St Helena Research Institute Bursary 2024

St Helena Cloud Forest Project

Habitats and biology of high altitude endemic *Opogona* of St Helena

Report

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Dessau, 22.06.2025

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1 Introduction

Funded by the St Helena Cloud Forest Project (SHCFP) Research Institute Bursary 2024 the author undertook fieldwork and research on St Helena Island from 15 February 2025 – 29th March 2025. The study focus was on the endemic species of *Opogona* on the island. As far as possible, data on other endemic and non-endemic Lepidoptera species was collected as well. The fieldwork was planned and implemented with Liza Fowler, Cloud Forest Invertebrate Specialist, SHCFP; the staff of the Environmental Management Division, Environment, Natural Resources and Planning and supported by the Research Institute.

According to the application for the Research Bursary the aims of the project were:

1. determine the habitat requirements and the distribution for those endemic *Opogona* species, which are thought to be restricted to or preferring the cloud forest zone;

2. investigate the biology of these species and to identify their food plants used by these species;

3. identify so far overlooked, unknown endemic *Opogona* species from the higher altitudes of the island;

4. investigate habitat requirements of endemic *Opogona* species with their main distribution outside the cloud forest zone (alongside the works mentioned under 1.);

5. adapt investigations on endemic moths of the cloud forests based on the results of the first periods of the SHCFP and DPLUS040.

Deriving from the analysis of the results of the fieldwork, the following outcomes are expected:

- revised and specified list of habitats and microhabitats of endemic *Opogona* (and *Helenoscoparia*, *Udea* and other moths by using the opportunity of light trapping);

- specific location list of species inside the cloud forest zone with measures that can be implemented in short and medium term to protect and promote these endemic species, which are specific for the cloud forests or have a clear focus for habitats in this ecological zone;

- all records will be provided for iRecord St Helena and shared with SHNT;

- first version of an ID-Key for cases and caterpillars of species of the higher altitudes after final identification of the species by using genetic methods;

- description of so far unknown species;

- additions to the ID-key for moths;

- highlight lichens and moss species, which are important for endemic moth species;

- amendment of monitoring measures for CF-priority species *Elachista trifasciata* (Key & Fowler, 2022)

As the analysis of the results and the material are taking long time to process, this report provides information about the investigations undertaken to obtain the planned outcomes and some preliminary results on habitat(s) and food plant(s) of endemic moths.

2 Methods

2.1 Light trapping

Light trapping was undertaken by using a 250 W high pressure mercury vapour bulb or a Lepi-LED. The fist lamp was run by a generator, the second by a power bank. The light trapping started after sunset (about 7.00 – 7.20 p.m.) and lasted about three hours. Temperature and weather conditions were noted.

Fig. 1 Light trap near Wells, 23.ii.2025 (photo: T. Karisch, 2025)

During the light trapping the moth species were noted and a sample of each *Opogona* morpho-species was collected. Unknown species for the island and specimen of endemic species, showing morphological differences to the known species were collected. From introduced species a few samples were taken to get revisable records for the collections and to allow morphological studies and/or genetic investigations.

The allowed maximum number (Key & Fowler, 2022) was respected in accordance to the application for the research licence. In the cloud forest zone the light trap was set up exclusively on the paths. The advice of responsible staff was respected and the quarantine regulations were followed.

Higher numbers of individuals of one species were often estimated. The following abbreviations were used in the spreadsheets: iA – between 5 and 9 specimens; iM – between 10 and 24 specimens; iV – more than approximately 25 specimens; ab. – about.

A range of different types of vegetation was studied to provide information on species range and composition of the fauna. In addition to the cloud forest vegetation, the study covered other forests or woodlands with endemic trees, forests or woodlands without endemic trees. In collaboration with the St Helena Research Institute the semi-desert areas of the Barn and Bencoolen were studied to get an impression of the typical fauna, as the Lepidoptera fauna of these areas is poorly known.

Tab. 1 Light trap localities 2025, with habitats and classification. Cloud forest areas are marked with grey; see appendix 3.1.

Date	Location	Habitat	Classification
21.02.2025	Piccolo Hill near fire protection pond	Gumwood-row in grassland	endemic woodland; 1.5.1 on 14.2.1
22.02.2025	Mt Actaeon, SW cliff	Tree fern-thicket mixed with Flax in Sedge-Fern-Grass-vegetation, few Black Cabbage	cloud forest; 1.9.1 with 3.6.7, 3.6.8, 3.7.1
22.02.2025	Mt Actaeon, at canon	Black Cabbage-Tree fern-vegetation with alien herbs	cloud forest; 1.9.2. and 1.9.1
23.02.2025	Wells at Cabbage Tree Road below Diana's Peak	cloud forest vegetation, dominated by ferns and tree fern	cloud forest; 1.9.1 and 3.7.1
24.02.2025	0.2 km W Black Gate Nursery	cloud forest vegetation, enhanced number of planted endemic trees	cloud forest; 1.9.5
25.02.2025	Longwood, Millennium Forest near carpark	Gumwood-Dwarf Ebony-plantation on ash ground, some Creeper	endemic woodland; 1.5.1 on 8.4.6
26.02.2025	Blue Point, Hooper's Rock at the track to Peak Dale	non-native woodland and rock surfaces with Lichens	non-native woodland; 1.5.6
27.02.2025	Thompson's Wood	Acacia-Forest on grass	non-native woodland; 1.5.8 on 14.2.1
27.02.2025	Thompson's Wood	Acacia-Forest with some Gumwood on grassland	woodland with endemics; 1.5.8 with 1.5.1
02.03.2025	Sunny Side near bus shelter	African Coral Tree-stand along street, wood with African Olive, Wild Mango, English Aloe, Lantana and other shrubs.	Erythrina caffra in non-native woodland; 1.6.1 and 1.5.7
03.03.2025	Clifford Arboretum	Willow Wattle-African Olive-Rose Gum-Cape Yew-Forest	non-native woodland; 1.5.2, 1.5.6, close to 1.5.3
03.03.2025	at George-Benjamin-Arboretum	Grassland, Whiteweed, plantation of endemic trees (She Cabbage, He Cabbage, …)	endemic woodland; 1.9.5
04.03.2025	High Peak, the Dell	cloud forest with Black Cabbage, Tree fern, Black and Brown Scale Fern	cloud forest; 1.9.5

Date	Location	Habitat	Classification
05.03.2025	Napoleon's Tomb	deciduous forest with Cape Yew and She Cabbage	woodland with endemics; 1.5.6, 1.6.3 with 1.9.3
06.03.2025	Plantation House, garden	stand of Gumwood, medium aged	woodland with endemics; with 1.5.1
06.03.2025	Plantation Forest, near Scotland	Cape Yew-Forest, with some Eucalyptus, Spoor, Cypress'	non-native woodland; 1.6.3
07.03.2025	Deep Valley, forestry track	Rose Gum-Cape Yew-Forest, with Whiteweed	non-native woodland; 1.6.3, 1.5.2
08.03.2025	Mt Pleasant, Eastern slope	Gumwood-Redwood-St Helena Rosemary-Plantation, with Boxwood and Blue Jacaranda	endemic woodland; 1.5.1 and ?
09.03.2025	Rupert's Valley, 0.4 km ESE Power Station	barren, rocky ground with some Wild Mango and Opuntia	semi-desert; 8.4.1
14.03.2025	The Barn	Creeper waste with Opuntia, Lantana and Lichen-covered rocks and stones	semi-desert; 8.4.6 and 3.5
16.03.2025	Mt Pleasant, bend before residential building	She Cabbage-plantation + non-indigenous woodland	endemic woodland; 1.9.3
22.03.2025	Man and Horse cliff and Joan Hill	Wild Coffee-Shrubwood-Teaplant-Hairgrass-Creeper-agglomeration at cliff	endemic woodland; 3.5.1, 3.5.8, 3.5.9
23.03.2025	Bencoolen, NE-plateau below summit	Creeper in boulderfield	semi-desert; 8.4.6

2.2 Day time search

The periods around full moon were used to conduct day time search for cases and caterpillars, but also for moths. The main focus of this search has been the *Opogona* larval cases, as an aim of the research was to find out the habitats and food sources of as many endemic *Opogona* species as possible to enhance the protection of relevant habitats.

Most of the caterpillars or cases were searched by hand. Surfaces of trees, branches, rocks, stones, the bark of endemic and non-endemic shrubs and trees, leaves on endemic and non-endemic plants were inspected. In some cases, it was necessary to search for hidden caterpillars in dead branches or trunks either of non-endemic or endemic trees. To find these, small parts of the dead wood were opened by using a knife. After the search in the wood of endemic trees, the blade was disinfected with disinfectant to kill off any pathogen/fungi after each use. Some caterpillars live under stones or moss cushions, therefore the cushions or the stones were lifted to find the larvae.

