

REDISCOVERY AND SYSTEMATICS OF THE RARE BROWN-CAPED CARPET MOTH *CHRYSOLENTIA EXCENTRATA* (GUENÉE, 1857 [1858]) COMB. NOV. (LEPIDOPTERA: GEOMETRIDAE: LARENTIINAE) IN TASMANIA

by Peter B McQuillan, Olga Schmidt, Catherine J Byrne and Margaret Warren

(with nine plates and one figure)

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We report the rediscovery of an attractive geometrid moth, the brown-caped carpet moth, not recorded in Tasmania for more than a century and presumed extinct. Originally described by the French lepidopterist Achille Guenée as *Coremia excentrata* from a specimen collected near Hobart in 1839 during the French expedition led by Dumont d'Urville, it was only observed on a few occasions before the last Tasmanian specimen was collected in the 1910s. A closer examination of its morphology reveals the holotype to be a male, not a female as claimed. We redescribe the species in detail and allocate it to the large Australian xanthorhine genus *Chrysolarentia* Butler, hence *C. excentrata* (Guenée) comb. nov. Given its rarity, it is likely a candidate for active conservation management but gaps in knowledge include the discovery and description of its immature stages and food plants.

Key Words: *Chrysolarentia excentrata*, invertebrate fauna, rediscovered species, woodland fauna, looper moths.

INTRODUCTION

The geometrid moths of Tasmania are a conspicuous component of the macromoth fauna of the island, contributing about 312 species in total (McQuillan 2004). Among the rarest species are several presumed to have been more abundant in the past, based on museum records, but have apparently contracted in range to such an extent that individuals are now rarely encountered (e.g., McQuillan 2004, Threatened Species Section 2023). This paper reports the rediscovery of the attractive brown-caped carpet moth, a species not reliably reported in Tasmania for more than a century. McQuillan (1999) first drew attention to this moth as at risk of local extinction when preliminary surveys for a state census of the looper moth family Geometridae failed to uncover any recent records. It appears to be among the rarest species of Tasmania's extensive moth fauna. We also review the historical nomenclature of this poorly known species and redescribe it in detail to facilitate its recognition in future. Finally, we comment on the conservation status of this species in Tasmania and identify some gaps in knowledge that should be addressed.

aggregators such as iNaturalist (www.iNaturalist.org), the Global Biodiversity Information Facility (www.gbif.org/occurrence/search) and the Atlas of Living Australia (<https://bie.ala.org.au/species/>). Unfortunately, no mitochondrial molecular data for this moth was available on the Barcode of Life Data System (www.boldsystems.org/index.php).

We start by recounting the known circumstances of its discovery and review the species' complicated nomenclatural history. We then redescribe the species based on its phenotype and morphology. Dissections of the abdomen of both sexes have been made by the first two authors and the key features of the genitalia are described in detail.

Based on our review, we formally reassign "*Visiana*" *excentrata* to a more appropriate genus. Since the proposed taxonomic changes affect not only Tasmanian specimens, we also examined material from elsewhere in Australia in the taxonomic part of the study. Photomicrographs of the genitalia were obtained with a digital camera (ProgRes™ C10Plus, Jenoptic Laser Systems GmbH) and processed using Helicon Focus, version 5.1 (Helicon Soft Ltd). The digital images were enhanced and the plates compiled with Adobe Photoshop™.

METHODS

To form a better understanding of this species and its distribution, we have examined a cross-section of the available specimens in museum collections together with further evidence assembled from historical and contemporary images, formal publications and reputable online data

ABBREVIATIONS USED

ANIC: Australian National Insect Collection, Canberra
 MNHN: Muséum national d'histoire naturelle, Paris, France
 NHML: Natural History Museum, London, United Kingdom
 NMV: National Museum of Victoria, Melbourne, Victoria

PBMcQC: PB McQuillan collection, Hobart, Tasmania
 QMB: Queensland Museum, Brisbane, Queensland
 SAMA: South Australian Museum, Adelaide, South Australia
 TDAC: Tasmanian Department of Agriculture Collection, New Town, Tasmania
 TMAG: Tasmanian Museum and Art Gallery, Hobart, Tasmania
 n.c.: no collector on label
 n.d.: no date on label

