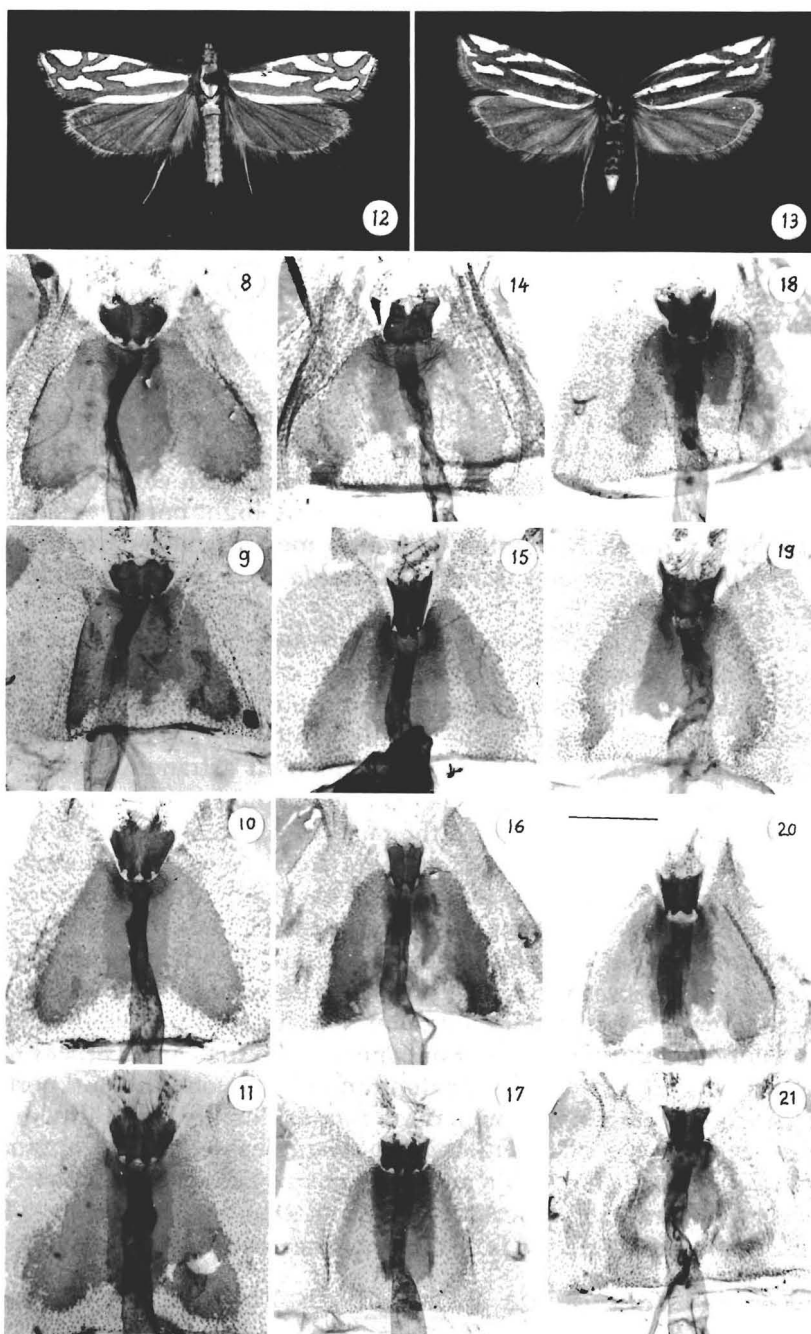
Holotype (Fig. 1): Male, Chisos Basin, Big Bend Nat. Park, Brewster Co., Texas, 7-IV-67, collected by A. & M. E. Blanchard, deposited in the U.S. National Museum of Natural History (NMNH).

Paratypes: Big Bend Nat. Park, Brewster Co., Texas; Chisos Basin, 11-V-66, 2 females, 12-V-66, 1 male, 14-V-66, 1 male, 1 female (Fig. 2), 7-IV-67, 5 males, 9-IV-67, 2 males; Oak Spring, 11-V-66, 2 males, 1 female, 8-V-72, 1 male; Gov't. Spring, 13-V-66, 1 female, 27-III-71, 2 males, 28-III-71, 2 males, 1 female; Green Gulch, 5-IV-67, 1 female, 31-III-71, 2 males, 3-V-72, 1 male, 2-VI-73, 1 female; K-Bar Ranch, 22-III-71, 2 males; Dugout Wells, 30-III-71, 1 male, all collected by A. & M. E. Blanchard. Jeff Davis Co., Texas; Ajuga Canyon, 1-IV-67, 1 male; Ft. Davis, 18-V-71, 1 female, 21-V-71, 2 females, all collected by A. & M. E. Blanchard; Davis Mts. State Park, 29-V-79, 1 female, collected by E. Knudson. Sierra Diablo Wildlife Management Area, Culber-



