

NEW MOTHS FROM TEXAS (NOCTUIDAE, TORTRICIDAE)

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As a retirement hobby, I decided, six years ago, to catalog the moths of Texas. My wife and I have been collecting moths all over Texas for the last four years. As the work progressed, I came to realize that I may have to settle, more modestly, for a "Contributions Toward A Catalog of the Moths of Texas." The number of species in my collection which had apparently never been taken in Texas is quite large, and the number of those which seem to be new to science, particularly from the mountain ranges and desert areas of West Texas, is much larger than I ever expected.

I have been fortunate in interesting several specialists in describing some of these new species: Dr. C. L. Hogue (1965), Mr. McElvare (1966), Dr. E. L. Todd (1966) have described three. Difficult cases are now and, in the future, will be submitted to experts. I have described the male of a fourth species (1966), the female of which was described by Dr. F. H. Rindge (1966).

While getting more material for my intended catalog, I shall describe as many of the new species as I can name without becoming guilty of adding to the confusion which already exists in some genera.

In the present paper, I describe six new noctuids and one tortricid species. All types were collected by A. & M. E. Blanchard.

***Acronicta valliscola* Blanchard, new species**

(Pl. I, fig. 1; Pl. II, fig. 1)

Male: Palpi ascending, first segment white, second segment dark gray to black, except white proximal half beneath and tip, third segment white, sprinkled with black scales.

Head, collar and thorax covered with bluish white to black scales; vertex behind antennae, collar, and outer edge of patagia darkest.

Upperside of wings—Primaries: mottled bluish white and smoky gray, maculation deep black. Basal line diffuse, marked by a spot on costa and sometimes another on top of basal dash. T.a. line geminate, diffuse or obsolescent, most easily recognized by costal mark of distal component and intersections of both components with basal dash. Median shade an outwardly oblique, diffuse, blackish spot between costa and reniform. T.p. line geminate, outer component easily traced from costa to inner margin; inner component visible only near costa and at intersection with anal dagger mark; intervening space bluish white; in course starting on costa three-fifths the distance from costa to apex, above reniform, squarely outcurved and paralleling costa for half the distance between its inception and apex, then sharply incurved and following a course parallel to outer margin; outer component with a cusp over all veins below R_5 ; tips of cusps sometimes obliterated by over-

flowing of bluish white, leaving only separate black lunules. T.p. line bordered distally by smoky progressively changing, midway to termen, to bluish white.

No recognizable s.t. line. Fringes checkered, white at vein ends and black. Black tips of shorter fringe scales simulate a terminal line. Orbicular large, oval, whitish, circled with black, most heavily on distal half. Reniform large, kidney shaped, smoky gray, circled with black, most heavily on proximal half. The two spots closely adjacent or touching. Basal dash black, heavy, extending well beyond t.a. line. Broad anal dagger mark crossing t.p. line, remaining well separated from basal dash, consisting of two dashes, one along fold, one along Cu_2 with intervening space almost as dark as the dashes. Apical dagger mark lighter than other two, just reaching t.p. line.

Secondaries: white, end of veins and terminal line smoky, fringes white at vein ends, slightly dusky between.

Undersides of wings: Primaries gray, secondaries white, t.p. line showing on both, better on primaries.

Alar expanse: 30 to 34 mm.

Female: outwardly similar to male, except that secondaries show a diffuse smoky t.p. line narrowly bordered distally with white. Terminal space smoky.

Alar expanse: 30 to 35 mm (two specimens only).

Male genitalia: As in Pl. II, fig. 1. Saccus ending in a forked process, vesica armed with about 12 stout, short cornuti.

Female genitalia: Not studied.

Holotype male: Texas, Big Bend National Park, Green Gulch, altitude 5,200 feet, 10 May 1966. Genitalia on Slide A.B. No. 492; deposited in the U. S. National Museum (No. 68159). Twelve paratypes, all taken in Big Bend National Park, either in Pine Canyon (P.C.) or Green Gulch (G.G.): 2 ♂♂ and 1 ♀, P.C., 2 September 1964, (one of these males deposited in the American Museum of Natural History); 1 ♂, P.C., 1 April 1965; 1 ♂, G.G., 3 April 1965; 1 ♂, G.G., 27 June 1965; 1 ♂, G.G., 5 October 1965; 1 ♂, G.G., 14 May 1966; 1 ♀, G.G., 20 October 1966; 1 ♂, G.G., 7 October 1966; 1 ♂, G.G., 11 October 1966; 1 ♂, P.C., 8 April 1967.