Tab. 2 Places for day-time search for larvae, cases or moths (with habitat information and classification; cloud forest areas marked with grey); see Appendix 3.2

Date	Location	Habitat	classification
16.02.2025	Path to Napoleons Tomb	non-native forest and shrubs	non-native woodland; 1.5

Date	Location	Habitat	classification
18.02.2025	Plantation Forest nr. Scotland	Cape Yew-Eucalyptus-Forest	non-native woodland; 1.5.2, 1.6.3
21.02.2025	Longwood, Piccolo Hill	Gumwood-row in grassland	endemic woodland; 1.5.1 on 14.2.1
02.03.2025	Fisher's Valley, nr bridge of the track from Longwood Gate	fresh or wet grassland	grassland; 14.2.8 and 14.2.13
10.03.2025	Sunny Side near bus shelter	Erythrina caffra-stand along street, wood with African Olive, Wild Mango, English Aloe, Lantana and other shrubs.	non-native woodland; 1.6.1 and 1.5.7
11.03.2025	Clifford Arboretum	Willow Wattle-African Olive-Rose Gum-Cape Yew-Forest	non-native woodland; 1.5.2, 1.5.6, close to 1.5.3
11.03.2025	Deep Valley, forestry track	Rose Gum-Cape Yew-Forest, with Whiteweed	non-native woodland; 1.6.3, 1.5.2
12.03.2025	Plantation Forest, near Scotland	Cape Yew-Forest, with some Eucalyptus, Spoor, Cypress'	non-native woodland; 1.6.3
12.03.2025	Thompson's Wood	Acacia-Forest with some Gumwood on grassland; Acacia-forest on grass	endemic woodland; 1.5.8 on 14.2.1 and 1.5.1
13.03.2025	The Barn	creeper waste with Opuntia, Lantana and Lichen-covered rocks and stones	semi-desert; 8.4.6 and 3.5
13.03.2025	The Barn	creeper waste with Opuntia, Lantana and Lichen-covered rocks and stones	semi-desert; 8.4.6 and 3.5
16.03.2025	Mt Pleasant	Gumwood-Redwood-St Helena Rosemary-Plantation, with Boxwood and Blue Jacaranda	endemic woodland; 1.5.1 and ?
18.03.2025	The Peaks	cloud forest	cloud forest; 1.9
19.03.2025	Hut above Black Gate Nursery	plantation of endemic trees and shrubs in tree fern thicket	cloud forest; 1.9.5
19.03.2025	Blue Point, Hooper's Rock at the track to Peak Dale	non-native woodland and rock surfaces with Lichens	non-native woodland; 1.5.6
20.03.2025	Napoleon's Tomb	non-native forest and shrubs, she cabbages	woodland with endemics; 1.5.6, 1.6.3 with 1.9.3
22.03.2025	Man and Horse cliff and Joan Hill	Wild Coffee-Shrubwood-Teaplant-Hairgrass-Creeper-agglomeration at cliff	woodland with endemics; 3.5.1, 3.5.8, 3.5.9
23.03.2025	Bencoolen, plateau NE and plateau at summit	barren rock, lichen covered and some Creeper	semi-desert; 8.4.6
25.03.2025	Sandy Bay from Broad Gut to Ascent at Path to Lot's Wife's Pond	barren rock, some lichen covered	semi-desert; 6.1.3

2.3 Preparation of collected specimens

2.3.1 Moths

The larger moths (Macrolepidoptera, Pyraloidea, Pterophoridae, Tortricidae) were placed in a jar with cotton wool and ethyl acetate. Next morning the specimen were pinned with insect pins and labelled.

Micro-moths were stored in a small glass tube during the light trap. Next morning the moths were pinned with micro-pins and the wings spread on a small piece of foam plastic, which was prepared as a spreading board. This was necessary to obtain moths in a perfect condition (flat and good recognisable wings, spread fringes) for taxonomic work. Provisional labels were put at the first specimen of a certain light trap for each column.

Fig. 2 The small micro-moths were stored in the glass tubes overnight, then prepared by using a microscope on small pieces of foam plastic (photo: T. Karisch 2025)

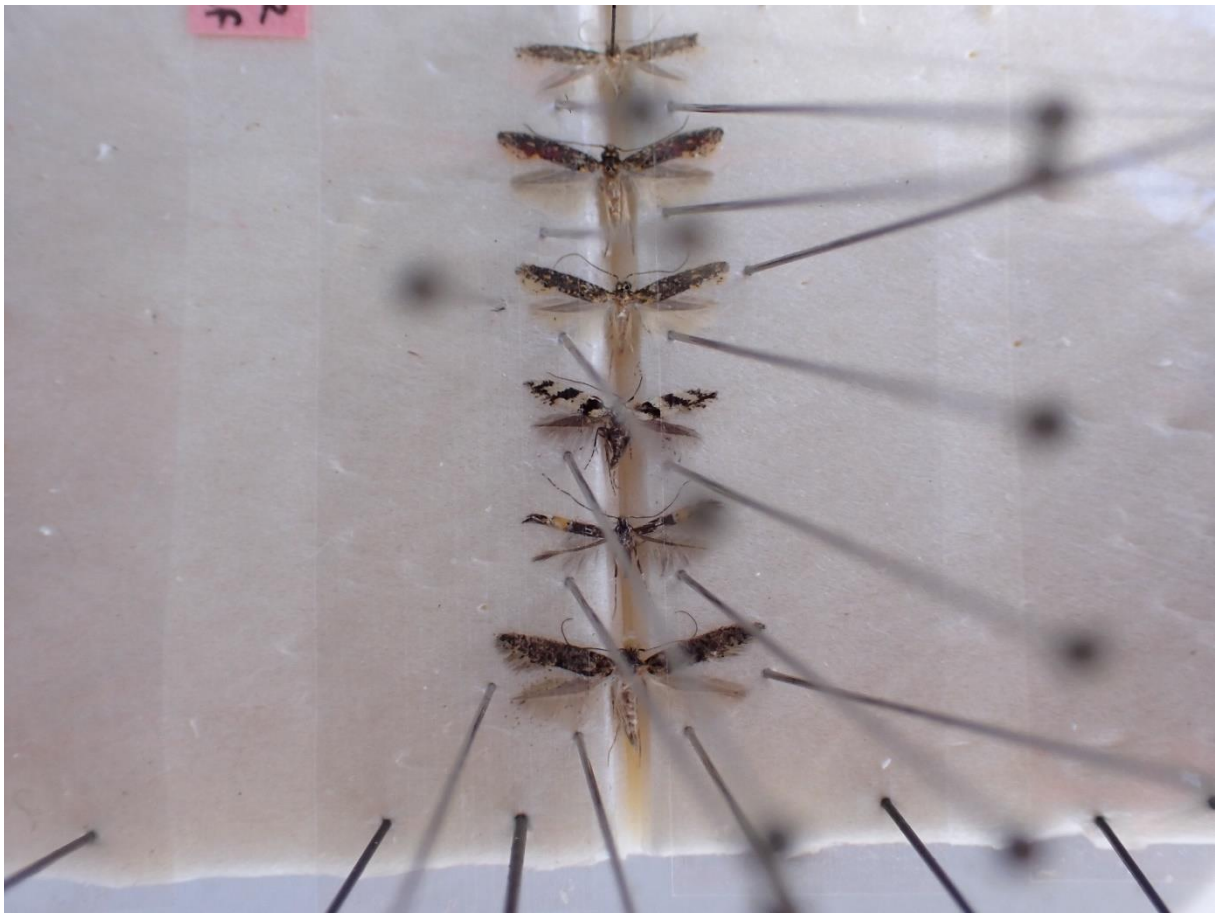

Fig. 3. Small micro-moths, prepared on a foam spread board (photo: T. Karisch, 2025)

All moth specimens were dried for about two months.

2.3.1 Caterpillars

Caterpillars were photographed, labelled and stored in the following way: first/only caterpillar in 99 % pure ethanol; second caterpillar in 70 % ethanol. Cases of caterpillars were dried and mounted on small carton labels.

2.4 Taxonomy

The moths are named according to Karisch (2018), De Prins & De Prins (2025) and Karisch (2025). The data in Karisch (2018) were also used to analyse the results from the investigations in 2025.

The following plants are mentioned under their common names in the text. The scientific names are accordingly to Lambdon (2013), see appendix 1.

3. Preliminary results

3.1 Light trapping

The following tables (3 – 7) present the so far identified Lepidoptera species, which have been found during the light traps at the sites in tab. 1. The unidentified species have to be added later, when the identification has been possible.

3.1.1 Fauna of cloud forest habitats

Tab. 3 Records of moths in cloud forest habitats in 2025. Green row: characteristic species of this habitat type, yellow: characteristic species of endemic woodland. Blue letters: endemic species.

