

# INSECTS OF CAMPBELL ISLAND.

## LEPIDOPTERA : PYRALIDAE

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*Abstract:* Eleven pyralid moth species from Campbell I., including 1 n. sp., 1 n. subsp. and 2 n. comb., belonging to 5 genera (including 1 n. gen.) are reported upon.

### COMPOSITION AND RELATIONSHIPS OF FAUNA

The present collection, made by Dr. J. L. Gressitt and associates, contains 9 species of Pyralidae. Four additional species have been recorded in literature (Hudson, 1909; Salmon & Bradley, 1956). Of these, 1 is different from anything in the present material; the other 3 may well be identical with species reported here under other names. Even if they are not, they will not change the aspect of the fauna significantly.

We may consider, then, the confirmed pyralid fauna of the island as consisting of 10 species. These are referable to 5 genera: 1 of Nymphulinae, 3 of Scopariinae, and 1 that has been referred, perhaps correctly, to Crambinae. This last genus is so generalized in its characters, however, that it might equally well be placed in Scopariinae. The Pyraustinae, Pyralinae, Galleriinae, Phycitinae and higher Crambinae, all groups that are commonly represented on oceanic islands, are not known from Campbell I. The single nymphuline genus is Indo-Australian and is represented by a species that occurs in both Australia and New Zealand. The 3 genera of typical Scopariinae are also represented in New Zealand. One is endemic in the New Zealand region; the other 2 are world-wide or nearly so. Only one of these three genera is represented in temperate South America. The 1 crambiform genus is closely related to a genus that occurs on the Auckland Is. These 2 genera resemble in a general way a group of primitive Crambinae distributed in cool environments in New Zealand and Australia, but in structure of genitalia they are widely different from, and probably more primitive than, any of these. It seems that they form a genuine relict group, confined, according to present information, to the Subantarctic Islands of New Zealand, and structurally connecting 2 of the most primitive surviving groups of Pyralidae. Nothing similar is known in America or Africa.

On the species level the 3 genera of typical Scopariinae show a close relationship to the fauna of the New Zealand mainland. Five are identical with New Zealand forms, 1 is subspecifically distinct, 1 is a distinct species of a rather closely knit New Zealand group, and only 1 is a really distinctive species of uncertain New Zealand relationships. This is unusual in Scopariinae, which characteristically show a high degree of endemism on islands, but it is paralleled on other islands in the New Zealand area, *e. g.*, the Auckland,

Antipodes, Chatham and Kermadec Is. It would appear that the Campbell I. Pyralidae are mostly recent arrivals, but that there is a minority of species that arrived at earlier, and probably different, dates.

KEY TO CAMPBELL ISLAND GENERA OF PYRALIDAE

1. Wings narrow and pointed, not fitted for flight ..... **Exsilirarcha**  
Wings normal..... 2
2. Fore wing with termen excised behind apex..... **Musotima**  
Fore wing with termen evenly curved ..... 3
3. Ventral margin of valve of ♂ genitalia bearing a prominent spine..... **Scoparia**  
Ventral margin of valve of ♂ genitalia entire..... 4
4. Juxta of ♂ genitalia narrow and paddle-shaped; penis armed with a group of small  
cornuti..... **Antiscopa**  
Juxta of ♂ genitalia pyriform; penis unarmed or with minute scobinations only ...  
..... **Witlesia**

Genus **Exsilirarcha** Salmon and Bradley

Wings slender and pointed, with reduced venation. Femora and front coxa thickened and compressed, adapted for jumping. ♂ genitalia with well-developed uncus and gnathos, pyriform juxta, and simple unarmed valve; penis unarmed. ♀ genitalia with short broad ductus and globular bursa.

This genus is extremely primitive in structure. It was described in Crambinae, but could equally well be put in Scopariinae, though the apparent association of the larva with grasses is a crambine rather than a scopariine habit. Except for the reduction of the wings and the development of a jumping habit, this genus may well be close to the common ancestor of the 2 subfamilies. It is closely related to the genus *Protyparcha* Meyrick, from the Auckland Is., but I know of no very close relative elsewhere. Only the type species is known.

**Exsilirarcha graminea** Salmon and Bradley Fig. 1.

*Exsilirarcha graminea* Salm. & Brad., 1956: 75, figs. 24-30.

Wings reduced; body and wings uniformly light buff in fresh specimens; body blackish in rubbed specimens.

MATERIAL EXAMINED: 25 specimens, Tucker Cove, 7. VIII. 1962, K. P. Rennell; Shoal Pt., 29. VII, 21. X. 1962, Rennell; Beeman, 26-30. XI. 1961, J. L. Gressitt, 26. VII, 31. XII. 1962, Rennell; W. slopes of Mt. Dumas, above Middle Bay, 300 m, 23. XI. 1962, Rennell; Mt. Lyall, 200-400 m, 5-12. XII. 1961, Gressitt.