The pattern of maculation of *valliscola* is similar to that of *furcifera* Guenée and related species. Most of the species in the *furcifera* group have the reniform and orbicular spots of the forewings connected at their base by a black bar. In *valliscola* the spots are either separated or connected at their middle. The combination of characters of size, dark bluish gray forewings, white hind wings, reniform and orbicular not connected or connected at the middle, and genitalic characters will separate this species from all species in the *furcifera* group. On genitalic characters, *valliscola* is closer to *pruni* Harris. The truncate shape of the distal end of the saccus of the valve is similar in the two species, but *pruni* has a slender ampulla, just basad of the other valve processes and directly below the heavy patch of setae on the dorsal margin of the valve (Dr. E. L. Todd, *in litt.*).

Oncocnemis toddi Blanchard, new species

(Pl. I, fig. 2; Pl. II, fig. 2)

Male and female externally similar.

Head: dark brown; scaled roughly between antennae and back, smooth scaled on front and vertex; eyes large, short gray lashes back of antennae; palpi scaled roughly, white beneath, concolorous with head on top and distal third, third segment very short.

Legs: white with some loose hair; tarsi dark brown, each segment narrowly bordered distally with pure white; foretibia slightly shorter than basal segment of foretarsus, with heavy keeled claw continuing into a fluted plate with sharp pointed outer corner.

Thorax, collar and patagia white.

Abdomen, smooth scaled, shiny white.

Upper surface of wings—Primaries: pure white basad of t.a. line; basal line very fine, black, starting on costa one-tenth the distance from base to apex, outwardly oblique, extending to Cu; t.a. line easily traced from costa to inner margin, simple, black, fine, darker than dark median space, originating on costa one-third distance from base to apex, outwardly oblique to Cu, upright from Cu to inner margin, reaching latter one-half the distance from base to anal angle; t.p. line traceable only from radial vein to inner margin, simple, black, fine, darker than dark median space, outwardly bordered with brownish white, outcurved facing cell, inwardly drawn to fold, then upright to inner margin, reaching latter five-sixths the distance from base to anal angle; s.t. line white, not sharp, irregularly wavy, contrasting with bluish gray, s.t. space and mottled bluish and brownish terminal space, terminal line fine, black, briefly interrupted on veins; fringes concolorous with s.t. space; median space the darkest portion of wing, brown except for pure white region including lower half of abnormally large reniform and wide region between this and costa; costa white from one-half to four-fifths the distance from base to apex; orbicular absent; median shade indicated on costa by small blackish spot, closer to base than middle of white part of costa.

Secondaries: white, a broad brownish band from apex to middle of outer margin; fringes pure white.

Underside: white, except brownish darkening on forewing corresponding to dark region of upperside.

Alar expanse: 21 to 22 mm.

Male genitalia: As in Pl. II, fig. 2 (from Dr. E. L. Todd's Slide No. E. L. T. 2326). Vesica armed with a bunch of numerous short cornuti near distal end and a double row of numerous longer ones at middle of aedeagus.

Female genitalia: Not studied.

Holotype male: Texas, Big Bend National Park, Chihuahuan desert near Dugout Wells, altitude 3,000 feet, 28 September 1965; genitalia prepared by Dr. E. L. Todd, No. E. L. T. 2326, deposited in U. S. National Museum (No. 68165). Paratypes: 1 ♀, same data in U. S. National Museum; 1 ♂ and 1 ♀, same data in the author's collection.

The wing pattern and coloration of this *Oncocnemis* is quite unusual; like many Acontiinae and a few Amphipyryinae it has a presumed protective resemblance with bird droppings. Dr. E. L. Todd showed me specimens of *Tristyla alboplagiata* (Smith) in the collection of the U. S. National Museum and remarked that although they belong to a different subfamily, they have an amazingly similar pattern to the new

Oncocnemis. The white patch in the outer half of the forewing, in particular, is quite similar in shape and in position.

The male genitalia of *toddi* are rather small, about the same size as that of *O. umbrifascia* (Smith), the valvular process is somewhat similar, but the apex point is more basad in *toddi*. The aedeagus is proportionately smaller in *toddi* than in most other *Oncocnemis* species, the number of cornuti fewer, and the basal ones (vesica not distended) not enlarged as in other species of the genus, (Dr. E. L. Todd, *in litt.*).

I take pleasure in dedicating this species to Dr. E. L. Todd of the Entomology Research Division, U. S. Department of Agriculture.

Hydroecia auripurpure Blanchard, new species

(Pl. I, fig. 3; Pl. II, fig. 3)

Male: Head: Eyes naked, strongly lashed. Antennae strongly bipectinate, pectinations biciliate; upper side closely covered with whitish scales. Tongue fully developed. Palpi porrect, reaching one-half eye diameter beyond descaled front but no farther than its hirsute covering of purplish to yellowish gray scales: first and second segments rough scaled, third segment short, smooth.