	Cloud forests				
locality	Mt Actaeon, SW cliff	Mt Actaeon, at canon	Wells at Cabbage Tree Road below Diana's Peak	0.2 km W Black Gate Nursery	High Peak, the Dell
UTM (WGS 84)	confidential version	confidential version	confidential version	confidential version	confidential version
date	22.02.2025	22.02.2025	23.02.2025	24.02.2025	04.03.2025
altitude	790 m	780 m	769 m	742 m	730 m
Species					
Tineidae					
Opogona divisa	iA		3		
Opogona duttonae					1
Opogona flavotincta	2		2		
Opogona niveopicta	iA		4	1	
Opogona omoscopa	4			iM	
Opogona pulveripennis	5				
Opogona sacchari				1	
Opogona subaeneella	3	iA	ab. 20		
Cosmopterigidae					
Cosmopterix attenuatella			1		
Pterophoridae					
Stenodacma wahlbergi				1	
Crambidae					
Cnaphalocrocis poeyalis			1	1	
Herpetogramma licarsisalis	> 500	ca. 200	> 5000	ab. 250	ab. 20
Helenoscoparia helenensis					6
Helenoscoparia lucidalis	iM		ab. 30	iV	4

	Cloud forests				
locality	Mt Actaeon, SW cliff	Mt Actaeon, at canon	Wells at Cabbage Tree Road below Diana's Peak	0.2 km W Black Gate Nursery	High Peak, the Dell
UTM (WGS 84)	confidential version	confidential version	confidential version	confidential version	confidential version
date	22.02.2025	22.02.2025	23.02.2025	24.02.2025	04.03.2025
altitude	790 m	780 m	769 m	742 m	730 m
Species					
Helenoscoparia nigritalis	iM		ca. 50	iM	2
Helenoscoparia transversalis	iA		3	iA	3
Helenoscoparia scintillulalis	iA		iM		
Spoladea recurvalis			3	2	
Terastia subjectalis	4		iM		
Uresiphita gilvata			2		
Phycitidae					
Homoeosoma privata		3	3	3	
Hypargyria metalliferella	iM	iM		iA	
Sphingidae					
Acherontia atropos	4	1	5		
Noctuidae					
Agrotis ipsilon	iA	iM	iV		3
Agrotis segetum	3		1		
Cardepia subvelata			3		
Chrysodeixis chalcites	3	3			
Chrysodeixis includens	iA		iA	iA	
Ctenoplusia limbirena	iM	iM	iM	3	
Helicoverpa helenae	2			3	
Mythimna ptyonophora	iA		ab. 20	3	3
Spodoptera littoralis	iM	iA	iV	4	1
Thysanoplusia orichalcea	3		iA		1
Erebidae					
Anomis flava			iA		
Hypocala rostrata	5	1			
Ophiusa tirhaca	8		6		
Pandesma robusta	3		iM	iA	
Schrankia costaestrigalis			1	1	

Helenoscoparia scintillulalis and *H. helenensis* have been known as typical species of the loftiest parts of the mountains. Their presence and restriction was confirmed. Surprisingly, *Opogona pulveripennis* turned out as a species with a clear focus on the cloud forests. Records around Plantation, mentioned by Wollaston (1879), could not be

confirmed. *O. actaeon*, *O. ursella* and *O. gigantea* are possibly also cloud forest species. They were not observed as imagoes during this stay. *O. recurva* was noted as a characteristic element of dense tree fern thicket at the Peaks, but not at High Peak. *Elachista trifasciata* was found again as typical for the Carex dianae-plants along the paths at the summits of Cuckhold's Point, Diana's Peak and Mt. Actaeon. It occurs at Cason's as well.

Fig. 4 *Opogona* sp., adult, resting on the rock between Diana's Peak and Mt Actaeon (photo: T. Karisch, 2025).

Homoeosoma privata, *O. divisa*, *O. niveopicta*, *O. piperata* (see records at day time), *O. subaeneella* and *Mythimna ptyonophora* were confirmed as typical endemic species for this habitat type, but they are not decidedly specific.

3.1.2 Fauna of endemic woodland, intermixed with non-native shrubs or trees

Old plantings of endemic trees or shrubs are home of the most diverse endemic Lepidoptera fauna. This is the result of the investigations in the endemic plant dominated woodland and in the non-native woodland with some endemic plants as well (next paragraph). If these endemic trees are planted in high elevations in the former cloud forest zone, then typical elements of the cloud forests are joining the fauna.

Restricted to woodlands with Gumwood are *Opogona aenea*, *O. fasciculata* and *O. fowlerella*. *Agdistis sanctaehelenae* and *Homoeosoma privata* prefers habitats with Gumwood, but are not restricted to them. *O. compositarum* seems to have the strongest populations in Gumwood- and Scrubwood -woodland, but not exclusively (see chapter 3.1.4). *O. aureomarmorata* and *O. flavofimbriata* are quite common in Gumwood- and She Cabbage-woodland, whereas *O. flavofimbriata* has a broader range of possible habitats, but occurs more locally.

Tab. 4 Records of moths in cloud forest habitats in 2025. Green row: characteristic species of cloud forests; yellow: characteristic species of endemic woodland. Blue letters: endemic species.

	Endemic woodland					
locality	Piccolo Hill near fire protection pond	Longwood, Millenium Forest near carpark	at George-Benjamin-Arboretum	Mt Pleasant, Eastern slope	Mt Pleasant, bent above residential building	Man and Horse cliff at Joan Hill
UTM (WGS 84)	confidential version	confidential version	confidential version	confidential version	confidential version	confidential version
date	21.02.2025	25.02.2025	03.03.2025	08.03.2025	16.03.2025	22.03.2025
altitude	520 m	430 m	718 m	590 m	580 m	500 m
Species						
Tineidae						
Opogona atlantica						iM
Opogona compositarum				7		iV
Opogona divisa				8	iA	1
Opogona duttonae			ab. 20		1	
Opogona fasciculata	3					
Opogona flavofimbriata			1			
Opogona flavotincta				2		
Opogona fowlerella	iA					
Opogona niveopicta			7			
Opogona omoscopa	3			2	iA	15
Opogona piperata			10			
Opogona sacchari					2	
Opogona scalaris				2	3	
Opogona subaeneella			iV	ab. 50	>50	
Opogona ursella			4		1	
Opogona vilis	iM	3		4		ab. 100
Cosmopterigidae						
Cosmopterix attenuatella				4		
Praydidae						
Prays citri						1
Yponomeutidae						
Zelleria oleastrella				6		
Pterophoridae						
Agdistis marionae						iM
Stenodacma wahlbergi			1	3		
Crambidae						
Cnaphalocrocis poeyalis	1			1		
Herpetogramma licarsisalis	iM	ab. 20	ab. 100	ab. 1000	ab. 400	ab. 100
Helenoscoparia helenensis					1	
Helenoscoparia lucidalis	2		iA	15	4	2

	Endemic woodland					
locality	Piccolo Hill near fire protection pond	Longwood, Millenium Forest near carpark	at George-Benjamin-Arboretum	Mt Pleasant, Eastern slope	Mt Pleasant, bent above residential building	Man and Horse cliff at Joan Hill
UTM (WGS 84)	confidential version	confidential version	confidential version	confidential version	confidential version	confidential version
date	21.02.2025	25.02.2025	03.03.2025	08.03.2025	16.03.2025	22.03.2025
altitude	520 m	430 m	718 m	590 m	580 m	500 m
Species						
Helenoscoparia nigritalis	iA		9	ab. 30	iA	ab. 20
Helenoscoparia transversalis				1		8
Helenoscoparia scintillulalis			8			
Hellula undalis						1
Spoladea recurvalis	2	iA		2		7
Terastia subjectalis						8
Udea delineatalis				10		
Uresiphita gilvata						ab. 20
Zovax whiteheadii			1			
Phycitidae						
Etiella zinckenella						15
Homoeosoma privata	>20	9	2	8		5
Hypargyria metalliferella	3		iA	15	1	
Sphingidae						
Acherontia atropos				7		6
Geometridae						
Scopula separata		2				
Noctuidae						
Agrotis ipsilon	4		1	12	iM	1
Agrotis segetum				3		
Cardepia subvelata		3				
Chrysodeixis chalcites				3	iA	
Chrysodeixis includens				7	iA	
Condica pauperata		1				iV
Ctenoplusia limbirena				3		
Mythimna ptyonophora	2	1		12	iA	8
Spodoptera littoralis	2	1		7		8
Thysanoplusia orichalcea				1	1	
Erebidae						
Anomis flava				3	2	
Hypena commixtalis	1	5				iM
Hypena simplicalis				4		
Hypocala rostrata						8
Ophiusa tirhaca				1		1
Pandesma robusta	iA	iA		6	1	12
Schrankia costaestrigalis				1		

Fig. 5 *Opogona flavofimbriata*, a characteristic species of the woodland with Gumwoods (photo: T. Karisch, 2025)

Opogona scalaris and *Udea delineatalis* are characteristic elements of woodland with She Cabbage.

Agdistis marionae was found in endemic scrubland at the coast. Foodplant of the larva is Teaplant.

