



INVERTEBRATES OF THE CENTRAL PEAKS AND PEAK DALE, ST HELENA



HOWARD MENDEL
PHILIP ASHMOLE
MYRTLE ASHMOLE

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Invertebrates of the Central Peaks and Peak Dale, St Helena **(with additional records from other sites)**

Based on a survey by HOWARD MENDEL, PHILIP ASHMOLE and MYRTLE ASHMOLE,
with field assistance from EDWARD THORPE

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Part 1 – General

Summary

A survey of the invertebrate fauna of the Central Peaks of St Helena was carried out over the period December 2005 to March 2006, by Howard Mendel and Philip and Myrtle Ashmole, assisted in the field by Edward Thorpe. An *Interim Report* was produced in March 2006. This *Final Report* is developed from the *Interim Report* which it totally replaces; it lists all of the species identified from the samples. Voucher material for most of the species listed has been deposited in the Natural History Museum (BMNH, London). The insects and arachnids which comprise the vast majority of specimens are marked with the registration number BMNH(E) 2006-9. A small proportion of specimens have been retained as desiderata by some of the many experts who identified the material.

A database constructed by Myrtle Ashmole and Edward Thorpe in an earlier phase of the project shows that about 393 invertebrate species have been previously recorded from the Central Peaks, of which about 217 (55%) are endemic to St Helena. These 217 endemic species represent more than half of the total endemic fauna of the island. Of these, 127 species are apparently confined to the Central Peaks; protection of the original vegetation in this part of St Helena is key to their long-term survival.

A high proportion of the most significant endemic invertebrates previously found on the Central Peaks still have viable populations there. No invertebrate survey can ever be complete, so some of the species that were not found may also still be present in the area, though rare or very locally distributed. Several species new to science have also been discovered. This has been the most intensive survey since the Belgians', some 40 years previously.

No clear differences emerged between the faunas of the Diana's Peak National Park and the western part of the ridge around High Peak. However, the richness of the fauna in the tiny area of native vegetation at High Peak indicates that restoration of this part of the ridge should be given high priority.

Many of the endemic species of the Peaks appear to be dependent on the native vegetation. Clearance of flax and other invasive alien plants can permit restoration of lost areas of natural habitat, but only if work in cleared areas is continued until native plants are fully re-established. The endemic invertebrates seem mostly to

depend on the humid and stable microclimate provided by a closed canopy of Tree Fern and cabbage trees; open stands appear to have fewer animals and lower biodiversity.

Even small relict stands of endemic trees with associated dead wood can maintain diverse communities of endemic invertebrates, but many of these animals may be lost as the number of trees in the stand declines and its structure is destroyed. Strengthening of such stands by planting more of the endemic trees within and around them should be a priority, with intensive care of these trees until established.

Conservation and ecological restoration work on St Helena has had outstanding successes and some failures. The keys to success appear to be coherent planning and continuity of management, as well as hard work on the ground.

Acknowledgements

This study, commissioned by the St Helena National Trust, was made possible by funding under the Overseas Territories Environmental Programme (OTEP) run jointly by DFID (Department for International Development) and the Foreign & Commonwealth Office, whose support is gratefully acknowledged. Throughout our stay on the island, we depended on help and advice from Rebecca Cairns-Wicks, Project Manager of the OTEP Peaks Project, whose enthusiasm for the endemic plants and invertebrates of the island knows no bounds. We were assisted in the field by Edward Thorpe, whose ability to capture invertebrates and to trek long distances uncomplainingly in all weathers is enormously appreciated. We thank the SHG Environmental Co-Coordinator for arranging the loan of a Nikon Coolpix 4500 digital camera purchased by SHG for the 2003 FCO-funded study of Prosperous Bay Plain, the SHG Information Technology office for the loan of a computer, and Prince Andrew School for the loan of a binocular microscope.