RESULTS

Discovery, rediscovery and previous records from Tasmania

Coremia excentrata was first described by the Paris-based lepidopterist Achille Guenée in 1858 from a single specimen. It was collected by the Dumont D'Urville expedition to the Antarctic and south Pacific during the stay of the French corvettes *L'Astrolabe* and *Zélée* in the River Derwent between 13 December 1839 and 2 January 1840. The eastern shore of the Derwent is a likely collection locality for the type specimen as it is for various other Tasmanian Lepidoptera, including some butterflies (Couchman 1962). It was probably collected by Honoré Jacquinet, the surgeon and naturalist on board the *Zélée*, and younger brother of its commander, Charles-Hector Jacquinet. Élie Jean François Le Guillou, the surgeon-naturalist on *L'Astrolabe* also collected new moths near Hobart but these were described by him soon afterwards (Le Guillou 1841). The expedition returned to Toulon on 6 November 1840. Along with other natural history material, the specimens were absorbed into the collections of the MNHN later that year awaiting the attention of curators such as Guenée (Scoble & Pitkin 2024).

We found very few Tasmanian specimens available for study. There is a single individual (missing its abdomen) collected by WL May in the Tasmanian Department of Agriculture Collection. W Lewis May (1861–1925) was the eldest son of William May (1816–1903) a well-known orchardist at Sandford on the eastern shore of the Derwent River. Lewis was a talented amateur naturalist of broad interests but with a particular expertise in molluscs (Kershaw 1986). It is likely this specimen was collected in the Sandford area around 1910, coinciding with a short period when local naturalists showed heightened interest in the local Lepidoptera fauna. Arthur M Lea, the Government Entomologist at the time, visited farmers including orchardists as part of his duties and was known to encourage a deeper knowledge of local insects among his clients by submitting specimens to the Department of Agriculture for identification. Appointed to his role in 1899, Lea left Tasmania in 1911 to take up the position of Museum Entomologist in Adelaide where he remained for the rest of his career. The TDAC collection still preserves elements of Lea's material from this period and various Lepidoptera specimens bear the labels of Lea himself as

well as local naturalists such as WK Findlay, JB Norman, GH Hardy and HHD Griffith.

After a long hiatus, attention was drawn to the rediscovery of this species via an image of a living moth posted to the popular citizen science app iNaturalist (www.inaturalist.org) by Margaret Warren at Opossum Bay, about 5 km SW of Sandford, in November 2022 (pl. 1). A second individual (pl. 2) was captured at the same location a few days later (<https://www.inaturalist.org/observations/143755312>) and is now preserved in the TMAG collection Registration no. F149393.

Taxonomic history and previous treatment

There has been considerable confusion in the literature regarding the correct name of this moth. Both the genus and appropriate species name have been unresolved historically. Guenée's original description in French was not accompanied by an illustration and was sufficiently vague for Edward Meyrick (Meyrick 1891, p. 831) to conclude that it may be a synonym of a broadly sympatric geometrid moth *Xanthorhoe strumosata* (Guenée), which bears a superficial similarity in size and wing pattern. Four years after Guenée, Francis Walker at the NHML described two geometrid moths, now synonyms of *excentrata*, and both involved specimens sourced from Tasmania. By the time of the first tranche of Turner's Lepidoptera of Tasmania checklist (Turner 1926), *excentrata* in various guises had been allocated to no fewer than three unsuitable European larentiine genera:

(1) *Coremia excentrata* in the original combination by Guenée 1857 [1858], p. 419, No. 1578.

(2) *Cidaria constipata* Walker, 1862. ("...also from Tasmania...") described from two syntypes (1♂, 1♀) preserved in NHML. Meyrick (1891, p. 834) later formalised the subjective synonymy of Walker's *constipata*.

(3) *Cidaria bifusata* Walker, 1862 holotype ♀ in NHML collected by the resident naturalist Morton Allport and probably sourced from Hobart.

(4) In his Tasmanian checklist, Turner (1926, p. 127) allocated *excentrata* to the European genus *Euphyia* Hübner, [1825]. This combination was adopted by Louis B Prout (1939, p. 287) in his wider study of the Indo-Australian Geometridae. He also named two infraspecific varieties or aberrations: *albiplaga* (Prout 1939) and *fuscifascia* (Prout 1939) based on minor differences in the phenotype of the fore wing. Based on similar instances among related species, these likely fall within the range of continuous variation in the species and, we argue, have little merit.