Collar, thorax and patagia: with fine, deep mixed vestiture of light yellowish gray scales becoming purple near top, tipped with whitish.

Abdomen: with basal tuft only.

Upperside of wings—Primaries: bright yellow. Basal, t.a. and t.p. lines, orbicular, reniform and claviform spots, all marked in olivaceous. Medium shade more contrastingly marked by mixture of olivaceous and purple scales. Beyond t.p. line, ground color changes progressively to purple through olivaceous.

Costa purple, interrupted by six white spots, backed in places by olivaceous. Basal line traceable as far as anal vein. T.a. line starting on costa near first white spot, one-third the distance from base to apex, irregular, retracted over cell and anal vein. Median shade starting on costa midway between first two white spots, half the distance from base to apex, roughly consisting of two segments forming a right angle with its apex at lower angle of cell; upper segment directed toward anal angle, lower segment nearly parallel to outer margin. T.p. line starting on costa near third white spot, two-thirds the distance from base to apex, with a small cusp over each vein, distally bordered with lighter yellow, reaching inner margin four-fifths the distance from base to anal angle. S.t. line diffusely indicated by thinning of purplish scales over olivaceous distal fifth of wing. Fringes of widely spatulate purple and black scales. No terminal line. A very small white dot at vein ends. Orbicular round, very large. Claviform large, nearly as wide as long. Reniform large, subrectangular, leaning by its lower side on median shade, well separated from t.p. line.

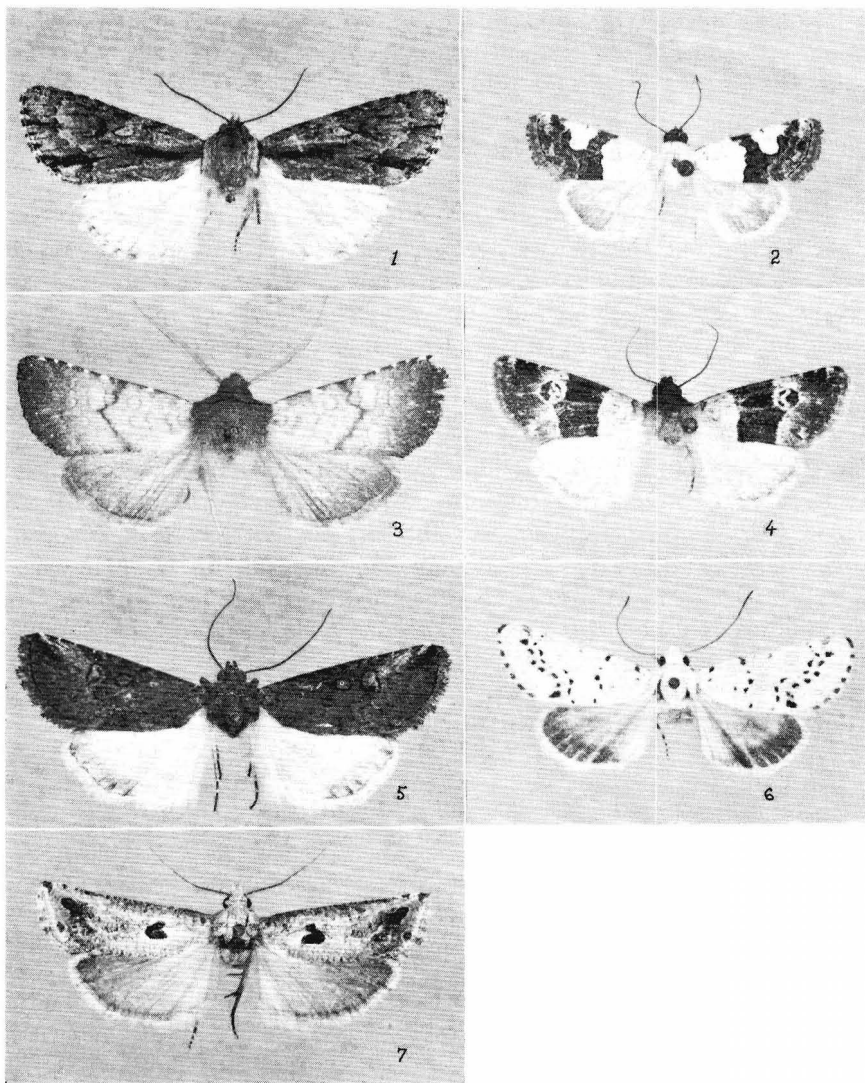
Secondaries: Sprinkled with yellowish gray and purple tipped scaled; purple scales more abundant in outer third of wing, separated from basal two-thirds by vaguely indicated lighter yellow line. Terminal line purplish brown, fringe of narrower scales than that of primaries, concolorous with outer third of wing.