Many people have helped with processing and identifying the samples collected (sincere apologies to anyone we have forgotten). For sorting mixed samples to order and preparing the material for mounting we particularly thank Dr Erica McAlister (then working on a Special Funds grant at the Natural History Museum). For specialist identifications (order follows the taxonomic tables in Part 2) we thank: F. Naggs and J. Ablett (Natural History Museum, London) (Mollusca); Dr M.S. Harvey (Western Australian Museum, Perth) (Pseudoscorpiones); J. Murphy (independent arachnologist) (Araneae); Dr Stefano Taiti (Istituto per lo Studio degli Ecosistemi, Italy) (Isopoda); J.G.E. Lewis (Natural History Museum, London) (Myriapoda, Scolopendromorpha), Dr. G. Edgecombe (Natural History Museum, London)

(Myriapoda, Scutigeraomorpha); Dr P. Shaw (Roehampton University, London) (Collembola); M.D. Webb (Natural History Museum, London), Dr M. Asche (Zentralinstitut Museum f. Naturkunde, Berlin) and Dr J. Szewo (Polish Academy of Sciences, Warsaw) (Hemiptera, Auchenorrhyncha); M.D. Webb and Dr T.J. Henry (Smithsonian Institution, Washington) (Hemiptera, Heteroptera); J.H. Martin and D. J. Williams (Natural History Museum, London) (Hemiptera, Sternorrhyncha); Dr C. Lienhard (Museum of Natural History, Geneva) (Psocoptera); R. T. Thompson, Dr R.G. Booth and M.V.L. Barclay (Natural History Museum, London) (Coleoptera); Dr. G. Broad, D.G. Notton and Dr J.S. Noyes (Natural History Museum, London), M. Forshage (Uppsala University, Sweden), Xavier Espadaler (Universitat Autònoma de Barcelona) (Hymenoptera); Dr G.S. Robinson and M. Schaffer (Natural History Museum, London), Dr T. Karisch (Museum für Naturkunde und Vorgeschichte Dessau) (Lepidoptera).

The project

Introduction and terms of reference

The invertebrate survey was one part of the OTEP project entitled ***Protected Area Planning for the Central Peaks*** currently being undertaken by the St Helena National Trust. It was carried out in Year 2 of the Project and the outputs were identified as ***Database, Survey and Reporting***.

The ***database*** was defined as '*Establishment of a database, based on a review of literature of invertebrates to identify invertebrates associated with different habitats.*' This was compiled by Edward Thorpe and Myrtle Ashmole, and completed in 2005.

The ***survey work*** was defined as '*Survey – to demonstrate the presence of endemic invertebrates (or implied absence) and assessment of their ranges. An analysis of the Belgians and Wollaston data and comparison with the results of a new survey should produce a long-term view of any trends. Demonstration (hopefully) that invertebrates are still present would immeasurably increase the strength of the case for long-term conservation efforts. Indiscriminate collection would not be involved.*'

Reporting has been in two stages, an *Interim Report* in March 2006, completely replaced by this *Final Report* dated March 2008.

Personnel

Howard Mendel is Head of Collections in the Department of Entomology at the Natural History Museum (BMNH, London). He has carried out entomological field survey work in many parts of the world and has published extensively. His access to taxonomist colleagues and to the museum collections (including the Wollaston's St Helena collections dating to the 19th century) has proved invaluable.

Philip and **Myrtle Ashmole** have worked on various aspects of the biology of St Helena and are the authors of the book *St Helena and Ascension Island: a natural history*, published by Anthony Nelson (2000). In 2004 they produced a report *The Invertebrates of Prosperous Bay Plain St Helena*, which was commissioned by the St Helena Government and financed by the Foreign & Commonwealth Office. At the same time they produced a *Guide to Invertebrates of Prosperous Bay Plain, St Helena*. They have also helped to develop proposals for ecological restoration on St Helena.

Edward Thorpe has a degree in Animal Science and has previously worked as volunteer field assistant with the Ashmoles on Prosperous Bay Plain.