The holotype specimen of *excentrata* is extant in the MNHN, Paris, France, and a good-quality image is available online (pl. 3). It is incomplete, missing the left pair of wings and has been damaged in the past by a mould fungus, especially the head and antennae. The single frenulum spine visible on the underside image of the hind wing shows that, in fact, it is a male and not a female as claimed by Guenée [1858, p. 419].

For reasons outlined below, we now combine this species to the trans-Tasman genus *Chrysolarentia* Butler.

THE GENERIC POSITION OF “VISIANA” EXCENTRATA

A closer examination of “*Visiana*” *excentrata* shows that it must be excluded from *Visiana* Swinhoe as it does not share the combination of characters of that genus documented by Schmidt (2005, 2015). In particular, the male antennae are not bipectinate, the median band in the fore wings is usually lighter than the rest of the wing, and the fore- and hind wings beneath are marked with distinct, broad, dark brown postmedial bands. In the male genitalia, the ring between the seventh and eighth segments is modified; the tegumen is divided medially and without lateral tegminal arms; the costa of the valvae has an apical process protruding beyond the valval lobe at some distance from the apex, and the basal projecting arm of the costa is absent; a large calcar is also present. In females, the ventral surface of abdominal segment A7 is smooth; the apophyses posteriores are more than twice as long as the apophyses anteriores and the diverticulum of the corpus bursae is absent.

“*Visiana*” *excentrata* was used as an outgroup in her revision of the larentiine genus *Scotocyma* Turner by Schmidt (2005, 2007) who scored 50 morphological characters and their states for a phylogenetic analysis. She used this evidence to conclude that *excentrata* was misplaced in *Visiana*, first by Holloway (1997 and previously as pers. comm.) and adopted by McQuillan and Edwards (1996) but did not suggest an alternative placement.

This species is re-described more completely below and shows features consistent with the genus *Chrysolarentia* Butler (genotype *Chrysolarentia conifasciata* Butler, type locality: Melbourne, Victoria) to which we assign it formally. With the genotype it shares the following features: similar size and wing shape; hind wing colour in strong contrast to the fore wing; underside is yellowish with contrasting brown markings; venation with two areoles present in the fore wing; male antenna simple, segments prismatic and ciliate; abdomen not crested; male genitalia with uncus well developed, calcar long, bent in profile, setiferous on distal third, aedeagus very slender, caecum very short or lacking, one or more cornuti present; female genitalia with ovipositor of moderate length, apophyses posteriores about twice the length of the apophyses anteriores, antrum sclerotised and longer than wide (typically x 2), ductus bursae long and lacking a diverticulum, corpus bursae subglobose to globose and irregularly plicate.

SPECIES REDESCRIPTION

Chrysolarentia excentrata (Guenée) comb. n. (pls 1–8)

Coremia excentrata Guenée, 1857: 419. — Meyrick, 1891: 831 (incorrect synonymy of *Coremia strumosata* Guenée). Viette, 1950: 205.

Hydriomena excentrata — Turner, 1904: 256.

Euphyia excentrata — Turner, 1922: 260; 1926: 127.

Visiana excentrata — McQuillan & Edwards, 1996: 225.

Holloway, 1997: 192. Scoble, 1999. Marriott 2011: 26, 27. Byrne, 2013.

“*Visiana*” *excentrata* — Schmidt 2005, 2015.

Cidaria constipata Walker, 1862: 1405. — Prout, 1939: 287; ab. *fuscifascia* Prout, 1939 (Gisborne) [var. a of Turner, 1904: 257]; ab. *albiplaga* Prout, 1939 (Gisborne) [var. b of Turner, 1904: 257].

Hydriomena constipata — Meyrick, 1891: 834.

Cidaria bifusata Walker, 1862: 1406. — Meyrick, 1891: 834 (synonymy of *constipata*). Prout, 1939: 287.

Type locality

Tasmania, near Hobart.