Underside of wings—Primaries: yellowish gray, more heavily sprinkled with purple toward costa, apex and upper half of outer margin, terminal line brownish, fringe lighter than above. T.p. line indicated in purplish distally bordered with yellow. Secondaries similar to primaries, somewhat lighter.

Alar expanse: 28 to 32 mm.

Female: similar to male, except antennae simple.

Alar expanse: 31 to 32 mm.



EXPLANATION OF PLATE I

1. *Acronicta valliscola*; 2. *Oncocnemis toddi*; 3. *Hydroecia auripurpurea*; 4. *Neperigea mephisto*; 5. *Oxycnemis franclemonti*; 6. *Grotella margueritaria*; 7. *Eucosma graziella*.

Male genitalia: As in Pl. II, fig. 3. Vesica armed with three large cornuti shaped like horseshoe nails.

Female genitalia: Not studied.

Holotype male: Texas, Big Bend National Park, Green Gulch, 5,400 feet, 11 October 1966; genitalia on Slide A.B. No. 483, deposited in U. S. Museum (No. 68160). Eighteen paratypes, all taken in Big Bend National Park at the following dates and places: 1 ♀, Basin, 3 October 1965; 5 ♂♂, 2 ♀♀, Green Gulch 2 to 7 October 1965; 7 ♂♂, 3 ♀♀, Green Gulch, 11 October 1966.

About half the paratypes are as brilliantly colored as the type. The other half, even though they are perfectly fresh, are paler, more powdery and certainly not quite so pretty.

Concerning the relationship between *Hydroecia auripurpure* and other species, I will quote from a letter that I received from Dr. J. G. Franclemont: "The only species at present placed in *Hydroecia* with which this one (*auripurpure*) can be compared is *repleta* Bird. From this it can be distinguished by its coloration, ground color golden yellow with the outer third suffused with rosy purple, that of *repleta* nearly an even dark brown; the reniform, claviform, and orbicular without white scales and inconspicuous in *auripurpure*, with white scales and large in *repleta*. The male genitalia of *auripurpure* differ from those of *repleta* by the very broad uncus, narrow and linear in *repleta*, the long digitus on each valve, short and obtuse in *repleta*, and three cornuti in the vesica, *repleta* with two."

***Neperigea mephisto* Blanchard, new species**

(Pl. I, fig. 4; Pl. II, fig. 4)

Male and female externally similar.

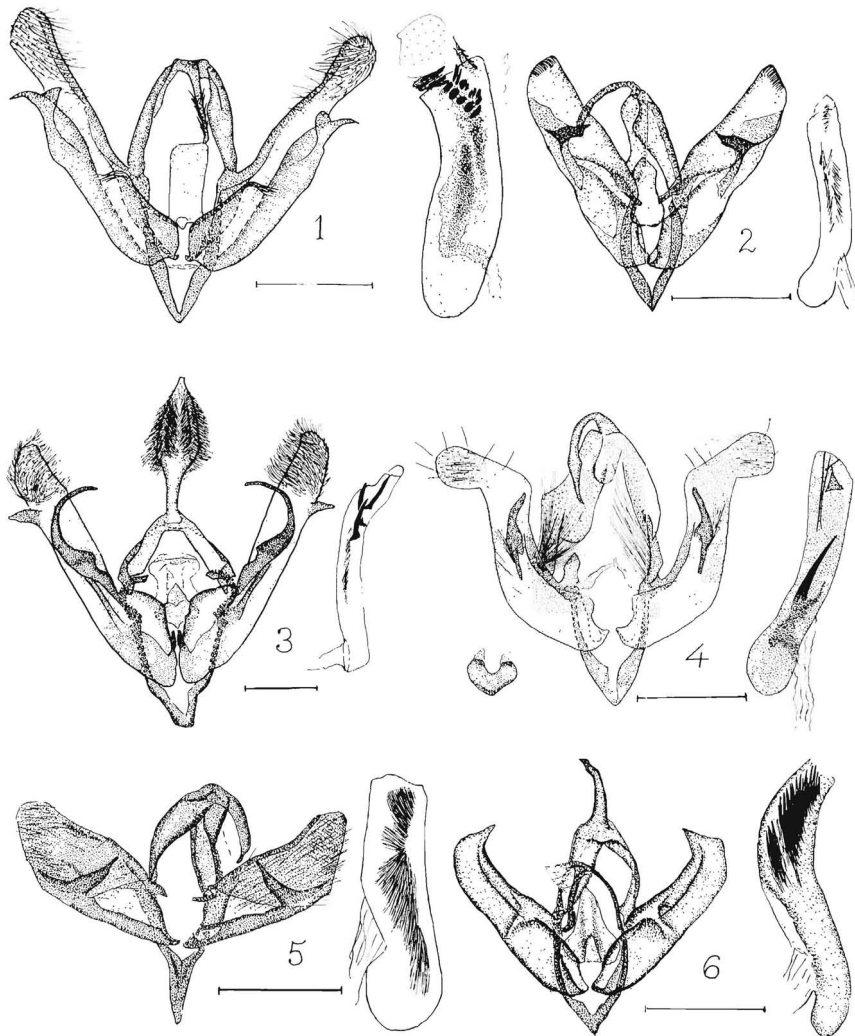
Head: dark reddish brown; palpi ascending to middle of front; tongue fully developed; antennae simple, shortly ciliated in male.