3.1.3 Fauna of non-native woodland, intermixed with some endemic shrubs or trees

Fig. 6 *Opogona niveopicta* lives in woodland with some endemic trees or shrubs, but seems to have certain preferences for climate or plant species composition. (photo: T. Karisch, 2025)

Tab. 5 Records of moths in non-native woodland habitats with some endemic plants in 2025. Green row: characteristic species of cloud forests; yellow: characteristic species of endemic woodland. Blue letters: endemic species.

	Woodland with endemics		
locality	Thompson's Wood	Napoleon's Tomb	Plantation House, garden
UTM (WGS 84)	confidential version	confidential version	confidential version
date	27.02.2025	05.03.2025	06.03.2025
altitude	557 m	575 m	565 m
Species			
Tineidae			
Monopis crocicapitella		1	
Opogona aenea			2
Opogona aureomarmorata		9	4
Opogona compositarum		9	
Opogona divisa		ab. 20	8
Opogona duttonae		ab. 30	
Opogona fasciculata			
Opogona flavofimbriata	iM	ab. 30	
Opogona niveopicta		4	3
Opogona omoscopa		15	8
Opogona piperata		3	
Opogona scalaris		12	
Opogona subaeneella		ab. 50	3
Opogona vilis	iV	7	
Cosmopterigidae			
Cosmopterix attenuatella	5	15	
Gelechiidae			
Phthorimaea operculella		1	
Praydidae			
Prays citri		15	8
Yponomeutidae			
Zelleria oleastrella		5	
Pterophoridae			
Agdistis sanctaehelenae		8	
Stenodacma wahlbergi		2	
Tortricidae			
Lozotaenia capensana	3		
Crambidae			
Cnaphalocrocis poeyalis		15	
Herpetogramma licarsisalis	iV	ab. 50	10
Helenoscoparia lucidalis	iV	iA	

	Woodland with endemics		
locality	Thompson's Wood	Napoleon's Tomb	Plantation House, garden
UTM (WGS 84)	confidential version	confidential version	confidential version
date	27.02.2025	05.03.2025	06.03.2025
altitude	557 m	575 m	565 m
Species			
Helenoscoparia nigritalis	iV	iM	12
Helenoscoparia transversalis	iM	1	2
Spoladea recurvalis	1	3	
Udea delineatalis		1	
Uresiphita gilvata	6		
Zovax whiteheadii	>100	10	
Phycitidae			
Homoeosoma privata		iA	iA
Hypargyria metalliferella	iA	7	
Noctuidae			
Chrysodeixis chalcites		2	
Chrysodeixis includens		7	
Mythimna ptyonophora		8	3
Spodoptera littoralis	iA	5	
Thysanoplusia orichalcea		1	
Euteliidae			
Eutelia gaedei		5	
Erebidae			
Anomis flava		5	
Hypena commixtalis	1		
Hypena simplicalis	iA	15	
Pandesma robusta		5	
Schrankia costaestrigalis		4	1
Simplicia extinctalis		1	2

The general information on the moth fauna of woodland composed by or intermixed with endemic shrubs or trees are given in the previous chapter.

3.1.4 Fauna of non-native woodland

Tab. 6 Records of moths in non-native woodland habitats with some endemic plants in 2025. Green row: characteristic species of cloud forests; yellow: characteristic species of endemic woodland. Blue letters: endemic species.

	non-native woodland					
locality	Hooper's Rock at the track to Peak Dale	Thompson's Wood, Acacia-Forest	Sunny Side, near bus shelter	Clifford Arboretum	Plantation Forest, nr. Scotland	Deep Valley
UTM (WGS 84)	confidential version	confidential version	confidential version	confidential version	confidential version	confidential version
date	26.02.2025	27.02.2025	02.03.2025	03.03.2025	06.03.2025	07.03.2025
altitude	612 m	557 m	455 m	702 m	555 m	510 m
Species						
Tineidae						
Opogona aenea		iA	1			
Opogona atlantica		ab. 200			iA	
Opogona aureomarmorata	1					8
Opogona beardae						1
Opogona bicolor			4		1	
Opogona compositarum	iM				iA	7
Opogona divisa	iA				iA	ab. 40
Opogona duttonae			3			
Opogona flavofimbriata	iA	ab. 30	4		ab. 40	
Opogona flavotincta						2
Opogona helenae		1		1		
Opogona minutissima			2			
Opogona niveopicta						1
Opogona omoscopa	3	iA	7	iA		8
Opogona scalaris	4					1
Opogona subaeneella	iM	ab. 50	10	iV	iA	ab. 50
Opogona vilis	ab. 100	ab. 300	15		4	7
Cosmopterigidae						
Cosmopterix attenuatella				iA		
Glyphipterigidae						
Glyphipterix semilunaris		2				
Praydidae						
Prays citri	iV	3	15	iM	6	ab. 25
Yponomeutidae						

	non-native woodland					
locality	Hooper's Rock at the track to Peak Dale	Thompson's Wood, Acacia-Forest	Sunny Side, near bus shelter	Clifford Arboretum	Plantation Forest, nr. Scotland	Deep Valley
UTM (WGS 84)	confidential version	confidential version	confidential version	confidential version	confidential version	confidential version
date	26.02.2025	27.02.2025	02.03.2025	03.03.2025	06.03.2025	07.03.2025
altitude	612 m	557 m	455 m	702 m	555 m	510 m
Species						
Plutella xylostella						1
Zelleria oleastrella	iA		3			
Pterophoridae						
Stenodacma wahlbergi						3
Tortricidae						
Crocidosema plebejana			3			
Thaumatotibia leucotreta			1		2	
Crambidae						
Cnaphalocrocis poeyalis	3	iA	6		3	4
Herpetogramma licarsisalis	ab. 500	ab. 3000	ab. 1000	ab. 8000	ab. 200	ab. 400
Helenoscoparia helenensis				1		
Helenoscoparia lucidalis	iM		iM	iM	iA	ab. 50
Helenoscoparia nigritalis	iV	ab. 300	ab. 50	iV	iA	ab. 30
Helenoscoparia transversalis	iA	iM		iA	3	3
Spoladea recurvalis				3		
Uresiphita gilvata		1	1			1
Zovax whiteheadii		iA		1		
Phycitidae						
Homoeosoma privata	2	4		3	iA	4
Hypargyria metalliferella	iA	iA	6	iA	iM	15
Sphingidae						
Acherontia atropos	4			2		4
Noctuidae						
Agrotis ipsilon	1				1	2
Agrotis segetum		1				2
Chrysodeixis chalcites						1
Chrysodeixis includens	1		iA	1	1	2
Ctenoplusia limbirena	1			1		2
Helicoverpa helenae						1
Mythimna ptyonophora	3	3	2	iA	3	6
Spodoptera littoralis		3				4
Thysanoplusia orichalcea		1	1	1	1	2

	non-native woodland					
locality	Hooper's Rock at the track to Peak Dale	Thompson's Wood, Acacia-Forest	Sunny Side, near bus shelter	Clifford Arboretum	Plantation Forest, nr. Scotland	Deep Valley
UTM (WGS 84)	confidential version	confidential version	confidential version	confidential version	confidential version	confidential version
date	26.02.2025	27.02.2025	02.03.2025	03.03.2025	06.03.2025	07.03.2025
altitude	612 m	557 m	455 m	702 m	555 m	510 m
Species						
Trichoplusia vittata			1			
Euteliidae						
Eutelia gaedei			2	2		
Erebidae						
Anomis flava	iA	1				
Hypena commixtalis	iA					
Hypena simplicalis	4	iA	7			1
Ophiusa tirhaca	2			1		1
Pandesma robusta			2		1	1
Schrankia costaestrigalis	iA			1		1

Fig. 7 The endemic noctuid species *Mythimna ptyonophora* seems to be eurytop, as long as Poaceae are available for its larva. (photo: T. Karisch, 2025)

3.1.4 Fauna of semi-deserts

Tab. 7 Records of moths in semi-desert habitats in 2025. Blue letters: endemic species.

	semi-desert		
locality	Rupert's Valley, 0.4 km ESE Power Plant	The Barn	Bencoolen, plateau NE summit
UTM (WGS 84)	confidential version	confidential version	confidential version
date	09.03.2025	13.03.2025	23.03.2025
altitude	90 m	592 m	340 m
Species			
Tineidae			
Eudarcia spec.	ab. 30		2
Opogona omoscopa	1		
Opogona vilis	1		
Crambidae			
Herpetogramma licarsisalis	15		2
Helenoscoparia nigritalis	6		3
Sphingidae			
Acherontia atropos			1
Noctuidae			
Chrysodeixis chalcites	1		
Erebidae			
Pandesma robusta	4		1

The moth fauna of semi-desert areas on St Helena is poorly known. Despite the efforts undertaken before the airport construction, there are mainly records from Prosperous Bay Plain contributed by P. & M. Ashmole and continued by R. Cairns-Wicks and the SHNT-team. However, the fauna is very exciting due to the existence of species with vestigial wings supposed to be a result of the strong winds. Four species has been described – *Opogona exigua, O. ashmolei, O. squamata, O. barnensis*. But their distribution on the island is not yet understood. The barcoding of a larva found in a case at the Barn proved the existence of another unknown species of *Opogona*. It is expected, that the majority of the semi-desert species has a very restricted distribution.