One additional specimen was reared from a larva captured in a grass tussock. This larva made a cocoon of bits of grass in the tussock. A 2nd similar cocoon containing a pupa was taken on St. Col Ridge, 250 m, 2. II. 1962; both collected by K. P. Rennell. Additional larvae, apparently of this species, were collected. They will be described in a later publication.

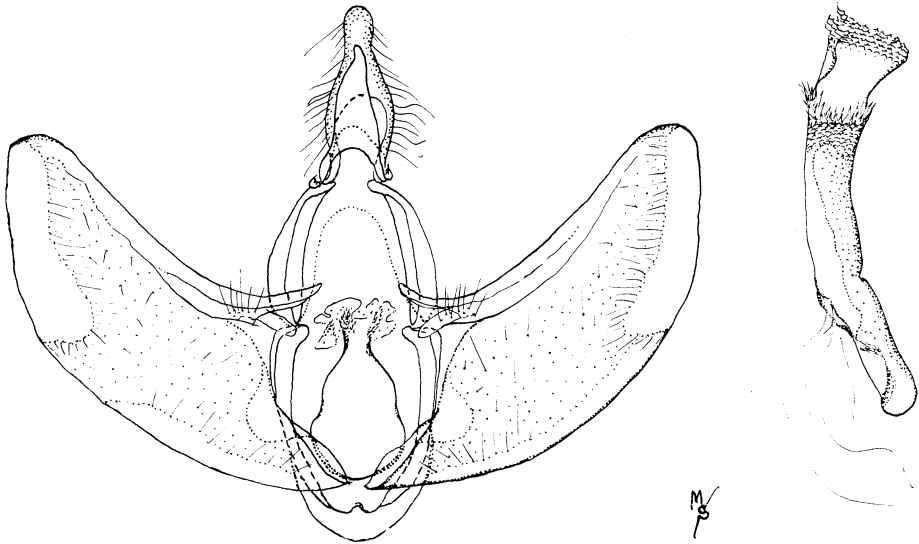


Fig. 1. *Exsilirarcha graminea* Salmon & Bradley, ♂ genitalia.

#### Genus *Scoparia* Haworth

Wings normal, functional. ♂ genitalia with valve armed on ventral margin with a spine-like process; juxta oval, subquadrate or semicircular, not pyriform or paddle-shaped; penis in some species with strong cornuti.

This genus is a large and homogeneous one, of world-wide distribution, except for oceanic islands, from which it is mostly absent, though with a few exceptions, *e.g.*, the Azores, where there are several species. There are many species in New Zealand, and also a considerable number in temperate South America. All the species of each of these 2 regions are endemic, except for extensions to neighboring small islands, and there is no particular evidence of direct relationship between the species of the 2 areas. Some New Zealand species appear to be directly related to some Australian species. Three of the species found on Campbell I. are identical with New Zealand forms. The 4th, known only from the type specimen, has not been dissected, and its generic position and geographic relationships remain uncertain. It is a species of very distinctive appearance and it is presumably endemic. A 5th species, *S. halopis* Meyrick, is recorded without comment by Salmon (*In* Salmon & Bradley, 1956). This species is common on the Auckland Is. but is not represented in the present collection from Campbell I. and the record requires confirmation. If it proves to be authentic the distributional pattern of the islands will not be materially altered, because the species is known from New Zealand also.

#### KEY TO CAMPBELL ISLAND SPECIES OF SCOPARIA

1. Fore wing largely orange-brown, with some white and pale-ochreous markings ..... **albafascicula**  
 Fore wing above with grey or greyish brown ground color and some black or black-

- ish markings ..... 2
2. Fore wing above uniformly light greyish brown with 2 contrasting black longitudinal streaks ..... **rotuella**  
Fore wing above somewhat variegated grey with complex or obscure markings ..... 3
3. Fore wing above with a large, triangular, black, medial patch on costa, or with black, quadrate, reniform and claviform spots arranged to form a triangle with the round orbicular dot; an oblique, rufous, antemedial line present ..... **parmifera**  
Fore wing above without rufous antemedial line or black costal patch; claviform never and reniform rarely large, black and quadrate ..... 4
4. Reniform small, black, triangular, closely followed by a black line paralleling its outer border ..... **triscelis**  
Reniform large, X-shaped or anvil-shaped (occurrence requiring confirmation)... **halopis**

**Scoparia rotuella** (Felder and Rogenhofer)

*Crambus rotuellus* Feld. & Rogenh., 1874: 7, pl. 137, fig. 30.