Collar, concolorous with head.

Thorax and patagia covered with gray scales, whitish at top; posterior tufting slightly darker.

Abdomen: gray above; each segment broadly bordered distally with creamy white; underside concolorous with these lighter bands.

Upperside of wings—Primaries: cream colored, sprinkled with reddish and brown scales; basal line single, brown, diffuse, very close to base. Most prominent feature a dark brownish black median shade which has invaded most of the space between t.a. and t.p. lines; t.a. line with no inner component, outer component invisible, obscured in dark brown of median area; t.p. line with no outer component, inner component invisible, obscured in dark brown of median area; both lines traceable only by their light component, lighter than background, lacking sprinkling of reddish and brown scales. T.a. line starting on costa at basal one-fourth, excurved over cell, then upright to inner margin, reaching half distance from base to anal angle. T.p. line starting on costa at distal three-fifths, inwardly oblique, acutely angled outwardly before reaching radial vein, curving widely around large reniform, below which slightly recurved to reach inner margin at distal four-fifths. S.t. line vaguely indicated only near apex and anal angle by light spots. Area between t.p. line and outer margin heavily sprinkled with dark brown scales, never as dark as median space, always much darker than basal area. Three light spots on costa mark ends of three branches of radial vein. In light specimens the area above



EXPLANATION OF PLATE II

Male genitalia: 1. *Acronicta valliscola*; 2. *Oncocnemis toddi*; 3. *Hydroecia auripurpurea*; 4. *Neperigea mephisto*; 5. *Oxycnemis franclemonti*; 6. *Grotella margueritaria*.

reniform between t.p. line and innermost of these dots forms a rectangular patch concolorous with background. Terminal line dark brown, discontinuous, mostly lost in dark filling of terminal area. Fringes lighter than terminal area. Reniform, a dark crescent concolorous with median space, surrounded by kidney shaped whitish line. Orbicular absent.

Secondaries: whitish, becoming progressively fuscous distally, fringes dirty white. Underside of wings—Primaries: cream colored, sprinkled with light brownish scales. Fringes concolorous.

Secondaries: dirty white.

Alar expanse: 26 to 28 mm.

Male genitalia: As in Pl. II, fig. 4. Vesica armed with a cornutus one-third as long as aedeagus.

Female genitalia: Not studied.

Holotype Male: Texas, State Wildlife Management Area, north of Van Horn, Sierra Diablo, Culberson County, altitude about 5,500 feet, 22–23 June 1965; genitalia on Slide A.B. No. 514; deposited in U. S. National Museum (No. 68161). Paratypes: 3 ♂♂ and 5 ♀♀, same data.

Neperigea mephisto is very close to *N. continens* (Hy. Edw.). The dark head and collar of *mephisto* contrast with the lighter thorax. In *continens*, the head, collar and thorax are substantially concolorous. The median space of the primaries is much darker in *mephisto*, contrasting markedly with the light subterminal space. The t.p. line of *continens* is darker than its median space and denticulate; the t.p. line of *mephisto* is lost in the dark median space and smooth. The males of *N. mephisto* have white secondaries; the secondaries of *continens* are light fuscous.

The male genitalia of *continens* are more heavily sclerotized. Both species show a cucullus at approximately right angle to the valvula, but the overhang of the cucullus is about equal to the width of the valvula in *mephisto* instead of at least twice the width of the valvula in *continens*. The spines of the coronna are much weaker and not so numerous in *mephisto*. The juxta of *continens* has two elongated lobes, one on each side of the aedeagus; these lobes are shorter and triangular in *mephisto*.

Both species have a pair of hair pencils in two lateral grooves, one on each side, at the base of the abdomen.

***Oxyenemis franclemonti* Blanchard, new species**

(Pl. I, fig. 5; Pl. II, fig. 5)

Male: Eyes naked, unlashd, palpi ascending, reaching middle of front; first two segments appearing bladelike because of long, laterally appressed, black, white tipped scales; third segment short. Tongue fully developed. Antennae simple. Front smooth, white. Vertex with loose, black, white tipped scales.