Fig. 8 The moth fauna of Bencoolen was unknown so far (photo: T. Karisch, 2025).

Fig. 9 Short winged tiny *Opogona* spec. in the centre of the photograph (photo: T. Karisch, 2025)

Table 7 does not reflect this, as the identification of the short-winged *Opogona* is very difficult and needs much more time and barcoding to confirm their identity. Search's at day time (see next chapter) resulted in the discovery of some short-winged moth specimens. At least one is a new species with dimorphism in sexes. Males have "common" wings, females vestigial. A few other specimens with common wings might also belong to undescribed species. It is worth to mention too, that the *Opogona*-moths of the semi-desert zone are not attracted by light. That's why it will be necessary to search for them at night and during day-time (in the morning or late afternoon).

Besides the *Opogona* spp. the fauna of the semi-deserts is very poor. Most common species is an *Eudarcia* sp., widely distributed on oceanic islands.

3.2 Day time excursions

The preliminary results of the day time excursions are listed in tab. 8 – 12 (see appendix).

3.2.1 Cloud forest habitats

The observations from the search's during day-time confirms the results from the light trapping and allow to add the day-time flying species *Elachista trifasciata* and *Opogona recurva* to the list of characteristic elements of the cloud forests.

There were several cases of larvae of *Opogona* moths collected at the surface of the two rocks at the path between Mt Actaeon and Diana's Peak. The larva of *Cosmopterix attenuatella* mines in the leaves of *Cyperus distans*.

Caterpillars were found in the dead wood of endemic trees. Whitewood has had the highest numbers of such caterpillars, which very probably belong to the genus *Opogona*. Slightly less attractive was on He Cabbage. No caterpillars were found in She Cabbage, Black Cabbage and Dogwood, but this might be artificial as the number of investigated samples was very low.

Fig. 10 Caterpillar, found feeding in the dead wood of Whitewood (photo: T. Karisch, 2025).

The mining moth species *Elachista trifasciata* was monitored by Liza Fowler (SHNT) as an element which might react sensitive to effects of the climate change, like rising temperatures, differences in the cloud cover or humidity. Unfortunately, the duration of the development of this species is still unknown. This prevents the effective interpretation of the results of the monitoring. Therefore it was tested by Liza Fowler and the author, if it would be possible to rear the moth on a plant of *Carex dianae*, which is not yet infested by this species. A bigger horst of this sedge is stored in a big pot in the Black Gate Nursery, which could be used for this breeding experiment. It was tried to catch females of *E. trifasciata* at the Peaks, but the result of this attempt was depressing. The number of specimens which were caught was very low despite bright sunshine. All collected specimens were males and were released after. For that reason another approach is necessary to achive successful results. This approach was discussed with Isabel Peters and Vanessa Thomas-Williams (SHG) and it was applied for the additional permission. Accordingly, the big Carex-plant should be divided in smaller units and these have to be planted in smaller, transportable pots. These should be placed in *E. trifasciata*-habitats at Cuckhold's Point for some weeks and retained to the nursery later. The development of the moth species in the leaves is to investigate in the following weeks or months.

3.2.2 Fauna of endemic woodland, intermixed with non-native shrubs or trees

The main information on the known moth fauna of endemic woodland are given in chapter 3.1.2

One brownish caterpillar was found on the leaves of Gumwood, another of the same species on the leaves of Willow Wattle (fig. 11). These caterpillars were not placed immediately in a tube with ethanol, but reared instead. One caterpillar died, the other pupated and after some days a moth of *Agdistis sanctaehelenae* hatched. These are the first records of the larva and the food plants of this exciting endemic Pterophoridae-moth.

Fig. 11 Caterpillar of *Agdistis sanctaehelenae* (photo: T. Karisch, 2025)

The tiny larva found on the midvein at the underside of a leave of She Cabbage at Mt Pleasant was reared during the author's stay on the island to get better photographs of the bigger larva and the opportunity to describe it. On the day of departure it was handed over to Rebecca Cairns-Wicks and pupated shortly after. A moth of *Udea delineatalis* hatched and confirmed the assumption that the larva could belong to this endemic Crambidae-species.

The record of two larvae of *Agdistis marionae* at Man and Horse cliff confirmed the use of Tea Plant as the food plant of this endemic moth species (Arenberger, Hasenfuß, Beard & Karisch, 2012).

The larva from the twig of Scrubwood could belong to *Opogona fasciculata*. This species was found in 2018 on the same site.

3.2.3 Fauna of non-native woodland with some endemic shrubs or trees

During the investigations at Napoleon's Tomb it was possible to study a recently fallen tree of She Cabbage intensively. Frass tunnels were found on the bark. These started quite often in the crotches. There was a small hole in the wood, where the larva of an *Opogona* species (probably *O. scalaris*) was sitting. The larva feeds on the outer surface of the bark of living She Cabbages, but does not damage the bark or wood besides from the small hole mentioned.

3.2.4 Fauna of non-native woodland

The *Opogona*-larvae found in non-native woodland could not yet be identified. There were several differently shaped cases found on the bark of trees (e. g. Plantation Forest, Clifford Arboretum, Sunny Side), under stones (e. g. Napoleon's Tomb) or on the surface of boulders or rocks (e. g. Sunny Side, Napoleon's Tomb).

Fig. 12 Larval case of an unknown *Opogona* sp. at a cliff at Sunny Side (photo: T. Karisch, 2025).

Caterpillars in the dead wood of non-native trees were rare. Their existence depends on the degree of rot, the hardness of the wood and of course the wood species. Whereas a larva was found in *Eucalyptus*, there were no records of moth larvae in *Pinus*. In these species the rotten wood is infested by larvae of beetles. Most Lepidoptera larvae have been found in rotting Wild Coffee and Willow Wattle, but in an advanced stage of rot.

It was found during intensive search's at Sunny Side, Thompson's Wood and Alarm Hill, that the African Coral Tree is not a preferred host of larvae of endemic moth species. The wood is very hard and starts rotting from the core inside the branches. Even if the wood is very rotten, the bark is still fixed very strict at the wood and does not leave space for moth larvae.

3.2.5 Fauna of semi-deserts

It was already known, that the *Opogona*-fauna (and *Eudarcia* sp.) of semi-deserts are composed of species whose larvae live in self-webbed cases, for protection against predators.

During the investigations some distinguishable larval cases were found under stones and at the surface of boulders or rocks. These cases are not the same at all places, but differ in additional material webbed in the case, the colour and shape of the cases and of course in the size. The identification of the case-building moth species was not possible so far with two exceptions.

There is a small, slender, greyish-brown case on the surfaces of rocks and boulders, which are without lichens or just with initial lichen stages. These cases were found at Bencoolen and along the path from Sandy Bay Valley to Lot's Wife's Ponds, with a maximum NW Fizzlers. A part of the sample of cases was stored dry and surprisingly some moths hatched after some days. All these moths are very small. The males have fully developed, narrow brownish wings, without a distinct pattern. The wings of the females are very much reduced. The forewing is greyish-brown, the hindwing pale yellowish. The scales are very sensitive and get lost very easily. The tergites of the abdomen are translucent and the abdomen looks reddish. This species is unknown so far and could be described as new.

Another flattened small greenish case was collected under lichen covered stones at the windward side of the summit plateau of Bencoolen. The hatching of a male confirmed the existence of a black-and-white *Opogona* species on the summit of Bencoolen, which was observed during the stay on this mountain. This species is *O. bicolor*. The most common lichens on this site still need to be identified.

4 Threads

Predation by non-native invasive invertebrate species seems to be the most important factor impacting on the endemic moth species of the genus *Opogona* and their population size.

Fig. 13 The summit of the Barn is flooded with ants. It is very likely that they have a devastating effect on the endemic moth fauna. (photo: T. Karisch, 2025)

Although it could not observed directly, it is assumed, that especially at the summit of the Barn the *Opogona*-fauna is killed by ants. The dominant species appeared to be the Big-headed ant, *Pheidole megacephala*. The number of these predators is back-breaking. Under nearly every stone are dozens or hundreds of ants. It was not possible to undertake a comprehensive search for endemic moths and their caterpillars at the Barn, but it would be very important to do so in the future. So far there are two endemic moths known from this giant rock (*O. barnensis* and an unknown one), which were found nowhere else. The number of such species is expected to be higher, and the Barn itself may act as an “island on an island” with its own endemics. But the number of ants observed gives great cause for concern, that these endemics will get extinct in near future.

Therefore, it is also strongly recommended to carry out studies on the numbers of these ants in the formicaries and their food requirements (sugar, proteins) to calculate the effect on the endemic moths. After these studies measures should be put in place to reduce the population size of ants at the most vulnerable sites to rescue the endemic fauna.