*Xeroscopia rotuella*: Meyrick, 1885: 113.

*Scoparia rotuella*: Hudson, 1928: 200, pl. 21, fig. 41.—Salmon, IN Salmon & Bradley, 1956: 62.

Fore wing uniformly pale brownish grey; a contrasting black dash from base behind cell; reniform and orbicular united by a black band to form a contrasting black streak. Hind wing pale grey.

♂ genitalia: Uncus rather narrow, distally pointed; gnathos strong and decurved, spike-like; juxta subquadrate; vinculum rather thick; valve short, distally rounded; sacculus ending in a strong decurved spine; penis short and slightly sinuous, with 2 strong cornuti followed by some finer ones.

MATERIAL EXAMINED: 29 specimens, Beeman Camp, at light, 6.IV, 2.VIII, 24, 29.IX.1962, Rennell; same locality, 2-4.II.1963, K. A. J. Wise; Tucker Cove, Malaise trap, 27.XI-21.XII.1961, Gressitt; Mt. Dumas, above 400 m, 6.II.1963, Wise; Shoal Pt., 1.XII.1962, Rennell; Lookout Bay, Perseverance Harbor, bank of stream, 3.II.1963, Rennell.

The species occurs also on the North and South Islands of New Zealand. The Campbell I. specimens average small, but otherwise normal.

**Scoparia halopis** Meyrick

*Scoparia halopis* Meyr., 1909: 72, pl. 2, fig. 3.—Hudson, 1909: 63, Nomen nudum, 1928: 199, pl. 24, fig. 50.—Salmon, IN Salmon & Bradley, 1956: 63.

Fore wing above dull grey, somewhat mottled and variegated; considerable variation in the intensity of development of dark markings; a black longitudinal dash from base to antemedial line present or absent; orbicular spot elongate-oval, brownish, usually outlined in black, sometimes very heavily, especially along posterior edge; claviform small, brownish, often outlined or suffused with black, sometimes united with black basal dash; reniform black, variable in size and definition, when reduced often situated on a brown patch, anvil-shaped or X-shaped; antemedial and postmedial lines inconspicuous, light grey, weakly edged with fuscous, the antemedial oblique, the postmedial angled distad behind costa and more strongly opposite cell. Hind wing pale brownish grey.

♂ genitalia: Uncus pointed, dorsally setose; gnathos strong and decurved; juxta parallel-sided; vinculum narrow; valve fairly short and broad, distally expanded, ventral margin with a short, stout spine; penis cylindrical, slightly sinuous, fairly thick, 1 short thick cornutus and a group of 3, also short, but more slender.

The above description was made from topotypical specimens from the Auckland Is. The species was recorded from Campbell I. by Salmon, without remark. As Auckland material was collected by the same expedition and also as confusion with *Witlesia pachyerga*, not recorded by Salmon, would easily be possible, I regard Salmon's record as somewhat doubtful.

### **Scoparia triscelis** Meyrick

*Scoparia triscelis* Meyr., 1909: 71, pl. 2, fig. 11.—Hudson, 1909: 62, Nomen nudum; 1928: 191, pl. 21, fig. 4.—Salmon, IN Salmon & Bradley, 1956: 62.

Fore wing dark grey; orbicular spot small and annular or obscure; claviform a large black dash; reniform a triangular black patch, bordered narrowly with buff and followed by a short black line parallel to its outer margin; postmedial line narrow, pale buff, inwardly then outwardly angled behind costa; a dark subapical dash in marginal area; pale longitudinal streaks in marginal area. Hind wing above grey.

♂ genitalia: Uncus distally rounded, laterally setose; gnathos slender, tip slightly bulbous, shaft finely spinulose dorsally; juxta semicircular; valve fairly narrow, costa nearly straight, sacculus produced in a strong spine; penis cylindrical, armed with 1 strong thorn-like cornutus and numerous fine spinules.

MATERIAL EXAMINED: 18 specimens, Tucker Cove, Malaise trap, 27. XI.–21. XII. 1961, Gressitt; Beeman Camp, 2–50 m, 26–30. XI. 1961, Gressitt.

This species was described from the Auckland Is.; it occurs also on North I. and South I., New Zealand. It has not previously been recorded from Campbell I.

### **Scoparia parmifera** Meyrick

*Scoparia parmifera* Meyr., 1909: 72, pl. 2, fig. 2.—Hudson, 1909: 62, 66, Nomen nudum; 1928: 186, pl. 22, fig. 13.—Salmon, IN Salmon & Bradley, 1956: 62.