FIGS. 1-7. *Eucosma griselda*; 1, holotype male, Big Bend Nat. Park, Texas, Chisos Basin, 7-IV-67, A. & M. E. Blanchard coll.; 2, paratype female, Big Bend Nat. Park, Texas, Chisos Basin, 14-V-66, A. & M. E. Blanchard coll.; 3, male genitalia, paratype, slide A.B. 594, Big Bend Nat. Park, Texas, Chisos Basin, 14-V-66, A. & M. E. Blanchard coll.; 4, female genitalia, paratype, slide A.B. 4995, Big Bend Nat. Park, Texas, Gov't. Spring, 13-V-66, A. & M. E. Blanchard coll.; 5, female genitalia, paratype, slide A.B. 4967 (by E.C.K.), Culberson Co., Texas, Sierra Diablo W.M.A., 30-V-73, A. & M. E. Blanchard coll.; 6, post-vaginal plate from specimen in Fig. 5; 7, post-vaginal plate, paratype, slide A.B. 4988, Big Bend Nat. Park, Texas, Oak Spring, 11-V-66, A. & M. E. Blanchard coll. (Line scales in Figs. 3, 5 represent 1 mm; Fig. 6 equals 0.5 mm.)

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 FIGS. 8-21. **Figs. 8-11.** *Eucosma griselda*, pre- and post-vaginal plates of female paratypes; 8, slide USNM 25150 (by A.B.), Cave Creek Canyon, Chiricahua Mts., Arizona, 20-V-66, J. G. Franclemont coll.; 9, slide A.B. 4990, Big Bend Nat. Park, Texas, Green Gulch, 28-III-71, A. & M. E. Blanchard coll.; 10, slide A.B. 4992, Sierra Diablo W.M.A., Culberson Co., Texas, 30-V-73, A. & M. E. Blanchard coll.; 11, slide A.B. 4993, Ft. Davis, Jeff Davis Co., Texas, 21-V-71, A. & M. E. Blanchard coll. **Figs. 12-21.** *Eucosma ridingsana*; **Figs. 12, 13.** adults; 12, male, Estes Park Colorado, 1-VIII-67, A. & M. E. Blanchard coll.; 13, female, 6 miles west of Telluride, San Miguel Co., Colorado 15-VII-77, D. C. Ferguson coll.; **Figs. 14-21.** pre- and post-vaginal plates of females: 14, slide USNM 25146 (by A.B.), Provo, Utah, Tom Spalding coll.; 15, slide USNM 25147 (by A.B.), Snake River, Whitman Co., Washington, opp. Clarkston, 13-IX-37, J. F. G. Clarke coll.; 16, slide USNM 25148 (by A.B.), Tenkiller Lk., Cokeson, Oklahoma, 25-VIII-56, D. R. Davis coll.; 17, same data as Fig. 13, slide USNM 25149 (by A.B.); 18, slide USNM 25151 (by A.B.), Boulder, Montana; 19, slide A.B. 4970, Paducah, Cottle Co., Texas, 22-IX-68, A. & M. E. Blanchard coll.; 20, slide A.B. 4971,



Estes Park, Colorado, 25-VII-68, A. & M. E. Blanchard coll.; **21**, slide A.B. 4989, Guadalupe Mts., Bear Canyon, Texas, 3-IX-69, A. & M. E. Blanchard coll. (Line scale on Fig. 20 equals 1 mm; all genitalia to same scale.)

son Co., Texas, 27-V-73, 3 males, 29-V-73, 1 male, 30-V-73, 3 females, all collected by A. & M. E. Blanchard. Cave Creek Canyon, Chiricahua Mts., Cochise Co., Arizona, 20-V-66, 1 female, collected by J. G. Franclemont.