Collar tawny, narrowly bordered with black at base and top. Thorax tawny; posterior tuft black. Patagia tawny, bordered with black. Foretibiae shorter than metatarsi, armed with strong inner claw and weaker outer claw. Both claws, on preparation of denuded foreleg appear to be part of the tibia.

Abdomen smooth scaled, whitish above, slightly darker beneath.

Upper surface of wings—Primaries: dark gray, consisting of blackish scales narrowly tipped with white. Basal line well defined, black, starting close to base of wing, briskly outcurved to a sharp cusp on cell, another smaller cusp on fold,

then drawn in to base of wing at inception of A. T.a. line geminate, inner component difficult to trace on most specimens; outer component starting on costa at basal one-third, reaching inner margin at basal one-third, wavy and indefinite in between; what appears to be darkest and most excurved loop, in fold, probably represents the claviform. T.p. line reduced to its inner component, black, distally bordered with gray, starting on costa a little beyond middle by well marked black spot, sharply outcurved and paralleling costa not quite to apex, then incurved and serrated with sharp cusps on R_5 , M_1 , M_2 , M_3 , touching or almost touching reniform by deep incurve between M_1 and M_2 , touching it again at lower angle of cell, finally parallel to outer margin in general course with a cusp on Cu_2 and one on A. Terminal line black. Fringe gray. S.t. space and terminal space concolorous, all veins accentuated in black; short, black, intervenular dashes butting on s.t. line which is vaguely indicated by a few white scales. Orbicular large, round with gray center, circled with whitish, circled again with black. Reniform large, oval, slightly constricted on outer side, consisting of small tawny spot backed on inner side by gray crescent, both tawny spot and crescent circled with whitish and black. Four white spots on costa, near ends of Sc , R_1 , R_2 and R_3 . Cells R_2 and R_3 and part of cell R_4 filled with white and grayish scales forming with more white scales on outer edge of reniform an easily recognizable gray fascia. T.a. space and t.p. space concolorous, somewhat darker than outer third.

Secondaries: pure white except blackish along outer margin and at vein ends. Terminal line black in its upper three-fourths; fringe white.

Undersurface of wings—Primaries: shiny gray, costa blackish, t.p. line indicated by dark dashes on veins. Long, fine, loose hair under cell, terminal line black; fringe white.

Secondaries: white except near apex, terminal line black, fringe white.

Genitalia: As in Pl. II, fig. 5.

Female: Similar except much more extended white patch at outer edge of reniform, sometimes invading reniform forming a prominent whitish fascia. One female shows a similarly colored fascia along fold. Genitalia not studied.

Alar expanse: 30 to 34 mm.

Holotype male: Texas, Big Bend National Park, Green Gulch, altitude 5,400 feet, 3 April 1965, genitalia on Slide A.B. No. 163; deposited in the U. S. National Museum (No. 68162). Paratypes (22): 1 ♂, Sierra Diablo Wildlife Management Area, north of Van Horn, Culberson County, Texas, 22–23 June 1965, and 16 ♂♂, 5 ♀♀, all taken in Big Bend National Park: 1 ♂, Dugout Wells, 28 September 1965; 3 ♂♂, 1 ♀, Government Spring, 29 September 1965; 2 ♂♂, Grapevine Hill, 2 October 1965; 1 ♂, Oak Spring, 6 October 1965; 2 ♂♂, 3 ♀♀, Dugout Wells, 3 October 1966; 5 ♂♂, 1 ♀, Chihuahuan Desert near Nugent Mountain, 8–9 October 1966; 2 ♂♂, Chihuahuan Desert near Nugent Mountain, 6 April 1967.

Oxycnemis franclemonti is closely related to *O. subsimplex* (Dyar), but the new species is larger, its hindwings are whiter with generally more prominent markings. The t.p. line of the forewing of *franclemonti* is definitely indented toward base beyond the reniform spot. There is no such indentation in *subsimplex*. The genitalia are similar except that the valvae of *subsimplex* are longer; the process on the inner face located farther out on the valve (apical third to apical fourth), the

spined tip of the process directed more or less toward the apex of the valve, not directed basad; the vinculum broader and stouter than in *franclemonti*, but about the same length; the cornuti of the aedeagus smaller in size and more numerous, (Dr. E. L. Todd, *in litt.*).