Fore wing dark grey, with an outwardly oblique, rufous antemedial line; orbicular, reniform and claviform spots usually united in a large, somewhat irregular, costal patch; when separate, the orbicular a dot, the reniform and claviform quadrate patches; postmedial line narrow, fuscous; a broad, fuscous, subterminal band. Hind wing dark grey.

♂ genitalia: Uncus rather narrow; gnathos slender and pointed; juxta oval; valve broad and distally rounded; sacculus produced in a fairly stout decurved spine; penis moderately thick, without cornuti.

MATERIAL EXAMINED: 90 specimens, Tucker Cove, 27. XI.–21. XII. 1961, Malaise trap, Gressitt; Lookout Bay Beach, 31. XII. 1961, Gressitt; Beeman Camp, 2–50 m, 26. XI.–1. XII. 1961, Gressitt; Mt. Azimuth, 350–450 m, 14. XII. 1961, Gressitt & Rennell; Northwest Bay Beach, 29. XI. 1961, Gressitt; Six-Foot Lake, 2 m, 10. XII. 1961, Gressitt; Moubray Hill, 200 m, 12. XII. 1961, Gressitt; Tucker Cove to St. Col Ridge, 30. XI. 1961, Gressitt; Garden Cove, 25. XI. 1961, Gressitt; Mt. Eboulé, 150 m, 17. XII. 1961, Gressitt.

This species was described from the Auckland Is. and Campbell I., the former being the

type locality by lectotype selection (Munroe, 1960). It has subsequently been discovered in the South I. of New Zealand. There are no obvious geographic differences in the populations.

**Scoparia (?) alba fascicula** Salmon

*Scoparia albafascicula* Salm., IN Salmon & Bradley, 1956: 78, fig. 35.

Not represented in present collection. I reproduce Salmon's description:

"Expanse of the fore wings 18 mm. Fore wing medium orange-brown lightly suffused with white and ochreous scales at the base, continuing as a broad but lightly suffused band of white along the axis of the wing, as far as the second line which is faintly indicated as a broad, irregular shading of pale ochreous scales that sweep back from the costa towards the dorsum; between the second line and the apex a broad area of ochreous scales with a broad, irregular, subterminal line of white scales passing from this down the termen. A further series of patches of white and ochreous scales along the termen; cilia of long ochreous scales tipped with white. Hind wing medium brown with evenly scattered white scales interspersed amongst the brown; the cilia ochreous. Head and thorax deep orange-brown, palps ochreous, abdomen brown banded with gold on anterior segments but with dark ochreous on posterior segments."

Only the type specimen, in the Dominion Museum, Wellington, N. Z., is known. It was collected on Campbell I. by J. H. Sorensen.

Genus **Antiscopa** Munroe, n. gen.

Type-species: *Scoparia epicomia* Meyrick.

Labial palpus correct; maxillary palpus prominent, tufted with scales at apex; antenna filiform or compressed in ♂, filiform in ♀; body slender; legs normal. Fore wing triangular;  $R_1$  from before angle of cell;  $R_2$  from near angle, approximated to  $R_{3+4}$  at base;  $R_3$  and  $R_4$  stalked;  $R_5$  from angle of cell, not approximated to  $R_{3+4}$ ;  $M_1$  from discocellular at 1/3 from anterior angle; discocellular weakly curved;  $M_2$  and  $M_3$  arising close together at posterior angle of cell, their basal parts not approximated;  $Cu_1$  from distinctly basad of angle;  $Cu_2$  farther from  $Cu_1$  than  $Cu_1$  from  $M_3$ ; anals normal. Hind wing with Sc and Rs strongly anastomosed;  $M_1$  arising from anterior angle of cell close to Sc; discocellular moderately curved;  $M_2$  and  $M_3$  from posterior angle of cell, basally approximated;  $Cu_1$  from just basad of angle, not approximated to  $M_3$ ;  $Cu_2$  from cell at 3/5; Cu not pectinated; cell rather large; three anals present.

♂ genitalia: Uncus triangular in basal 1/2, parallel-sided in distal 1/2, tip rounded and slightly decurved; gnathos slender and pointed; tegumen high; vinculum narrow; juxta vase-shaped or paddle-shaped, ventrally carinate; valve slightly expanded, outer margin oblique, costa narrowly inflated, distal 1/2 of valve longitudinally striated; penis moderately slender, cylindrical, vesica armed with a group of small cornuti.

Close in structure to *Witlesia* Chapman, but is distinguished by the shape of the juxta and by the presence of cornuti. Shape of uncus similar to several primitive genera of the subfamily and it seems likely that this genus has arisen from an ancestor more primitive than *Witlesia* rather than being an offshoot of that world-wide genus. *Antiscopa* is confined to the New Zealand area. In addition to the type-species it contains ***Antiscopa elaphra***

(Meyrick), n. comb., and *A. acoma* (Meyrick), n. comb., both described in *Scoparia*. Only the type-species is known from Campbell I.