5 iRecord St Helena

The author spent some days at the St Helena Research Institute to check the database of iRecord St Helena together with Selene Gough. It was verified, if all existing literature and reports are included. Every single dataset was checked, if it was interpreted reliably and the locality has the right grid data. The synonymy of the species was rechecked.

Just the paper of Berio (1972): Descrizione di tre Lepidotteri (Noctuidae) nuovi dell'isola di S. Elena (Atlantico del Sud). — Revue Zool. et. Bot. Afric. 86: 290-292 was not available, neither in the internet nor in the library in Jamestown. The records from this paper need to be added later.

Random observations by the author in 2025 were already added via iRecord St Helena app to the database.

6 Acknowledgment

The author wants to acknowledge all people and authorities on St Helena for their support (funding, permits) and hospitality.

This work has been funded as part of the St Helena Cloud Forest Project ‘Restoring St. Helena’s Internationally Important Cloud Forest for Wildlife, Water Security and People’, funded by the UK Foreign, Commonwealth and Development Office (FCDO).

Special thanks go to:

● St Helena Research Institute (Dr Rebecca Cairns-Wicks, Selene Gough)

● St Helena Government, ENRP (Isabel Peters, Julie Balchin, Vanessa Thomas-Williams, EMD-staff)

● St Helena National Trust (Helena Bennett, Liza Fowler, Sheena Isaac, Natasha Stevens)

● The St Helena Research Council

● St Helena Cloud Forest Project board and development group

for supporting this research.

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Appendix 1

Common and scientific names of plants, mentioned in the report.

Common name	Scientific name
African Coral Tree, Thorn Tree	*Erythrina caffra*
African Olive	*Olea europaea* ssp. *africana*
Black Cabbage	*Melanodendron integrifolium*
Black Scale Fern	*Diplazium filamentosum*
Blue Jacaranda	*Jacaranda mimosifolia*
Boxwood	*Buxus sempervirens*
Brown Scale Fern	*Pseudophegopterix dianae*
Cape Yew	*Afrocarpus falcata*
Creeper	*Carpobrotus edulis*
Common Saltbush	*Atriplex semibaccata*
Dwarf Ebony	*Trochetiopsis ebenus*
English Aloe	*Furcraea foetida*
Flax	*Phormium tenax*
Gumwood	*Commidendrum robustum*
Hairgrass	*Eragrostis saxatilis*
He Cabbage	*Pladaroxylon leucodendron*
Lantana	*Lantana camara*
Redwood	*Trochetiopsis erythroxylon*
Rose Gum	*Eucalyptus grandis*
Scrubwood	*Commidendrum rugosum*
Sedges	Cyperaceae
She Cabbage	*Lachanodes arborea*
Spoor	*Pittosporum viridiflorum*
Sweet Spoor	*Pittosporum undulatum*
St Helena Rosemary	*Phylica polifolia*
Teaplant	*Frankenia portulacifolia*
Treefern	*Dicksonia arborescens*
Whiteweed	*Austroeupatorium inulifolium*
Whitewood	*Petrobium arboreum*
Wild Coffee	*Chrysanthemoides monilifera*
Wild Mango	*Schinus terebinthifolius*
Willow Wattle	*Acacia longifolia*

Appendix 2

Tab. 8 Records of moths in non-native woodland habitats with some endemic plants in 2025. Green field: characteristic species of cloud forests; yellow field: characteristic species of endemic woodland outside the cloud forests. Blue letters: endemic species.

Date	Location	species	stage	abundance	notes	status
19.02.2025	between Hut and Cuckholds Point	*Stenodacma wahlbergi*	adult	1		cloud forest
19.02.2025	between Hut and Cuckholds Point	*Herpetogramma licarsisalis*	adult	1	728 m	cloud forest
19.02.2025	between Hut and Cuckholds Point	*Glyphipterix semilunaris*	adult	1	783 m	cloud forest
19.02.2025	between Hut and Cuckholds Point	*Opogona recurva*	adult	1	799 m	cloud forest; tree fern thicket
19.02.2025	between Hut and Cuckholds Point	*Helenoscoparia helenensis*	adult	1	799 m	cloud forest; tree fern thicket
19.02.2025	between Hut and Cuckholds Point	*Helenoscoparia scintillulalis*	adult	1	799 m	cloud forest; tree fern thicket
19.02.2025	Diana's Peak	*Vanessa cardui*	adult	1		cloud forest
19.02.2025	Diana's Peak	*Lampides boeticus*	adult	1		cloud forest
19.02.2025	between Diana's Peak and Mt Actaeon	*Opogona aureomarmorata*	adult	1	moss and lichen covered rock	cloud forest
19.02.2025	between Diana's Peak and Mt Actaeon	*Opogona pulveripennis*	adult	iM	moss and lichen covered rock with opening	cloud forest
19.02.2025	Mt Actaeon	*Helenoscoparia transversalis*	adult	1	803 m	cloud forest
19.02.2025	Taylor's	*Elachista trifasciata*	adult	3	797 m	cloud forest
19.02.2025	Taylor's	*Opogona atalantica*	adult	1	797 m	cloud forest
18.03.2025	Mt Actaeon	*Opogona recurva*	adult	1		cloud forest, treefern thicket
18.03.2025	Mt Actaeon	*Stenodacma wahlbergi*	adult	1		cloud forest, treefern thicket
18.03.2025	Mt Actaeon, towards Diana's Peak	*Opogona recurva*	adult	iA		cloud forest, treefern thicket
18.03.2025	Mt Actaeon, rock with opening	*Opogona* spp. 1-3	larva		cases on rock surface	rock in cloud forest
18.03.2025	Mt Actaeon, rock with opening	*Opogona* sp.	adult	iA		rock in cloud forest
Date	Location	species	stage	abundance	notes	status

18.03.2025	Mt Actaeon, rock with opening	*Opogona pulveripennis*	adult	iM		rock in cloud forest
18.03.2025	Mt Actaeon, rock with opening	*Opogona piperata*	adult	iV		rock in cloud forest
18.03.2025	Mt Actaeon, rock with opening	*Helenoscoparia scintillulalis*	adult	1		rock in cloud forest
18.03.2025	Diana's Peak, rock	*Opogona* spp. 4-6	larva		cases on rock surface	rock in cloud forest
18.03.2025	Diana's Peak	*Opogona divisa*	adult	2		cloud forest, treefern in flax
18.03.2025	Cuckhold's Point, path down	*Opogona recurva*	adult	1		cloud forest, treefern thicket
18.03.2025	Cuckhold's Point, path down	*Helenoscoparia scintillulalis*	adult	1		cloud forest, treefern thicket
18.03.2025	Hut above Black Gate Nursery	*Opogona* sp.	larva		larvae in dead branch of Whitewood	cloud forest
19.03.2025	Hut above Black Gate Nursery	*Opogona* sp.	larva		larvae in about 1 cm thick dead branch of He Cabbage	cloud forest
19.03.2025	between Black Gate Nursery and gravity reservoir	*Cosmopterix attenuatella*	larva		mines in *Cyperus distans*	cloud forest

Tab. 9 Records of moths in endemic woodland in 2025. Yellow field: characteristic species of endemic woodland. Blue letters: endemic species.

Date		species	stage	abundance	notes	status
21.02.2025	Longwood, Piccolo Hill	*Spoladea recurvalis*	adult	iV		endemic woodland
21.02.2025	Longwood, Piccolo Hill	*Vanessa cardui*	adult	1		endemic woodland
21.02.2025	Longwood, Piccolo Hill	*Herpetogramma licarsisalis*	adult	iM		endemic woodland
21.02.2025	Longwood, Piccolo Hill	*Opogona? 1-4*	larva		from spun terminal shoots of Wild Coffee, twigs of Gumwood, spun Gumwood leaves, flowerheads of Gumwood	endemic woodland
12.03.2025	Thompson's Wood	*Herpetogramma licarsisalis*	adult	>1000		endemic woodland
12.03.2025	Thompson's Wood	*Opogona* spp. 1-2	larva		in dead twigs or branches of Gumwood	endemic woodland
12.03.2025	Thompson's Wood	*Opogona* spp. 3-4	larva		cases on surface of lichen covered rocks	endemic woodland
12.03.2025	Thompson's Wood	*Opogona* sp. 5	larva		in dead trunk of Willow Wattle	endemic woodland
12.03.2025	Thompson's Wood	*Agdistis sanctaehelenae*	larva	2	on leaves of Gumwood and Willow Wattle	endemic woodland
16.03.2025	Mt Pleasant, Gumwoods	*Opogona* sp.	larva		cases on branches	endemic woodland
16.03.2025	Mt Pleasant, bent before residential building	*Udea delineatalis*	larva	1	on midvein of She Cabbage	endemic woodland
22.03.2025	Man and Horse cliff and Joan Hill	*Agdistis marionae*	larva	2	shaken from Tea Plant; also one exhuvia	woodland with endemics
22.03.2025	Man and Horse cliff and Joan Hill	*Opogona* sp.	larva	2	under bark of a thicker branch of Scrubwood	woodland with endemics
22.03.2025	Man and Horse cliff and Joan Hill	*Opogona* sp.	larva	1	twig of Scrubwood	woodland with endemics

Tab. 10 Records of moths in non-native woodland habitats with some endemic plants in 2025. Blue letters: endemic species.