Material examined

Holotype ♂ (pl. 3), in poor condition and missing its left pair of wings and abdomen, labelled “TYPE [printed, red label]: *excentrata* [hand]: Museum Paris Tasmania Jacquinet 1841: 1270 41 [hand, round label]: *Coremia excentrata* Gn. X.419 [P Viette’s hand]” image MNHN-EL-EL80826 in MNHN.

Other specimens examined (pl. 2)

Tasmania: 1 ♀, labelled “42.98449°S 147.41152°E TAS., Opossum Bay 10 m 4 DEC. 2022 M. Warren peri-urban herbfield Databased 121289 PBMcQ” (TMAG); 1 ♀, labelled “Sandford, n.d., W.L. May” (TDAC); 2 ♀, Tasmania, n.d., n.c. (QMB, possibly via the Wilfred B Barnard Collection); 1 ♂, labelled “Tasmania n.d., n.c.” (SAMA, possibly via the Frank M Littler Collection); 1 ♂, Tasmania, n.d., n.c., genitalia slide GL5174 (PBMcQC). **New South Wales:** 1 ♂, labelled “NSW 25.ii.1947 LH Mosse-Robinson” genitalia slide GL5186 (PBMcQC). 1 ♂ 1 ♀, labelled “NSW n.d., n.c.” genitalia slides Olga Schmidt.

Other images examined (pls 1, 4–7)

Tasmania: 1 ♀, Opossum Bay 10 m NOV. 2022 M Warren. **New South Wales:** 1 ♂, Devils Hole, Barrington Tops 7.xi.1991 JC Keast (-31.916 151.482 elev. 1,415 m) Database 31 043755 (ANIC); 1 ♀, Armidale 29.xi.1959 CW Frazier (-30.514 151.667 elev. 980 m) Database 31 043754 (ANIC); 1 ♀, Avalon 1.iii.1947 J Gemmell (-33.636 151.328 elev. 20 m) Database 31 043756 (ANIC). **Victoria:** 1 ♀, underside. VIC., Gisborne G Lyell (-37.493 144.589 elev. 450 m) (NMV).

Wingspan. ♂ 31–32 mm; ♀ 32–34 mm.

Head. Face rather smoothly scaled. Labial palpi rather thick, short, curved, at base covered with white scales, with terminal segment very small, rostriform. Antennae in both sexes simple, in male slightly swollen and ciliate.

Thorax. Smoothly scaled, brownish, with whitish scales ventrally. Fore tibia with an epiphysis closely appressed to tibia in both sexes. Hind tibia with two pairs of spurs.

Wings. Fore wing with costa slightly curved distally, apex acute, termen almost straight; ochreous fuscous in colour with a weak purple gloss, crossed by numerous wavy dark fuscous lines and a few variable white markings; a rather broad median band, often lighter than the rest of the wing (rarely darker), with a wavy, double medial outward prominence, its interior border not rounded. Fore wing



PLATE 1 — The first specimen of “*C.*” *excentrata* rediscovered in Tasmania by M Warren, 4 November 2022 at Opossum Bay (–42.984°, 147.411°, elev. 10 m): www.inaturalist.org/observations/143159010. Photographed in its alert stance with the hind wings partly exposed, after being disturbed while roosting high on a wall in a covered veranda. This specimen was not collected.

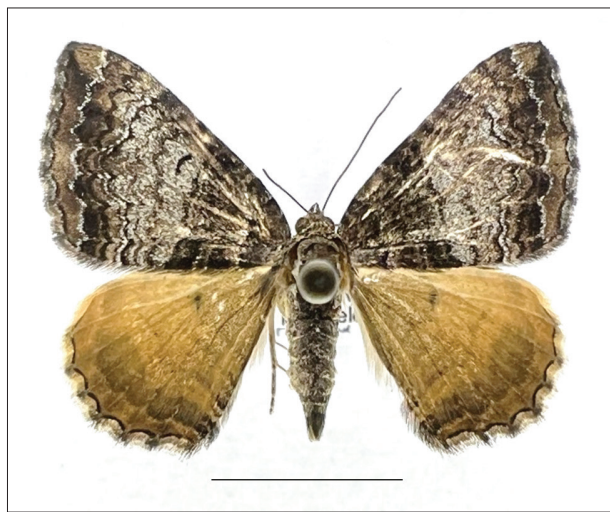


PLATE 2 — A second specimen of “*C.*” *excentrata*, a female, rediscovered by M Warren, 4 December 2022 at Opossum Bay (–42.984°, 147.411°, elev. 10 m) (TMAG). Scale line 10 mm.