*Antiscopa epicomia* (Meyrick), n. comb.

*Scoparia epicomia* Meyr., 1885: 99.—Hudson, 1928: 195, pl. 21, fig. 33.

Fore wing rather broadly triangular, light grey, with rufous basal area, bordered distally by an inwardly oblique, blackish, antemedial band; an outwardly oblique fuscous line on discocellulars; postmedial line fine, fuscous, somewhat thickened on costa, angulate basad, then distad, behind costa. Hind wing light grey.

MATERIAL EXAMINED: 5 specimens, Tucker Cove, 4 m, Malaise trap, 27. XI–XII. 1961, Gressitt; Windlass Bay, 100 m, 25. XI. 1962, Rennell.

This species was described from Dunedin, New Zealand. Occurs on North and South islands and on Kermadec Is. It has been reported from the Auckland Is. but not previously from Campbell I. Hudson says there is considerable individual variation in New Zealand, but that northern specimens are generally brighter than southern ones. The Campbell I. specimens are large and washed out, with black band narrow and weak and basal patch rather pale.

#### Genus *Witlesia* Chapman

External structure as in *Scoparia*. ♂ genitalia with uncus rounded or sometimes distally truncate; gnathos claviform or triangular, not decurved; juxta pyriform; valve with ventral margin entire, tip rounded; penis without cornuti.

This large genus is distributed in most parts of the world, but is apparently absent from temperate South America. It is well represented on oceanic islands and has many species in New Zealand. Campbell I. species are identical with or directly related to New Zealand forms.

Three species are represented in this collection. Two additional species, *Witlesia paltomacha* (Meyrick), n. comb., and *W. sabulosella* (Walker), n. comb., described in *Scoparia* and *Crambus*, respectively, and both currently placed in *Scoparia*, were recorded by Salmon (IN Salmon & Bradley, 1956) from Campbell I. Of these, the record of *W. sabulosella* certainly refers to the species here described as *W. gressitti*, and that of *W. paltomacha* very probably refers either to the same species or to pale or worn specimens of *W. psammitis* (Meyrick), n. comb.

#### KEY TO CAMPBELL ISLAND SPECIES OF WITLESIA

1. Fore wing above light brown, almost immaculate ..... *gressitti*  
Fore wing above light or dark grey, with normal maculation..... 2
2. Fore wing very narrow, with oblique termen; orbicular annular; antemedial line  
oblique; ground color light or dark grey.....*psammitis campbellensis*  
Fore wing of normal width, termen nearly erect; orbicular a solid dark spot; antemedial line arcuate, dentate on Cu; ground color dark grey..... *pachyerga*

*Witlesia pachyerga* (Meyrick), n. comb. Fig. 2.

*Scoparia pachyerga* Meyr., 1927: 697.—Hudson, 1928: 196, pl. 52, fig. 9.

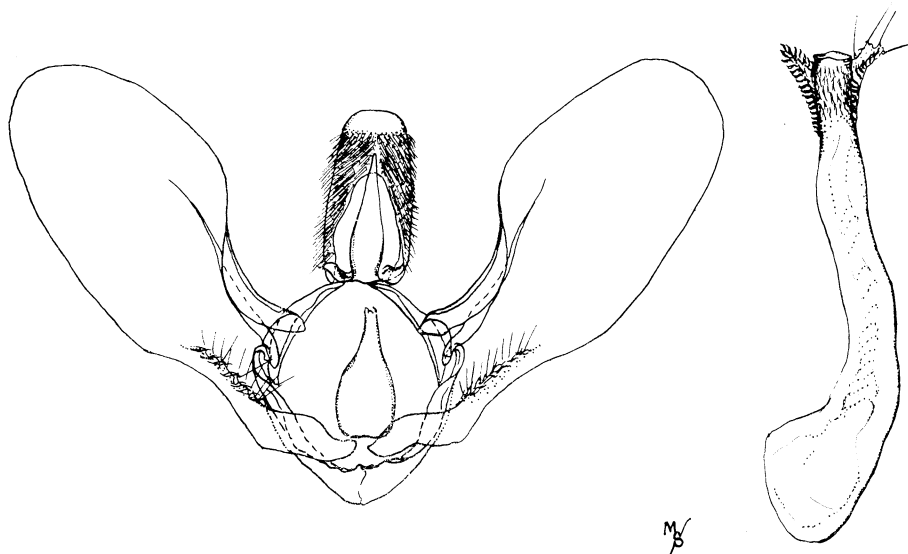


Fig. 2. *Witlesia pachyerga* (Meyrick), ♂ genitalia.

