

## Ecological observations of the eastern Volcanic Plateau endemic grassmoth *Orocrambus jansoni*

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### Abstract

A survey for threatened moth and butterfly species of the Department of Conservation's Tongariro-Taupo Conservancy successfully searched for and found the rarely collected grassmoth *Orocrambus jansoni* Gaskin, 1975 (Crambidae; Crambinae). The grassmoth was found at six sites on the Desert Road, and further northeast at the Rangitaiki Frost Flats. The species is diurnal in both sexes, but the females were found to be more reluctant to fly than the males. From observations of the females a possible host grass was identified as *Rytidosperma pulchrum*. From our observations of abundance and distribution, and the fact that the known habitats are on Crown Land managed for conservation, the species is not threatened with extinction.

**Keywords:** Crambidae; Crambinae; *Orocrambus jansoni*; ecology; distribution; new records; Volcanic Plateau; conservation status.

### Introduction

The genus *Orocrambus* (Lepidoptera; Crambidae; Crambinae) is endemic to New Zealand, and with 52 species is one of its most speciose moth genera. The closely related and monotypic *Kupea* is confined to Kaitorete Spit, Canterbury where *Kupea electilis* is locally abundant (Patrick, 2012b). Several of the *Orocrambus* species are ubiquitous in the New Zealand lowlands such as *Orocrambus flexuosellus*, *O. cyclopicus*, *O. vittellus* and *O. vulgaris*

while others have very small natural distributions such as *Orocrambus fugitivellus* (Patrick, 2012a). Some are alpine grassland specialists such as *Orocrambus machaeristes* and *O. tritonellus*, while others are confined to alpine scree habitat such as *Orocrambus melampetrus* and *O. clarkei*; still others are confined to high alpine fellfield such as *Orocrambus cultus*. Wetlands support many species such as *Orocrambus heliotes*, *O. aethonellus* and *O. siriellus*, and others are dryland specialists such as *Orocrambus sophistes* and *O. corruptus*. Inland riverbeds are home to some specialist species such as *Orocrambus haplotomus* while coastal dunes support *Orocrambus callirrhous*. The genus is represented on New Zealand's subantarctic islands, and the Chatham Islands have *Orocrambus horistes* as a local endemic. As such the genus defines New Zealand geographically and topographically, with a different mix of species occupying each part of the nation.

The grassmoth *Orocrambus jansoni* (Figure 1) was discovered on 4<sup>th</sup> February 1966 at Waiouru (2,800') by David Gaskin and subsequently described by him (Gaskin, 1975). Prior to our study it has only been recollected at the same locality (John Dugdale pers. comm. 2009). Its distribution, ecology, biology, habits and threat status were consequently poorly understood prior to the current survey. The fact that we found it commonly at the first place we searched on the Desert Road north of Waiouru, underlines how little study for moths this area has had in recent years.

Gaskin noted in his 1975 paper that the Type Locality and only known locality for the species was 200 x 50m in extent and was located beside the Ohakune Road. This was a mistake and had resulted in us failing to find the species in 2003. He did not correct this mistake in his later paper where he noted other corrections (Gaskin, 1987). He also noted the flight period was December to February, so he must have returned to the original place over the years but still failed to correct this mistaken locality. In the meantime the Department of Conservation had ranked *Orocrambus*

*jansoni* as Nationally Critical in its 2007 ranking of Threatened Species based on the few records of the species and no additional localities.

Hamish surveyed for threatened and poorly known Lepidoptera in Tongariro-Taupo Conservancy under contract from 20 December 2009 to 28 January 2010, based initially in Ohakune then Turangi and Whakapapa. Brian joined him from 18-28 January 2010.

### **Methods**

We started intensive sampling of suitable habitats on the Desert Road from the Turangi end on 19 January 2010. We were looking for predominately natural areas of open native grasses based on our experience of similar grassmoth species in the South Island such as *Orocrambus fugitivellus*.