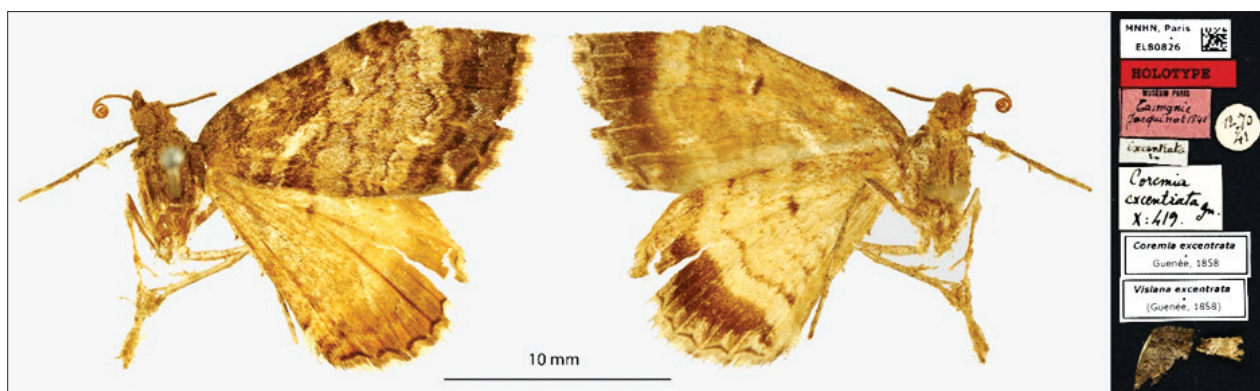


PLATE 3 — Holotype male of *Coremia excentrata* Guenée collected from Tasmania in 1839, preserved in Muséum national d'Histoire naturelle, Paris. Specimen MNHN-EL-EL80826 (credit: MNHN - V Durand 2023 CC BY 4.0) <http://coldb.mnhn.fr/catalognumber/mnhn/el/el80826>



PLATE 4 — ♂ *C. excentrata* NSW., Devils Hole, Barrington Tops 7.xi.1991 JC Keast (–31.916°, 151.482°, elev. 1415 m) ANIC Database 31 043755

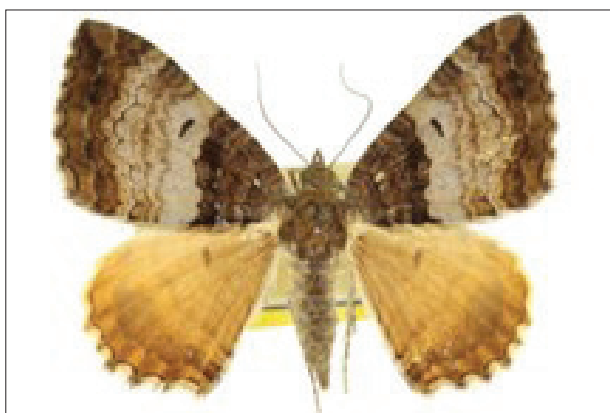


PLATE 5 — ♀ *C. excentrata* NSW., Armidale 29.xi.1959 CW Frazier (–30.514°, 151.667°, elev. 980 m) ANIC Database 31 043754



PLATE 6 — “*C.*” *excentrata* ♀ NSW., Avalon 1.iii.1947 J Gemmell (−33.636°, 151.328°, elev. 20 m) ANIC Database 31 043756



PLATE 7 — “*C.*” *excentrata* ♀ underside. VIC., Gisborne G Lyell (−37.493°, 144.589°, elev. 450 m) NMV. (credit: P Marriott)