Fore wing rather broadly triangular, termen only slightly oblique; ground color above dark grey; basal area with 2 black dashes; antemedial line arcuate, slightly indented on Cu, pale grey, followed by blackish; orbicular a blackish spot; claviform a blackish dash, its base behind orbicular; reniform broadly X-shaped; postmedial line narrow, pale grey, preceded by blackish, weakly inwardly oblique, then weakly outwardly oblique, obtusely angled, and weakly inwardly oblique to posterior margin; fuscous subapical, subternal and subterminal triangles. Hind wing above dark grey.

♂ genitalia: Uncus long and parallel-sided, distally truncate but with rounded corners; gnathos narrowly triangular, not as long as uncus; juxta pyriform, dorsal part very slender, apex minutely excised; vinculum small; valve large and ear-shaped, costa inflated on basal 1/2, a prominent curvature beyond end of inflation; penis fairly slender, weakly sinuated, vesica finely scobinated.

MATERIAL EXAMINED: 8 specimens, Beeman Camp, 2-50 m, 17.XII.1961, Gressitt; Beeman Camp Station, at light, 7.II.1963, Wise; Tucker Cove, 4 m, Malaise trap, 5-21. XII. 1961, Gressitt; Tucker Cove, 1-50 m, 18-21. XII. 1961, Gressitt.

This species is recorded by Hudson only from subalpine forest on Mt. Holdsworth on the Tararua Range, southern North I., New Zealand. It is represented in the British Museum only by the type. The present series agrees excellently with the type in both maculation and genitalia, and I think there is no doubt of the identity. Probably the species will prove to be more widely distributed in the New Zealand mountains.

***Witlesia psammitis campbellensis* Munroe, n. subsp.** Fig. 3.

Frons somewhat oblique, rounded anteriorly, roughly scaled, light brownish grey, with an



inconspicuous row of paler scales laterally; vertex with erect pale-buff scaling, darker behind; labial palpus porrect, exceeding head by about its length, dark fuscous, with a fine admixture of light grey, ventrally pale buff, most broadly so at base, 3rd segment partly exposed, cylindrically scaled, lying along terminal scale-tuft of 2nd; maxillary palpus prominent, distally somewhat dilated with scales, dark fuscous, each segment light buff terminally; proboscis well developed, scaled basally with light buff; eye large, eye and ocellus fuscous; antenna dark fuscous, somewhat thickened and compressed in ♂, filiform in ♀, alternate scale-rows pale buff and raised; side of head and prothorax with a fuscous stripe from eye to wing-base; thorax above light greyish buff, somewhat ochreous laterally and posteriorly; abdomen above a little darker than thorax, distal margins of segments paler; thorax beneath and legs light grey, anterior surface of fore leg, and dorsal surfaces of mid and hind tarsi and tibiae fuscous, narrowly banded with light grey; abdomen beneath brownish grey, segments with narrow paler terminal bands. Fore wing long and narrow, distal margin oblique, size of wing a little reduced in some ♀♀; ground color above light grey, considerably darkened in some ♀♀, normally sparsely and variably dusted with fuscous; markings usually weak, but enhanced in melanistic ♀♀; a longitudinal dash of fuscous dusting in median fold at base; antemedial line strongly oblique distad, pale grey, followed by a zone of fuscous dusting, expanded posteriorly; orbicular longitudinally oval, weak, fuscous, annular, filled with light buff; claviform a round, fuscous patch, posterior to basal part of orbicular, or even somewhat posterobasal to it; reniform subquadrate to X-shaped, weakly outlined in dark fuscous, filled with pale buff in normal specimens, infuscated in dark ones; postmedial line blackish fuscous, normally very weak, oblique distad from costa to  $R_5$ , there acutely angled, retracted to an acute angle on  $M_1$ , then broadly excurved, retracted towards  $Cu_2$ , there gradually curved, oblique basad to posterior margin; a subternal fuscous patch preceded by a pale spot; a row of subterminal blackish wedges between veins, tending to be prolonged basad as short streaks; fringe buff, with an interrupted fuscous line at basal 1/3 and a much weaker one at distal 1/3. Hind wing above