Timetable

Philip and Myrtle Ashmole, Howard Mendel and Edward Thorpe arrived on St Helena on 16th December 2005. Howard Mendel left the island on Sunday 15th January 2006; Philip and Myrtle Ashmole stayed on until 9th March 2006. Fieldwork was most intensive during the first four weeks of the study, when all four participants worked full time. During the following eight weeks the Ashmoles (assisted by Edward Thorpe) spent approximately half time on the project, plus the time spent in preparing the Interim Report. The rest of their time was spent studying the fauna of endemic plants in various parts of the island.

Outcomes

- Training opportunities were offered for personnel in the Endemic Section of the Agriculture and Natural Resources Department. Although pressure of work within the section prevented joint field work, close contact was maintained with the Section. Other Saints accompanied the Survey Team on field trips.
- Several accounts of on-going work were published by the *St Helena Herald* and the *St Helena Independent* while the Survey Team was on the island.

- A presentation on the invertebrate survey was made at a public meeting of the St Helena National Trust, and discussions were held with the Peaks Project Group and other parties about how to increase publicity (both on the island and abroad) about conservation issues on St Helena.
- Reference specimens of species collected have been deposited in the Natural History Museum in London.
- An Interim Report was submitted in March 2006, replaced by this final report submitted in March 2008.

Limitations

Seasonality. The fieldwork covered only the period late December to mid-March, so some species will have been missed due to seasonality in their periods of adult activity.

Limits on collection of specimens. To produce a scientific and reliable report it was necessary to collect and preserve insects and other invertebrates, for identification by comparison with reliable reference material. For ethical and conservation reasons, and because of a perception that collecting may harm animal populations, sampling was limited to that considered absolutely necessary to obtain an adequate assessment of the fauna. Collecting was also restricted to relatively few sites, chosen as representative of different habitat types. By organising the fieldwork in this way, we are confident that only a tiny fraction of the population of each species has been affected and that the collecting has not endangered any species.

The difficulty of proving absence. In any biological survey, even of static plants, it is difficult to be certain that rarer species have not been overlooked, or to prove extinction of a species. For invertebrate animals, which are small, mobile, usually seasonal and often cryptic, it is impossible for surveyors to find all of the species present in an area, even after several repeat visits. Furthermore, there is always the likelihood that some species have unusual ecology or behaviour and so are not caught by normal techniques. Comparison of the results of a modern survey with work done many years previously is also hampered by lack of full knowledge of the techniques used in the earlier work and the workers' collecting effort.

Background information

Topography

The central ridge of St Helena forms a huge curve around Sandy Bay, from Hooper's Rock (>700 m) in the west, northeastwards via the Depot (>670 m), High Peak (798 m) and Mount Vesey (>740 m), on to Casons Gate (>690 m), east along Sandy Bay Ridge (747 m), then across the road to Stitch's Ridge. This leads to the summit ridge itself – often referred to as The Peaks – which trends south-southeastwards and includes three main summits. The first to be reached when walking from the west up Cabbage Tree Road (a track, not a drivable road) is Cuckold's Point, which is just over 800 m and carries a Norfolk Island Pine. The next summit – at 820 m, the highest point on the island – is Diana's Peak, which has no landmark tree. The southernmost extension of the ridge, where it still exceeds 780 m before dropping to Long Ground Ridge, is Mount Actaeon; it also has a large Norfolk Island Pine.¹ The central ridge has much higher rainfall than elsewhere on the island, and for much of the time it is shrouded in mist.

Vegetation

The original vegetation of the Peaks of St Helena consisted of *cabbage tree woodland* and *tree fern thicket*. The former, growing on relatively rich soils, occupied the zone from about 600 m to 700 m, while the latter occupied the steep slopes at higher levels. In the cabbage tree woodland the most abundant trees were probably Black Cabbage, Redwood and False Gumwood, along with the short-lived She Cabbage and He Cabbage. The Black Cabbage also occurred in the tree fern thicket, along with the Whitewood, Dogwood, St Helena Olive and Stringwood, but the Tree Fern was dominant here. Natural regeneration of the thicket depends on young ferns and seedling trees becoming established on the trunks of Tree Ferns or trees and eventually reaching down to ground level. Many of the endemic plants are effective mist interceptors and all of them depend on the moist environment provided by the closed canopy forest.