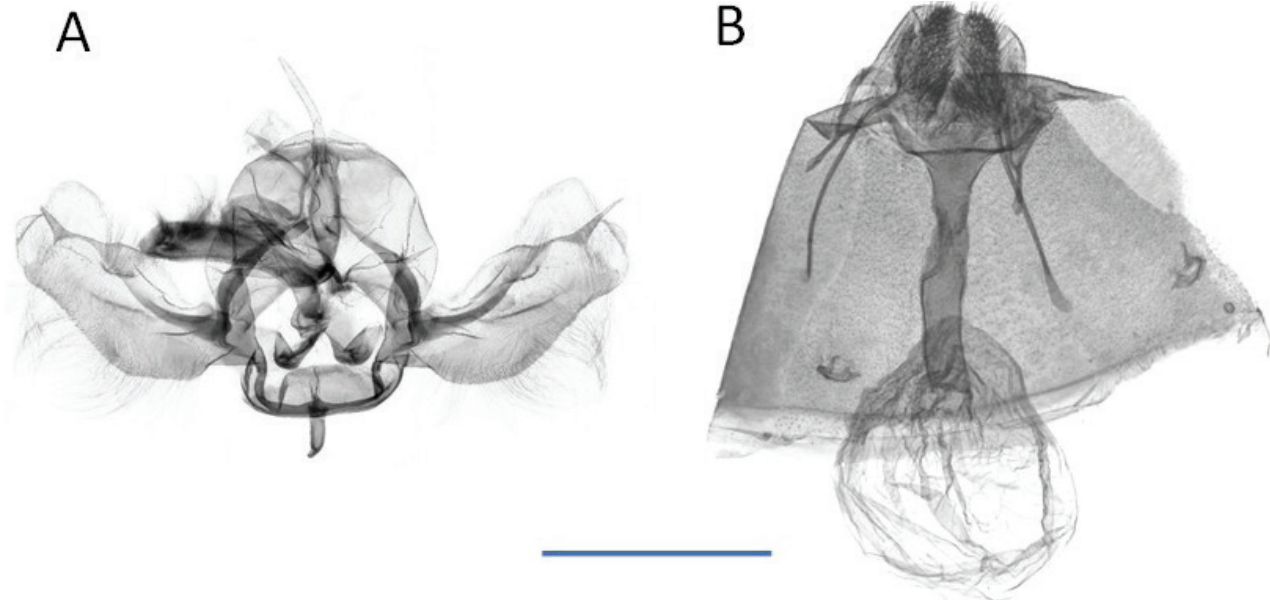


PLATE 8 — **A** ♂ genitalia of *Chrysolarentia excentrata* (from NSW); **B** ♀ genitalia. Scale line 1 mm. Both preps. by Olga Schmidt.

underside ochreous in its basal half, with a thin, wavy, brown medial line forming a medial outward projection, with a dark brown subterminal- and a greyish-brown terminal band, with a narrow discal dot. Hind wing with termen rounded and crenulated, usually brighter coloured than fore wings and of a reddish-ochreous hue which is paler towards the costa, with darker shaded postmedian band. Hind wing underside coloured and patterned similarly to the fore wings, but with medial line lacking a medial projection.

Abdomen. Coremata in males consist of eversible hair tufts in a very broad pocket laterally on each side of segment A7. A ring between segments A7 and A8 is modified, with lateral cavities. The last pair of abdominal spiracles are set ventrally on the coremata pockets. The ventral surface of abdominal segment A7 in females is smooth, compared to *Visiana* species. Tympanal ansa broad hammer-shaped, with medial rounded broadening, without a scoloparium.

Male genitalia (pl. 8A). Uncus slender, long, straight in profile, shifted ventrally. Tegumen inflated. Labides distally spatulate. Valvae elongated, with costa drawn to a distal free arm; valvula enlarged, bilobed, weakly differentiated from poorly sclerotised sacculus which is set with long marginal setae. Calcar large, distally exceeding lower margin of valva in profile, densely setiferous with long setae dorsally. Juxta with rounded basal lobes connected to the sacculi of the valvae. Vinculum rather narrow, with thin medial process (=sacculus) reflexed. Aedeagus extremely slender, curved, no caecum; cornuti of a line of very slender short spines.

Female genitalia (pl. 8B). Ovipositor of moderate length; papillae anales rounded and densely setiferous. Apophyses posteriores are more than twice as long as apophyses anteriores. Lamella postvaginalis membranous; lamella antevaginalis a transverse sclerotised lip spanning the a. anteriores. Antrum relatively small, weakly sclerotised; ductus bursae relatively long and thin, weakly sclerotised,



PLATE 9 — View of Sandford district from Mt Mather (1948). (Tasmanian Archives, Jack Thwaites Collection NS3195/1/256)

corpus bursae small, subglobular, membranous-coriaceous, irregularly plicate longitudinally, without a diverticulum; ductus seminalis set ventrally, close to the ductus; signum absent.