***Grotella margueritaria* Blanchard, new species**

(Pl. I, fig. 6; Pl. II, fig. 6)

Male: Head: palpi short, first segment drooping, roughly scaled, white; second segment longest, upturned, roughly scaled, white beneath, blackish above; third segment short, closely scaled, porrect, white beneath, gray above. Tongue fully developed. Front with typical *Grotella* hollowed out process; external ring constituted below by infraclypeal plate, semielliptical, as wide as front, and above by corneous, semicircular wall not quite reaching vertex. This outer ring interrupted in three places: ends of infraclypeal plate and notch at vertex. Central process obliquely truncate, slightly hollowed out. Space between external wall and central process thickly covered with rough, yellowish white scales; vertex white.

Thorax, collar and patagia white. Legs creamy white, except tarsi ochreous gray, each segment broadly ringed distally with creamy white. Foretibia with a heavy inner claw and about five medium spines above; on outer side a shorter claw and about two medium spines above; midtibia spined; hindtibia unspined.

Abdomen untufted, ochreous white above, lighter below.

Upperside of wings—Primaries: creamy white with dark brown to black spots. Basal line represented by two spots, one near costa, one in cell. T.a. line consisting of five spots approximately in a straight line except fourth spot in cell Cu_2 , drawn in and accompanied by a supplementary spot basad of it. T.p. line sigmoid consisting of 11 interveinal spots, starting on costa at about distal three-fourths; spot 4 in cell R_5 outermost, at about distal four-fifths; spots 4, 5, 6 and 7 in a straight line subparallel to outer margin; spots 8, 9, 10 and 11, almost in a straight line, upright to inner margin at distal two-thirds; spot 5 in cell M_1 heaviest; spots 7 and 11 in cell M_3 and anal cell weakest and almost obsolete. S.t. line almost exactly parallel to t.p. line, consisting of almost as many spots; no spot in anal cell, spots between radial veins weak, confluent, tending to diverge toward apex. One weak spot represents the reniform. Terminal line absent; fringes checkered, black between veins, concolorous with background near vein ends.

Secondaries: ochreous white, concolorous with abdomen, becoming fuscous in a wide band along outer margin, fringes and inner margin concolorous with background of primaries.

Undersurface of wings—Primaries: ochreous, a large blackish spot corresponds to almost every pair of spots of the t.p. and s.t. lines. Fringes as above.

Secondaries: ochreous white with a row of submarginal spots extending three-fourths of the way from apex to anal angle.

Alar expanse: 26 to 27 mm.

Female: Maculation similar, slightly darker. Ten females caught in October have an alar expanse of 27 to 29 mm, one female caught in August measures only 25 mm.

Male genitalia: As in Pl. II, fig. 6. Vesica armed with a bunch of numerous, small cornuti.

Female genitalia: Not studied.

Holotype male: Texas, Big Bend National Park, Chihuahuan Desert near Nugent Mountain, altitude 3,000 feet, 8 October 1966. Genitalia on Slide A.B. No. 479; deposited in the U. S. National Museum (No. 68163). Paratypes (13): 2 ♂♂, 11 ♀♀, all taken in Big Bend National

Park, some labeled Dugout Wells, some labeled "near Nugent Mountain," but both places are in the Chihuahuan desert and less than two miles apart. The dates are: 1 ♀, 7 August 1964; 1 ♂ and 5 ♀♀, 8 October 1966; 1 ♂ and 5 ♀♀, 9 October 1966.

Grotella margueritaria differs markedly in appearance from all described *Grotella* species. *G. soror* (B. & McD.) and *G. tricolor* (Barnes) resemble it most in pattern of maculation and ground color of wings, but it is larger than both. *G. margueritaria* completely lacks the orange third color of *tricolor* between the t.p. and s.t. lines. The s.t. line of *G. tricolor* is made up of spots extremely unequal in size and intensity, that of *margueritaria* is much more equal and smoother in course. The s.t. line of *G. soror* completely lacks spots in Cells M₂, M₃ and in the fold; *G. margueritaria* lacks the spots which *G. soror* shows in the terminal space near the ends of Cu₁ and Cu₂. Of 14 specimens before me, only one shows a faint apical spot in the s.t. space near the apex where *G. soror* has a heavy spot.

***Eucosma graziella* Blanchard, new species**

(Pl. I, fig. 7; Pl. III, figs. 1-4)

Male and female: outwardly similar except that the male has a costal fold and longer cilia on antennae.

Head: Tongue minute, hidden between palpi; denuded palpus showing long, flattened second segment, short cylindrical third segment; first and second segments clothed with long white scales, some with dark spot near tip, forming decumbent tuft far exceeding end of third segment.

Uppersurface of wings—Primaries: white mottled with gray and light tawny. Pattern of maculation as in pl. I, fig. 7. Most prominent feature, a large, dark brown to almost black spot straddling fold, constricted basally over fold. Remainder of maculation mostly between end of cell and termen, in part concolorous with spot in fold. Costa heavily sprinkled with black. Terminal line white; fringes white, obscurely checkered with gray.