The original vegetation of the Peaks has been in retreat since the discovery of the island by humans in 1502 (Ashmole & Ashmole, 2000; chapter 7). During the 19th

¹ The names of these peaks have been the subject of controversy for many years. We accept the authority of the Diana's Peak National Park Guide published in 1996, with the names used by St Helenians such as George Benjamin and by staff of the Agriculture and Natural Resources Department in their management of the Peaks. This usage, however, does not conform to that on the current Ordnance Survey maps.

century most damage was been caused by clearance of indigenous vegetation in order to plant New Zealand flax *Phormium tenax* (Gosse, 1938, 1990; Cronk, 1989). The subsequent natural spread of the flax, together with competition from a variety of invasive exotic plants such as Buddleia *Buddleia madagascariensis*, Bilberry *Solanum mauritianum*, Blackberry *Rubus pinnatus*, Quinine *Cinchona succirubra*, Fuchsia *Fuchsia coccinea*, Whiteweed *Eupatorium pallidum* and the moss *Scleropodium purum* has led to progressive retreat of the natural vegetation.

The current status of the indigenous vegetation of the Peaks is documented in the separate reports prepared for this project by Rebecca Cairns-Wicks (vascular plants) and by Martin Wigginton (bryophytes). The total area occupied by this native vegetation is estimated at only 16 hectares (about 40 acres) and much of this area has been infiltrated by alien plant species.

Efforts to control the spread of flax and of other alien plants started in about 1957 (Humphrey, 1956) but were frequently interrupted. Only in the past decade has there been a sustained campaign to remove flax and other invasive plants from key areas on the Central Peaks. A team from the Department of Agriculture and Natural Resources has been working in Diana's Peak National Park and elsewhere, and under the current OTEP Peaks project clearance of the main cliff face below High Peak is under way.

Previous studies of the fauna

The first systematic work on the fauna of St Helena was undertaken by John Charles Melliss during the middle years of the 19th century. His classic study, including all the then known details of the flora and fauna, was published in 1875. During the previous decades Melliss corresponded with numerous scientists in England and sent invertebrate specimens to them for study. Melliss inspired Thomas Vernon Wollaston, a noted beetle specialist, to visit St Helena with his wife Edith in 1875-76. Wollaston studied the beetles and the land molluscs while his wife wrote an account of the moths of St Helena that remained the standard work on this group for 120 years (T.V. Wollaston, 1877, 1878; E. Wollaston, 1879). At about the same time Francis Buchanan White summarised knowledge of the bugs (Hemiptera) of the island (White, 1878).

During the first half of the 20th century, the invertebrates of St Helena were largely ignored, but in 1957 Arthur Loveridge retired to St Helena and spent much of the rest of his life studying the invertebrates (Loveridge, c.1977). He found many new species and massively increased knowledge of the insects of the island. In the same

period C.R. Wallace, who was on the island as government entomologist concerned mainly with agricultural pests, made a number of significant observations on the endemic invertebrates (Wallace, 1960).

In 1965 and 1966, a group of entomologists from the Musée Royal de l'Afrique Centrale at Tervuren in Belgium undertook a systematic investigation of the fauna of St Helena. P. Basilewsky, the leader of the enterprise, pointed out that the origin and evolution of the fauna and flora of isolated oceanic islands were of special interest, but that proper understanding depended on the existence of inventories of their animals and plants. St Helena, though isolated in the Atlantic, bore a clear relationship to the African continent. The Tervuren Museum was dedicated to the study of Africa, and the authorities there decided to provide a complete inventory of the terrestrial animals of St Helena. Accordingly, the museum mounted two expeditions to the island, respectively from 8th November 1965 to 23rd January 1966 and 21st January to 4th June 1967.