We employed several sampling techniques including light trapping using a 240V powered 125W mercury vapour lamp run from a generator. On sunny days we netted diurnal species on the wing, and also used the nets to sweep various vegetation types for Lepidoptera. Once male moths of *Orocrambus jansoni* were found, we made a detailed search on the ground for females, and then once females were found we observed which grasses they appeared attached to in that habitat.

A range of male and female adult moths were pinned, dried and labeled and are stored in the private collection of one of the authors (BHP) in Christchurch.

### **Results**

From the 19 -27 January 2010 we found *Orocrambus jansoni* at six sites on the Desert Road and at Rangitaiki Frost Flats further to the northeast. At all sites where it was found it was reasonably common, especially males. In fact we found *O. jansoni* at the very first place we sampled on the Desert Road on the 19 January 2010, and it was

the first moth seen, such was its abundance at that site. It was still abundant at these sites on 27 January 2010.

- The sites where we found it are:
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- Waipua Stream; 900m - 28 km south of Turangi – burnt shrubland area – now low grasses with scattered red tussock
- Wharupa Stream 900m
- Lake Moawhango; 920m
- Waitangi Stream; 850m – 5km north of Waiouru
- Desert Road summit; 1040m
- Desert Road just north of summit; 1040m
- Rangitaiki Frost Flats; 750m – grassy areas amongst shrubland

The first six sites are on both sides of the Desert Road. Here *Orocrambus jansoni* was found to favour open habitat such as grassy hollows, stream channels and valley-bottom open grassland amongst much denser shrubland and taller grassland. Generally this type of open habitat is localised but in some places it is extensive and supports large populations of the moth and its possible larval hostplant grass.

Although not explicitly noted by Gaskin, the species is diurnal, with maximum adult activity on calm hot days. The adults fly low to the ground in openings between tall tussocks such as *Chionochloa rubra*, often settling on this tall grass, but also on low vegetation of prostrate shrubs and low grasses. We noted that adults particularly females, crawled out of a reddish low fine grass *Rytidosperma pulchrum*. This is a possible hostplant, but may not be the only hostplant, although Gaskin's suggestion of *Chionochloa rubra* as a host is improbable.

Gaskin noted just one female while we found them to be common if carefully searched for. Females can be found by walking through

habitat where the species is common and looking carefully at any adult on the ground that once disturbed is reluctant to fly.

Adults were also captured at a 240V ultra-violet light placed close to ideal habitat, but in much lesser numbers than were seen at the same place during the day.

Adults are a neatly striped brightly-coloured species with a wingspan from 18-22mm for males and 22mm for females (Figure 1). Females can fly, but as their abdomen is distended with eggs, they are often reluctant to do so.

### **Discussion**

The grassmoth *Orocrambus jansoni* is a distinctive element of the eastern region of the Volcanic Plateau in the Central North Island. It is neither threatened with extinction nor rare in its favoured habitat. We recommend that the species is removed from its current threatened status as it is common in its characteristic habitat and its entire known habitat is Crown Land, much of which is managed for the conservation of indigenous flora and fauna. We believe the species is not threatened at present using the Department of Conservation's criteria. This has been actioned and the latest threat ranking states that the species is not threatened (Stringer *et al.* 2012).

The species has never been found on the western side of the Mount Ruapehu massif. We sampled there during the course of this survey and did not find it, confirming that its distribution is east of Mount Ruapehu only. Conversely we think that it is highly likely that the species will be found to be very numerous in suitable habitat from 700-1000m east of the Desert Road in grassy openings in damp red tussocklands and streamsides.



Figure 1  
Male *Orocrambus jansoni*. Wingspan 21mm. Image courtesy of Landcare Research Ltd.

We recommend further surveys to the east of the Desert Road into New Zealand Defense Force Lands. This will require permission from the Army, but will likely result in a huge extension in range for the species.

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