Diagnosis

Within the diverse Tasmanian xanthorhoinae fauna, the upperside of the hind wings is a distinctive colour, making the species relatively easy to recognise. Various described as “brun-cannelle clair” [light cinnamon-brown] by Guenée 1857 [1858], as reddish ferruginous by Walker (1862) [in *bifusata* Walker, a synonym] and as ochreous-fulvous by Meyrick (1891, p. 835). It differs from *Chrysolarentia conifasciata* in the development of the male genitalia, especially the tegumen. The female differs in the vestiture of the papillae anales, and the somewhat coriaceous rather than thinly membranous corpus bursae which is plicate.

Habitat

Open eucalypt coastal woodland near sea level in Tasmania. Photographs from the vicinity of Sandford, taken around 1948, show open forest with an overstorey of *Eucalyptus viminalis* and *E. amygdalina* with scattered *Allocasuarina*, *Exocarpos* and *Acacia* sp. tall shrubs and with a grassy or sedgy ground layer in places (pl. 9). *C. excentrata* is less coastal and extends further inland on mainland Australia.

Distribution (fig. 1)

Eastern Australia south of the Queensland border, with a large disjunction to coastal southeastern Tasmania. On mainland Australia, it occurs sparingly in woodland localities from Killarney, Queensland (−28.334°, 152.296°, 505 m

elev.), and Armidale (−30.504°, 151.652°, 980 m elev.) and Ebor (−30.400°, 152.350°, 1350 m elev.) in New South Wales (Turner 1922), to southern Victoria in the vicinity of Gisborne (−37.485°, 144.591°, 440 m elev.) and Melbourne. Most northern populations seem to occupy woodlands at higher elevations, up to 1,415 m on the Barrington Tops.

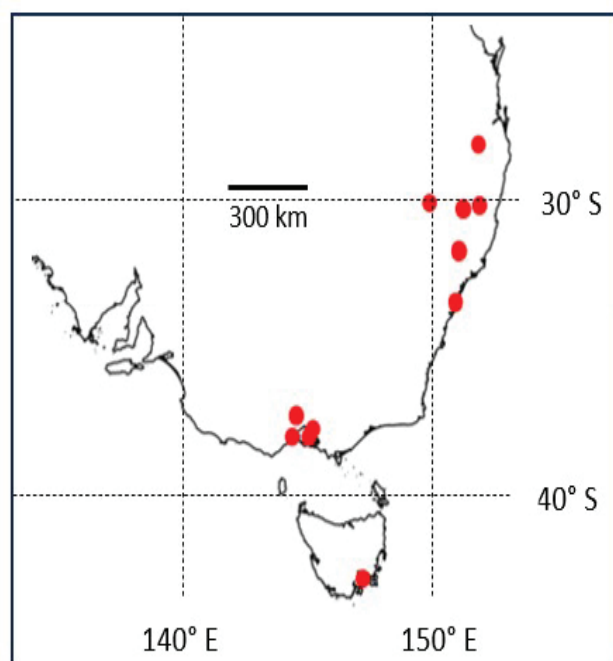


FIGURE 1 — The distribution of *Chrysolarentia excentrata* features large disjunctions.

Biology

Adult moths appear to be active in early morning light at or soon after dawn, then retreat to high vertical surfaces in shade later in the morning where they roost for the rest of the day. Similar behaviour has been observed in a sympatric relative, *Xanthorhoe anthracinata* (Guenée) (PBM pers. obs.) near Hobart. Attempts a few days later to attract specimens to ultraviolet lights at the original site and at a nearby coastal reserve, were unsuccessful. Mr Jim Duggan who runs a UV light source for documenting moths in nearby native woodland at Lauderdale, has not detected this species so far (pers. comm.). Although an iNaturalist image from Victoria shows a specimen settled on an illuminated sheet, it may be only weakly attracted to light sources. The flight period in Tasmania is late spring to early summer, but the span of collection dates in New South Wales suggests there may be an autumn generation as well. Immature stages and food plants remain unknown.