Secondaries: light tawny, darker toward apex; terminal line tawny, fringe white.

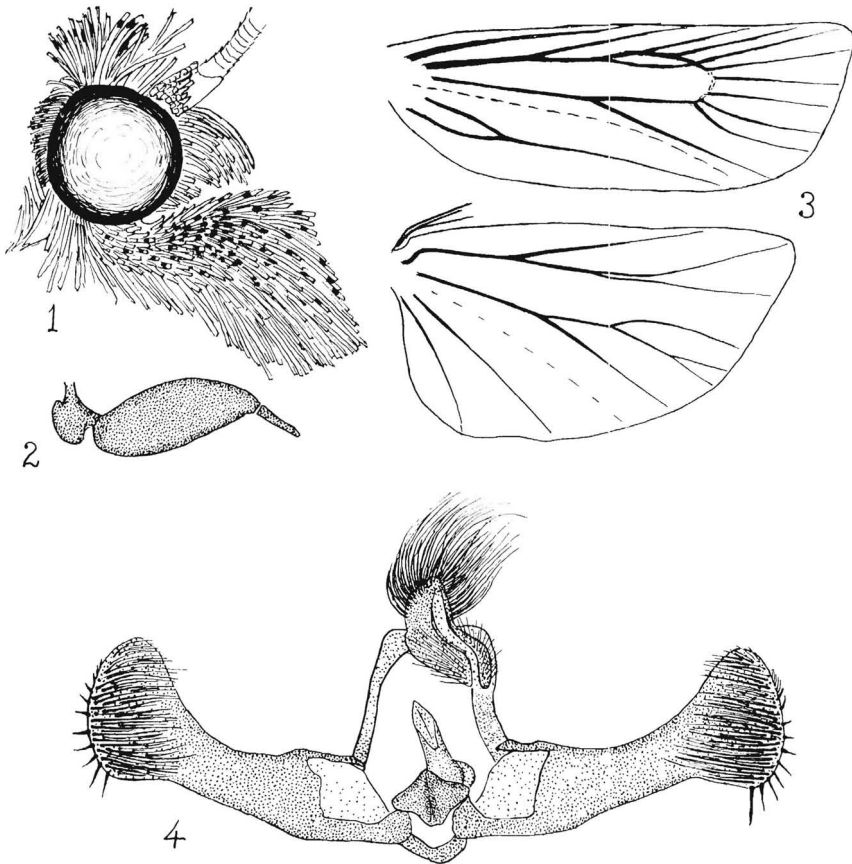
Underside of wings—Primaries: smoky to blackish fringe white. Secondaries: almost white.

Alar expanse: 28 to 31 mm.

Male genitalia: As in pl. III, fig. 4.

Female genitalia: Not studied.

Holotype male: Texas, Big Bend National Park, Green Gulch, 11 October 1966; genitalia on Slide A.B. No. 481; deposited in U. S. National Museum (No. 68164). *Paratypes* (21): 1 ♂, Big Bend National Park, Grapevine Hill, 2 October 1965; 1 ♂, Big Bend National Park, Oak Spring, 4 October 1965; 1 ♂, Big Bend National Park, Green Gulch, 5 October 1965; 1 ♂, Fort Davis, 9 October 1965; 1 ♂, Big Bend National Park, Dugout Wells, 3 October 1966; 1 ♂, Big Bend National Park, Government Spring, 6 October 1966; 11 ♂♂ and 1 ♀, Big Bend National Park, Chihuahuan Desert near Nugent Mountain, altitude



EXPLANATION OF PLATE III

Eucosma graziella: 1. profile of head; 2. denuded palpus; 3. wing venation; 4. male genitalia.

3,000 feet, 8-9 October 1966; 2 ♂♂ and 1 ♀, Big Bend National Park; Green Gulch, 11 October 1966.

Eucosma graziella has been compared to its nearest relatives in the genus by Dr. Don R. Davis, Curator of Lepidoptera, in the U. S. National Museum. "Separating *E. graziella* from all other olethreutids is a very simple task since the species resembles no other in maculation. I know of no other species that possesses a pale gray forewing with similar markings. The broad, crescent-shaped black spot at the base of the cell is unique for this species. The male genitalia of this group is often not very diagnostic; however, your species seems to be readily separated

from the other species of North American *Eucosma*. On the basis of the male genitalia, it resembles *Eucosma denverana*, *E. agassizii* and *E. gilletteana*. Your species can be separated from these three by the fact that the cucullus is broader and more triangular . . . the cucullus of *E. graziella* resembles that of *E. fofana*."

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