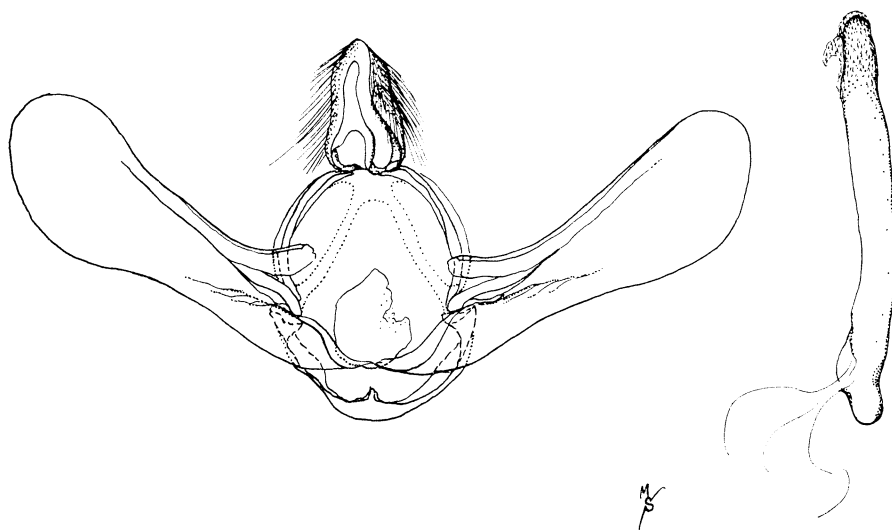


Fig. 3. *Witlesia psammitis campbellensis*, n. subsp., ♂ genitalia.

translucent grey, with faintly darker postmedial and terminal bands; fringe light buff. Wings beneath light grey with faint traces of darker markings; fringes light buff. Expanse 21–23 mm.

♂ genitalia: Uncus hood-shaped, with decurved sides and tip, distal part more slender than basal part; gnathos divided basally, distally slender and digitate; juxta tapering dorsally; vinculum narrow; valve slender, weakly and only moderately asymmetrically expanded distally, tip rounded, costa narrowly inflated to  $3/4$ , sacculus more broadly inflated to  $1/2$ ; penis slender and nearly straight, unarmed.

Holotype ♂ (D. S. I. R., Nelson), Tucker Cove, 1–50 m, Campbell I., sedge, 1–5. XII. 1961, Gressitt; allotype ♀ (D. S. I. R.), same locality and collector, 21–25. XII. 1961. 20 paratypes: Tucker Cove, 4 m, Malaise trap, 1–18. XII. 1961, Gressitt; Tucker Cove, 20 m, 8. XII. 1961, Gressitt; Tucker Cove, 1–50 m, 6–12. XII. 1961, Gressitt; Beeman Camp Station, 6. II. 1963, Wise; Southwater Bay, 2. III. 1963, shore cliffs, Wise; Beeman Beach, 19. XII. 1961, Gressitt; Shoal Pt., 3. XII. 1961, Gressitt, 7. II. 1963, Wise; Monument Harbour, 9. II. 1963, shore rocks, Wise; N. slope Courrejolles Pen., 220 m, mollymawk colony, under stones, 12. II. 1963, Wise. Paratypes in Bishop Museum, Honolulu, and the Canadian National Collection, Ottawa, type No. 8460.

Common and widespread on the main islands of New Zealand. The Campbell I. subspecies is darker and more strongly marked.

**Witlesia gressitti** Munroe, n. sp.      Fig. 4.

Frons rounded, light brown; vertex light brown, roughly scaled; a pale line along eye on both frons and vertex; labial palpus slender, porrect, exceeding head by about  $1.5\times$  its length, 3rd segment largely concealed in scales of 2nd, color dorsally brownish fuscous, with fine pale-buff dusting, ventrally whitish buff; maxillary palpus prominent, brownish fuscous, with fine pale-buff dusting, distally strongly dilated with scales; eye and ocellus fuscous; antenna with basal segment light brown, dusted with pale buff; shaft somewhat thickened and compressed in ♂, filiform in ♀, light brown; thorax above light brown; abdomen above light buff, somewhat roughly scaled; body beneath pale buff; legs brown. Fore wing fairly narrow, above light brown, nearly immaculate; cell, anal fold and veins obscurely scaled with darker brown; traces of an obliquely 8-shaped reniform, the posterior loop filled with pale brown; traces of dark-brown dots at vein-ends; some specimens with traces of a pale, oblique, postmedial line; fringe light brown, darker in basal  $1/2$ . Hind wing above pale grey; fringe whitish grey. Wings beneath silky grey; hind wing a little paler than fore wing.

♂ genitalia: Uncus long and narrow, sides curved, tip narrowly truncate; gnathos narrow and awl-shaped; juxta pyriform, irregularly truncate dorsally; valve narrow, weakly expanded and rounded distally, costa narrowly inflated to  $4/5$ ; penis slender, with fine scobinations on vesica.