The Belgians made such a thorough survey that the fauna of St Helena became as well-known as that of any island in the world. Between 1970 and 1977 they produced over 100 scientific articles describing their findings. Many different authors, specialists in various groups of invertebrates, wrote the articles, which are mainly in French but some in English or German, and they were published in four volumes of the museum's own journal (Basilewsky *et al.*, 1970; 1972; 1976; 1977). This was meticulous work, including details of where all the specimens were collected. Many species new to science were described, and details of closely related species in Africa or elsewhere were often given. However, only in the case of a few of the individual families and later also the beetles, was there any attempt to analyse the data (Basilewsky, 1985); there was not even a listing of all the new species discovered. However, the Belgians' reports list all the sites where they worked, and most of the species accounts indicate where the specimens were found.

In October to December 2003 Philip and Myrtle Ashmole, with field assistance from Edward Thorpe, carried out a study of the invertebrates of Prosperous Bay Plain (Ashmole & Ashmole, 2004a, b). Although this is a desert area remote from the Peaks, some of the endemic species are common to both.

Current knowledge of the invertebrate fauna of St Helena is summarised in a database produced by Myrtle Ashmole and Edward Thorpe as part of the current OTEP Peaks project. This summarises past records on the distribution of species on the Peaks, but also lists all non-fossil species found elsewhere on the island.

Project execution

Methods

On arrival in the area preliminary visits were used to select sites for intensive sampling. The primary areas of study were chosen as places where the surrounding vegetation was almost entirely endemic: Cuckold's Point, Diana's Peak, Mount Actaeon, High Peak and Peak Dale (see below). Additional study areas were places where the Belgians had collected, and a few localities within the general area that presented an identifiably distinct habitat.

At each of the primary sites a Malaise flying insect trap was erected, and a line of pitfall traps sunk in the ground. At Peak Dale there was the addition of a flight interception trap. All the traps were visited about every 5 days, the insects collected, and the collecting liquids renewed. These samples were then cleaned in the laboratory and rough sorted into beetles, spiders and other groups.

At each of the primary sites and at the additional localities listed below, sweep netting, beating and visual searching were carried out. Pitfall trapping, sweep netting and beating of foliage produce large general samples of invertebrates and are good for locating rare species.

These approaches were supplemented by more specialised techniques. Visual examination of foliage, branches and trunks was used mainly to increase understanding of the behaviour of particular species, and to try to assess the extent to which they were confined to particular plant species. Litter was examined or sifted in the field and often brought back to base at Woodcot for drying in a Winkler bag to extract the litter fauna. Brushing of tree trunks and rock faces was used to detect cryptic animals on these surfaces. Dead twigs and branches were examined and split open, and rotting wood was examined and broken up, either in the field or back at base. On several occasions visits were made to the study areas at night to search for nocturnal species that might be hard to find during the day, and to observe behaviour.

These techniques were effective in finding spiders, centipedes, bugs and beetles, but also often produced moth and beetle larvae. Since identification of larvae is usually impractical, these were brought back and placed in transparent plastic rearing boxes along with appropriate provisions. Some of these larvae produced adults that were preserved so they could be identified.

In late February, near the end of the study, additional pitfall traps were set at Cuckold's Point, Mount Actaeon and High Peak in an (unsuccessful) effort to catch ground beetles and a wingless fly which had been recorded previously but which had not been found during trapping early in the survey.

During the early part of the visit, a light trap was set up at Woodcot and operated every night. The catch was examined every night and six examples of each species found were pinned for later identification. The light trap was used again for a few days in late February and early March with the aim of catching species emerging at a later season.