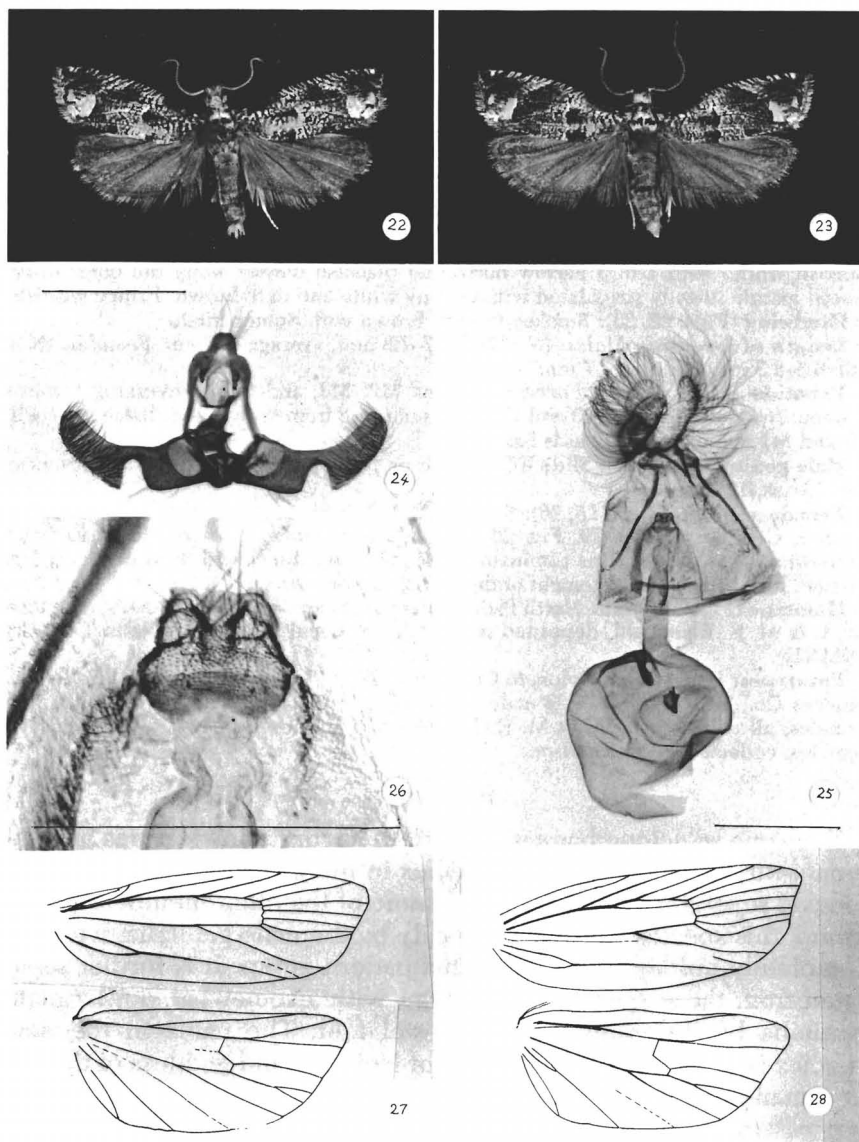
REMARKS

This species is extremely similar to *Eucosma ridingsana* Rob., from which it differs in the following points: Size: *E. ridingsana* averages smaller than *griselda*. Maculation: The silvery patches on *griselda* tend to be less irregular and more rounded than those on *ridingsana* and the ground color of *griselda* is darker and more brownish. Female genitalia: Differs in the post-vaginal plate as shown in Figs. 6–11 and 14–21. Distribution: *E. ridingsana* has a wide range throughout the western U.S. and Canada, with records in Texas from far west to central and extreme southern portions. *E. griselda* is known only from far west Texas and southeastern Arizona, although it probably occurs in similar habitats in southern New Mexico and north central Mexico. Flight period: *E. ridingsana* has a fairly long flight period extending from June through November, although most examples from Texas are from September and October. *Griselda* flies from late March to early June.

Since *griselda* is so close to *ridingsana* and undoubtedly has been previously unrecognized in collections, it seemed necessary to illustrate in detail a structural character that can serve to reliably separate the two species. Therefore, the female genitalia were carefully studied, using a method of dissection in which all extraneous structures are removed to allow optimal view of the pre- and post-vaginal plates. Dissections were performed on the majority of females in the authors' series, including examples of *griselda* from Texas, and *ridingsana* from Texas and Colorado. In addition, examples of *ridingsana* were studied from Utah, Montana, Washington, and Oklahoma, and a single female of *griselda* was studied from Arizona. The results are shown in Figs. 6–11 (*griselda*) and Figs. 14–21 (*ridingsana*). In *griselda*, the post-vaginal plate is wider with outer margins convex. In *ridingsana*, the lateral margins are straight or concave, and the caudal apices tend to be produced, in most cases extending well beyond the mid portion of the caudal margin. Although there is considerable variability in the post-vaginal plate of *ridingsana*, no examples seemed to approach *griselda*. Figs. 12 and 13 show imagines of *ridingsana*, which will serve to illustrate the differences in maculation described above. The name for the new species is taken from Boccaccio's heroine, Griselda.