Date	Location	species	stage	abundance	notes	status
20.03.2025	Napoleon's Tomb	*Opogona scalaris*	larva	>20	tunnels on living bark of She Cabbage	woodland with endemics
20.03.2025	Napoleon's Tomb	*Opogona* sp.	larva		cases at trunks of She Cabbage	woodland with endemics

Tab. 11 Records of moths in non-native woodland habitats without endemic plants in 2025. Blue letters: endemic species.

Date	Location	species	stage	abundance	notes	status
16.02.2025	Path to Napoleons Tomb	*Herpetogramma licarsisalis*	adult	> 10		non-native woodland
16.02.2025	Path to Napoleons Tomb	*Opogona divisa*	adult	4	beaten from African Olive	non-native woodland
16.02.2025	Path to Napoleons Tomb	*Opogona subaeneella*	adult	2	beaten from African Olive	non-native woodland
16.02.2025	Path to Napoleons Tomb	*Opogona compositarum*	adult	2	beaten from African Olive	non-native woodland
16.02.2025	Path to Napoleons Tomb	*Opogona* cases 1-4	larva		stones of the wall near entrance	non-native woodland
18.02.2025	Plantation Forest nr. Scotland	*Opogona* cases 1-8	larva		trunks of trees	non-native woodland
20.02.2025	High Peak, summit	*Vanessa cardui*	adult	1		high altitude shrubland
20.02.2025	High Peak, summit	*Lampides boeticus*	adult	3		high altitude shrubland
20.02.2025	High Peak, path to summit	*Lampides boeticus*	adult	1		high altitude shrubland
20.02.2025	High Peak, path to summit	*Herpetogramma licarsisalis*	adult	2		high altitude shrubland
20.02.2025	Hooper's Rock	*Lampides boeticus*	adult	2		non-native woodland
20.02.2025	Thompson's Wood	*Lampides boeticus*	adult	4	grassy Acacia-forest	non-native woodland
20.02.2025	Thompson's Wood	*Herpetogramma licarsisalis*	adult	> 250	grassy Acacia-forest	non-native woodland
10.03.2025	Sunny Side near bus shelter	*Opogona* spp. 1-4	larva		on tree trunks, one at rock	non-native woodland
11.03.2025	Clifford Arboretum	*Zovax whiteheadii*	adult	iM		non-native woodland
11.03.2025	Clifford Arboretum	*Opogona compositarum*	adult	1	resting on trunk of Pinus	non-native woodland
11.03.2025	Clifford Arboretum	*Opogona piperata*	adult	1	resting on trunk of Willow Wattle	non-native woodland
11.03.2025	Clifford Arboretum	*Opogona helenae*	adult	2	resting on trunk of Spoor (det.?)	non-native woodland
11.03.2025	Clifford Arboretum	*Herpetogramma licarsisalis*	adult	>100		non-native woodland
11.03.2025	Clifford Arboretum	*Lampides boeticus*	adult	1		non-native woodland
11.03.2025	Clifford Arboretum	*Opogona* spp. 1-5	larva		on trunks, some were covered with lichens	non-native woodland
11.03.2025	Clifford Arboretum	*Opogona* sp.	larva		in white rot wood of Rose Gum and Spoor	non-native woodland
11.03.2025	Deep Valley, forestry track	*Herpetogramma licarsisalis*	adult	> 50		non-native woodland
11.03.2025	Deep Valley, forestry track	*Opogona piperata*	adult	1	resting on rock	non-native woodland
11.03.2025	Deep Valley, forestry track	*Opogona* spp. 1-2	larva		small cases on wall and rock at street	non-native woodland
12.03.2025	Plantation Forest, near Scotland	*Herpetogramma licarsisalis*	adult	ab. 20		non-native woodland
12.03.2025	Plantation Forest, near Scotland	*Vanessa cardui*	adult	1		non-native woodland
12.03.2025	Thompson's Wood	*Herpetogramma licarsisalis*	adult	>1000		non-native woodland
13.03.2025	Flagstaff, eastern slope	*Opogona vilis*	adult	15	observed by Rebecca Cairns-Wicks	non-native shrubs
13.03.2025	between Knotty Ridge and Flagstaff	*Lampides boeticus*	adult	1		non-native shrubs
14.03.2025	Flagstaff, eastern slope	*Herpetogramma licarsisalis*	adult	iA		non-native shrubs
Date	Location	species	stage	abundance	notes	status

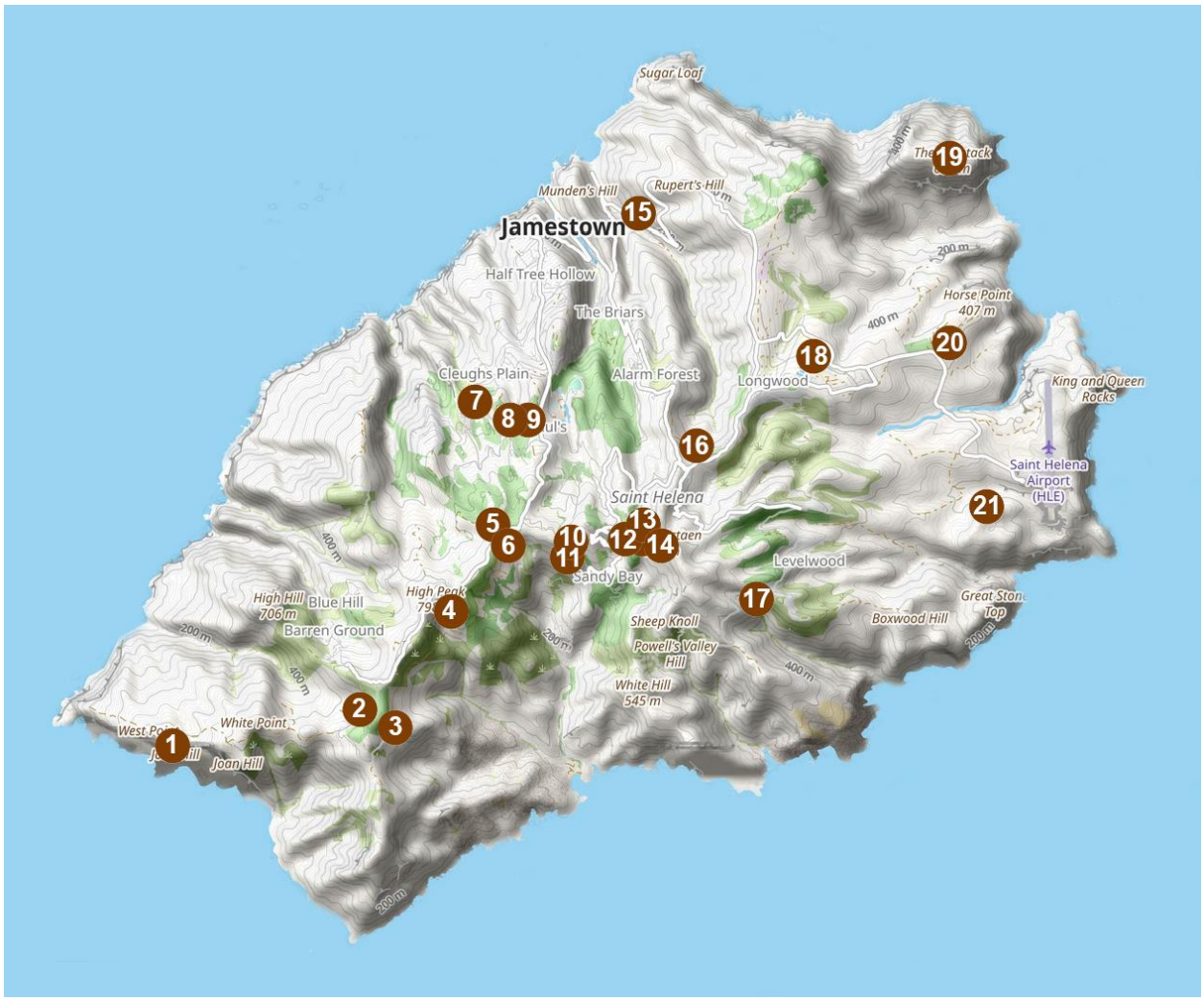
14.03.2025	Flagstaff, eastern slope	*Uresiphita gilvata*	adult	1		non-native shrubs
14.03.2025	Flagstaff, eastern slope	*Opogona vilis*	adult	iA	close to Gumwood-shrubs	non-native and endemic shrubs
15.03.2025	Sandy Bay Valley, nr baptists church	*Opogona* spp. 1-3	larva		cases on rock	non-native shrubs
19.03.2025	Blue Point, Hooper's Rock at the track to Peak Dale	*Herpetogramma licarsisalis*	adult	iV		non-native woodland
19.03.2025	Blue Point, Hooper's Rock at the track to Peak Dale	*Uresiphita gilvata*	adult	4		non-native woodland
19.03.2025	Blue Point, Hooper's Rock at the track to Peak Dale	*Lampides boeticus*	adult	2		non-native woodland
19.03.2025	Blue Point, Hooper's Rock at the track to Peak Dale	*Opogona* sp.	larva		in dead branch of Wild Coffee	non-native woodland
19.03.2025	bent track W Hooper's Rock	*Opogona helenae*	adult	1	resting on rock	non-native woodland
20.03.2025	Path to Napoleons Tomb	*Cosmopterix attenuatella*	adult	1		non-native woodland
20.03.2025	Path to Napoleons Tomb	*Herpetogramma licarsisalis*	adult	> 100		non-native woodland
20.03.2025	Path to Napoleons Tomb	*Vanessa cardui*	adult	1		non-native woodland
20.03.2025	Path to Napoleons Tomb	*Stenodacma wahlbergi*	adult	1		non-native woodland
20.03.2025	Observation Point at Napoleon's Tomb	*Lampides boeticus*	adult	2		non-native woodland

Tab. 12 Records of moths in semi-desert habitats in 2025. Blue letters: endemic species.