Holotype ♂ & allotype ♀ (D.S.I.R., Nelson), Tucker Cove, Malaise trap, 18–21 & 16–18. XII. 1961, Gressitt. 36 paratypes: same locality and collector, 27. XI–21. XII. 1961; Mt. Dumas slope, 20. XII. 1961, Gressitt, and lower slopes, 6. II. 1963, Wise; Beeman Camp, 15. II. 1963, Rennell, and Station, 1, 2. II. 1963, Wise; Filhol, 200 m and peak, 9. II. 1963, Rennell; Lookout Bay, Perseverance Harbor, 3. II. 1963, sweeping and bank of stream, Wise;

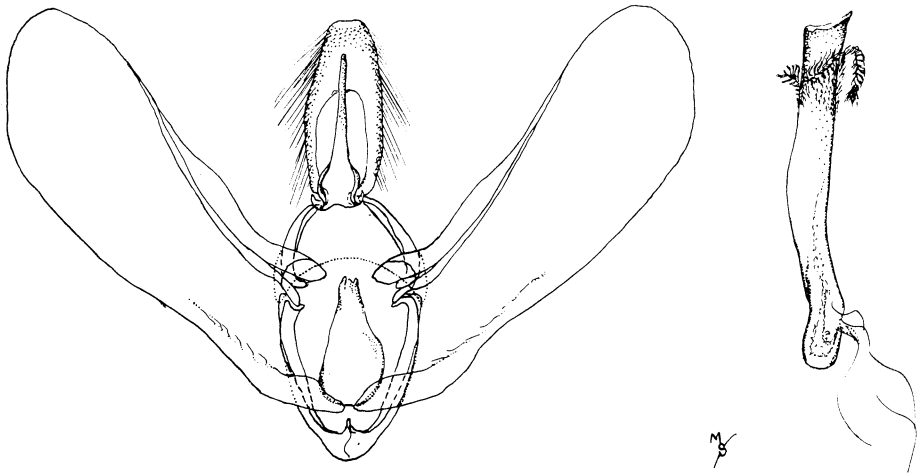


Fig. 4. *Witlesia gressitti* n. sp., ♂ genitalia.

Moubray Hill, N. slopes, 16. II. 1963, Wise; Shoal Pt., 7. II. 1963, sedge and tussock about seal elephant wallows, Wise; Camp Cove, 6. II. 1963, sweeping grass nr. stream mouth, Rennell; Tucker Cove, 4 m, 5. II. 1963, tussock, Rennell; Venus Bay, 2. II. 1963, A. Wright. Paratypes in Bishop Museum, Honolulu, and Canadian National Collection, type No. 8461.

Previous records of *W. paltomacha* probably refer either to this species or to worn specimens of *W. psammitis campbellensis*; records of *W. sabulosella* certainly refer to *W. gressitti*. *W. gressitti* is close to both species, but *W. paltomacha* has the valve of the ♂ genitalia greatly and unsymmetrically expanded and the moth is larger with distinct bands of dark dusting between the pale veins. *W. sabulosella* has the uncus parallel-sided and distally truncate and the gnathos wider and triangular; the fore wing above has a pale subcostal stripe and a distinct black discocellular dot, among other differences in maculation. The 3 species belong to a compact New Zealand group.

#### Genus *Musotima* Meyrick

This genus belongs to the most primitive section of the Nymphulinae, and in structure and biology shows a close relationship to the Scopariinae. The larva is terrestrial (not aquatic as in higher Nymphulinae) and feeds on ferns, like some Scopariinae. The genus ranges from India and China to New Zealand, and has close relatives in *Neurophyseta* and *Omphaloptera* from Tropical America. So far as known the group is unrepresented in temperate South America. The species now recorded from Campbell I. is known from the Auckland and Chatham Is. and is widespread in New Zealand and Australia.

#### *Musotima nitidalis* (Walker)

*Isopteryx nitidalis* Walk., 1865: 1317.

*Musotima nitidalis*: Meyrick, 1884: 290.—Hudson, 1928: 177, frontsp., fig. 22, pl. 19, fig. 18.

Fore wing above brown, with irregular, obliquely transverse, pale bands, edged medially with black; a pair of white spots on discocellular; a prominent white lunule on costa just

basad of postmedial line; an irregular row of subterminal spots. Hind wing above pale grey with a prominent dark triangular spot on termen in anal area.

MATERIAL EXAMINED. 1 damaged specimen, Northwest Bay Beach, 29. XI. 1961, rocks, Gressitt & Rennell. Confirmation of this record is desirable, as the single specimen is so crushed it might easily have been brought in accidentally in collecting equipment. However, the occurrence of the species is intrinsically not unlikely, and I accept the record provisionally.

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