The contrast with the rather cryptic patterning of the fore wings suggests they may function as anti-predator startle or flash coloration, a feature well-developed in some other members of the genus which rest with the fore wings covering the hind wings (Meyrick 1891). The bright colours of this species are consistent with some related day-flying geometrids but there is no evidence so far that *C. excentrata* is diurnally active. A rare species in Tasmania, it has not been collected for more than 110 years; there are also few recent records from mainland Australia. The widespread decline of native temperate grassy woodlands on fertile soils is possibly implicated.

DISCUSSION

We confirm that *C. excentrata* is a conventional member of the largely amphipolar larentiine tribe Xanthorhoini which includes four genera in Tasmania (McQuillan 2004). The presence of a calcar in the male genitalia is diagnostic for this group (Pierce 1914, Schmidt 2013) and this feature is clearly visible in dissections of this species. Although *C. excentrata* does not seem to share a few presumably chrysolarentiine characters, like the shape of the tegumen, uncus and saccus, in all major aspects, including its general phenotype, it is consistent with the Australian genus *Chrysolarentia* Butler, the largest local genus of xanthorhoinines present in southern Australia. Molecular approaches could provide additional evidence.

In a brief overview of Tasmanian Geometridae, McQuillan (2004) reported no recent distribution records for this species (listed as '*Coremia*' *excentrata*) for Tasmania but inferred its likely association with dry forest from occurrence records on mainland Australia. Since that time, more than 200 moth sampling events in Tasmania by three of the authors have failed to detect *C. excentrata*, emphasising its rare and restricted status in the state.

It is possible, but unlikely, that *C. excentrata* is an occasional migrant to Tasmania across Bass Strait since various other macromoths, including geometrids, can disperse across this 200+ km-wide seaway (e.g. Hill 2013).

Occurrence records from the north coast of Tasmania would be expected in such a scenario. A government entomologist, Mr Lionel Hill, maintained a Rothamstead-style mercury vapour light trap near Devonport for almost 30 years until 2019 without detecting this moth.

Although some species of *Chrysolarentia* are widespread in Tasmania, others are more restricted in their distribution including a suite of alpine and subalpine taxa. A related geometrid, the grassland or Tunbridge looper *Chrysolarentia decisaria* (Walker) is a listed threatened species (Threatened Species Section 2023). A diurnal moth active in autumn, the Tunbridge looper is now restricted to scattered patches of native or semi-natural grassland in the dry Midlands. There are parallels with several xanthorhoinine moths in New Zealand which have become increasingly rare due to intensification in land use, especially livestock grazing (Patrick 2000).

Conservation needs

Although woodland and heathy habitats are widely established on sandy soils close to sea level in southeastern Tasmania (The LIST 2023), much coastal woodland near Hobart is now cleared for farming or housing. It is noteworthy that the population reported here is likely to be living close to the original type locality for this moderately wide-ranging species (30°S to 42°S). Interestingly, the occurrence of *C. excentrata* in a semi-rural habitat suggests a degree of tolerance for modified environments and some optimism for its persistence.

The future discovery and documentation of the immature stages will greatly aid conservation efforts as supplementation of populations by release of reared individuals has been successful for rare moths elsewhere (Baker *et al.* 2016, Butterfly Conservation 2019). Larvae of most members of the Xanthorhoini are sluggish, generally nocturnal caterpillars which mostly feed on native herbs although a few species can accept exotic food plants, e.g., *Epyaxa subidaria* (Guenée) (McFarland 1988, Schmidt 2016). Captive rearing experience with some other Tasmanian xanthorhoinines indicates that pennyworts *Hydrocotyle* spp., some native buttercups *Ranunculus* spp. and *Geranium potentilloides* are widely accepted in their diet (PBM, pers. obs.).

The following conservation measures and future research strategies are recommended: (i) further surveys be undertaken in the flight season (late spring–early summer) to clarify the Tasmanian distribution and status of *C. excentrata*; (ii) eggs for rearing be obtained from females so that the immature stages can be recognised, especially the larvae, to facilitate surveying; and (iii) *C. excentrata* should be formally assessed for listing as a threatened species under Tasmania's *Threatened Species Protection Act* 1995.

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