Date	Location	species	stage	abundance	notes	status
13.03.2025	The Barn, Haystack	*Herpetogramma licarsisalis*	adult	1	boulderfield with Creeper and Wild Coffee	semi-desert
13.03.2025	The Barn, Haystack	*Hypena commixtalis*	adult	1	boulderfield with Creeper and Wild Coffee	semi-desert
13.03.2025	The Barn, Haystack	*Spoladea recurvalis*	adult	1	boulderfield with Creeper and Wild Coffee	semi-desert
13.03.2025	The Barn, near weather station	*Spoladea recurvalis*	adult	2	boulderfield with Creeper, Common Saltbush, Opuntia	semi-desert
13.03.2025	The Barn, E of haystack	*Opogona* sp.	adult	1	collected by Rebecca Cairns-Wicks	semi-desert
13.03.2025	The Barn, E of haystack	*Opogona* sp.	larva		cases under stones	semi-desert
13.03.2025	The Barn, middle of ridge, eastern part	*Opogona* sp.	larva		cases under stones	semi-desert
14.03.2025	The Barn	*Opogona* sp.	adult	1	under stones, with vestigial wings	semi-desert
14.03.2025	The Barn, middle of ridge, eastern part	*Opogona* sp.	larva		some cases under stones	semi-desert
14.03.2025	The Barn, 100 m SW Haystack	*Opogona* sp.	larva		some cases under stones	semi-desert
14.03.2025	Flagstaff, along fence to path to the Barn	*Opogona vilis*	adult	2		semi-desert
14.03.2025	Flagstaff, along fence to path to the Barn	*Lampides boeticus*	adult	iM		semi-desert
14.03.2025	Knotty Ridge	*Hypena commixtalis*	adult	1		semi-desert
23.03.2025	Bencoolen, plateau at summit	*Opogona bicolor*	adult	3	between lichen covered boulders at luv side	semi-desert
23.03.2025	Bencoolen, plateau at summit	*Opogona* sp.	larva		under stones	semi-desert
23.03.2025	Bencoolen, NE plateau	*Opogona* sp.	adult	iA	collected under Creeper by Liza Fowler; with vestigial wings	semi-desert
25.03.2025	Sandy Bay from Broad Gut to Ascent at Path to Lot's Wife's Pond	*Opogona* sp.	larva	iM	at the surface of barren rocks with only initial lichens	semi-desert

Appendix 3

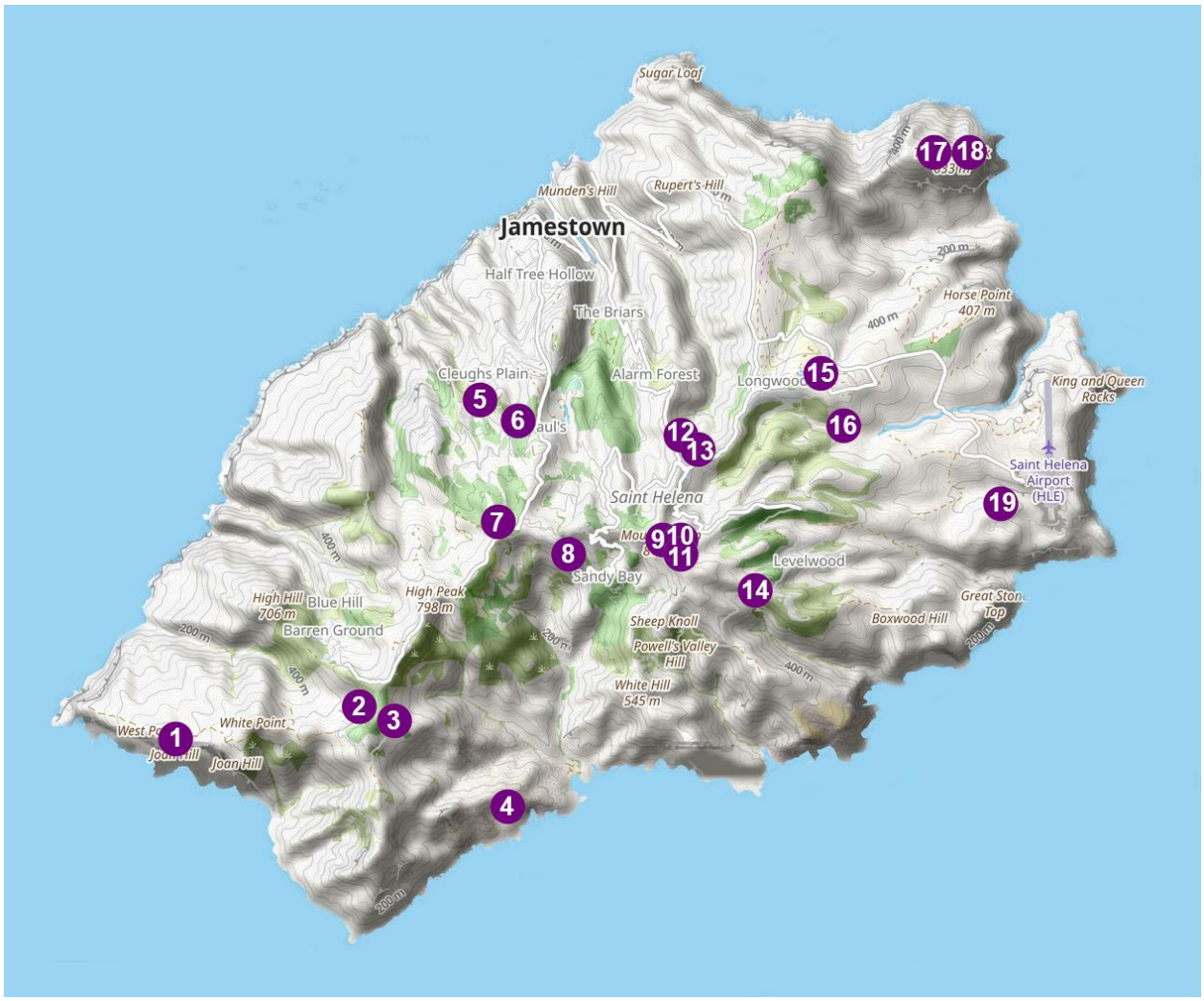
3.1 Light trap localities 2025



Legend:

1- Man and Horse; 2 – Thompson's Wood; 3 – Hooper's Rock; 4 – The Dell; 5 – Clifford Arboretum; 6 – George Benjamin Arboretum; 7 – Sunny Side; 8 – Plantation Forest; 9 – Garden of Plantation House; 10 – Mt Pleasant, nr residential building; 11 – Mt Pleasant, estern slope; 12 – Mt Actaeon, SW-cliff; 13 – nr Wells; 14 – W Black Gate Nursery; 15 – Rupert's Valley; 16 – Napoleon's Tomb; 17 – Deep Valley; 18 – Piccolo Hill; 19 – The Barn; 20 – Millenium Forest; 21 – NE Bencoolen summit.
Credits: opentopomap.org

3.2 Day time excursions 2025, localities



1 – Man and Horse; 2 – Thompson's Wood; 3 – Hooper's Rock; 4 – NW Fizzler's; 5 Sunny Side; 6 – Plantation Forest; 7 – Clifford Arboretum; 8 – Mt Pleasant; 9 – Mt Actaeon; 10 – nr Wells; 11 – Diana's Peak – Cuckholds Point; 12 – Path to Napoleon's Tomb; 13 – Napoleon's Tomb; 14 – Deep Valley; 15 – Piccolo Hill; 16 – Fisher's Valley E of bridge; 17 – The Barn, middle ridge; 18 – The Barn, at haystack; 19 – Bencoolen.

Credits: opentopomap.org