Eucosma salaciana A. Blanchard & E. Knudson, new species

Head: Palpi exceeding front by at least $1\frac{1}{2}$ eye diameters. Second segment brushlike, with long dark brown scales on ventral aspect. Palpi otherwise yellowish brown. Front and Vertex yellowish brown. Antennae simple, yellowish brown.



FIGS. 22-28. *Eucosma salaciana*; **22**, holotype male, North Padre Island, Nueces Co., Texas, 13-X-79, A. & M. E. Blanchard coll.; **23**, paratype female, same data as Fig. 22; **24**, male genitalia, paratype, slide E.C.K. 163, North Padre Island, Nueces Co., Texas, 12-X-79, E. Knudson coll.; **25**, female genitalia, paratype, slide E.C.K. 167, same data as Fig. 24; **26**, enlargement of sterigma from specimen in Fig. 23; **27**, male wing venation, paratype, slide A.B. 4977, North Padre Island, Nueces Co., Texas, 24-IX-79, A. & M. E. Blanchard coll.; **28**, female wing venation, paratype, slide A.B. 4983, same data as Fig. 22. (Line scales on Figs. 24, 25 represent 1 mm; Fig. 26 equals 0.5 mm.)

Thorax: Tegulae and mesonotum transversally banded with dark brown and creamy white.

Abdomen: Light grayish brown.

Forewing (Figs. 22, 23): Costal fold broad, flatly appressed, not extending beyond basal third of costa. Ground color creamy white, heavily overlain with dark brownish gray scales. Prominent dark brown blotch along the dorsal margin $\frac{1}{3}$ the distance from base, extending to mid disc and interrupted by a narrow streak of ground color along the fold. A much smaller dark brown spot lies along the dorsal margin $\frac{2}{3}$ the distance from base. An ill defined dark brown fascia extends from dorsal margin just basad of the ocelloid patch, angled inward toward the mid costa. Ocelloid patch prominent, pinkish white, with 1 to 3 narrow horizontal blackish dashes along the outer third. Costal margin heavily strigulated with creamy white and dark brown. Fringe whitish.

Hindwing (Figs. 22, 23): Smokey grayish brown with lighter fringe.

Length of forewing: Males: (N = 28), 5.7–7.8 mm, average 7.1 mm. Females: (N = 16), 6.3–8.3 mm, average 7.7 mm.

Venation (Figs. 27, 28): *Forewing:* Veins M2, M3, and Cu1 converging towards termen. *Hindwing:* Veins M3 and Cu1 anastomosing from $\frac{1}{3}$ to $\frac{2}{3}$ the distance to cell. Rs and M1 approximate towards base.

Male genitalia (Fig. 24): Slide ECK 163, from paratype, North Padre Island, Nueces Co., Texas, 12-X-79.

Female genitalia (Figs. 25, 26): Slide ECK 167, from paratype, North Padre Island, Nueces Co., Texas, 12-X-79. Fig. 25 is of entire genitalia, showing the large hairy ovipositor lobes. The ductus seminalis originates from the caudal third of the ductus bursae. Fig. 26 is an enlargement of the sterigma from the same slide.

Holotype (Fig. 22): Male, North Padre Island, Nueces Co., Texas, 13-X-79, collected by A. & M. E. Blanchard, deposited in the U.S. National Museum of Natural History (NMNH).

Paratypes: Eagle Lake, Colorado Co., Texas, 27-IV-78, 1 male, North Padre Island, Nueces Co., Texas, 24-IX-79, 9 males, 3 females, same locality, 13-X-79, 7 males, 9 females, all collected by A. & M. E. Blanchard. Same locality, 12-X-79, 12 males, 6 females, collected by E. Knudson.

REMARKS

Eucosma salaciana has a wing pattern having many features in common with a sizeable group of species in the genus. Although not obviously separable by pattern from some of the other members of this group, this species is separated easily by the male genitalia, which is completely unlike all others in this pattern group. It is further separated from those species of *Eucosma* with a somewhat similar male genitalia by differences in the costal fold. The name of the new species is taken from Salacia, wife of Neptune and goddess of the sea in roman mythology.

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LITERATURE CITED

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