Most of the invertebrates collected were preserved in 70% ethanol, but where possible moths and heteropteran bugs were preserved dry or pinned. On return to Britain all of the mixed samples were sorted to Order (or lower taxonomic group where possible) and the Coleoptera and Heteroptera were sent to Brno in the Czech Republic for dry mounting. The sorted samples were distributed to specialists for identification and eventual description of species new to science. The method of field preservation and final preparation were issues, to the extent that some experts were only prepared to identify material prepared in a particular way. Numbering systems were used to ensure tracking of the material in general and to enable reference to individual specimens.

Since the end of the fieldwork, identification data has been steadily accumulated, and is tabulated in Part 2 of this report. The same data will be added to the Adobe Access database of island invertebrates. More than 90% of the specimens collected have now been identified but some small samples await the attention of an expert. Either we could not find an expert willing to do the work, or a particular expert has the samples but has not yet found the time to work through them. The most significant sample not yet identified is the Orthoptera (grass hoppers and crickets). As and when these outstanding groups are identified, supplementary tables will be sent to the parties in the distribution list.

In addition to the specimens that were collected (now mostly in the Natural History Museum, London), digital photographs were taken of the study sites and key invertebrates were photographed, either alive or after preservation.

Peaks Project study areas

The Central Peaks of St Helena that were the focus of the OTEP Peaks Project are those on the central ridge of the island, from Diana's Peak National Park in the east

towards High Peak and the Depot in the west. For the purposes of the invertebrate survey, the Peaks region is defined as comprising all areas on the island above 600 m, except for the separate peaks of High Hill, White Hill, Flagstaff and the Barn. This region was intensively investigated by the Belgian entomologists (their sites 34-44 and 66) and also by T.V. Wollaston in the 19th century whose sites referred to as 'The Peaks', 'West Ridge' and 'Casons' seem to relate to areas above 600 m. A very large proportion of the effort in the current invertebrate survey was put into this high area, which carries almost all of the surviving cloud forest of St Helena.

The gumwood forest at Peak Dale was included in the study because of its great conservation interest, although it is ecologically very distinct from the cloud forest of the Central Peaks. It lies just below the 600 m contour south of High Peak at the head of Peak Gut, which is a subsidiary of Broad Gut. Sampling was also carried out on the level area below it at Lower House Plain. Peak Dale and Lower House Plain together comprised the Belgians' site 68; the area was also visited by T.V. Wollaston. For comparison with Peak Dale, the Gumwoods in Deep Valley, Longwood and the Millennium Forest at Horse Point were also sampled.

It was decided at an early stage in the planning of the invertebrate work that some attention should also be paid to the Belgians' site 33, Teutonic Hall, where they stayed and did much collecting. This extra site is lower than 600 m, has almost entirely non-native vegetation. Woodcot, where the 2005/06 survey team was based, was at a similar elevation and was also surrounded by non-native vegetation. It was used for light trapping of moths and other night-flying insects.

This report is also used as a depository for other invertebrate records from St Helena. For most sites, precise positions of the areas worked were recorded by GPS.

The fauna

Endemic, native and alien species

As explained above, the Central Peaks region of St Helena is defined here as comprising all parts of the central ridge of the island above 600 m. It includes the remaining cloud forest on the island, dominated by Tree Ferns close to the summits and with remnants of Cabbage tree woodland at slightly lower levels.

On the basis of the records by the Wollastons, the Belgians and a few other entomologists, as incorporated in the current database, about 393 invertebrate species have been recorded from the Central Peaks, of which about 217 (55%) are

endemic to St Helena. This is a higher proportion of endemism than for the island as a whole: the total known invertebrate fauna is about 1090 species, of which about 410 (38%) are endemic (Ashmole & Ashmole, 2000).

The degree of endemism is even greater among species recorded on the Peaks but nowhere else on the island. There are about 164 of these, of which 127 (77%) are endemic. These 127 species apparently endemic to the Peaks are those for which protection of the original vegetation in this part of St Helena is crucial.

An unknown number of additional species found on the Peaks are not endemic but may be native to the island (in the sense that they reached the island without the aid of humans). Other species undoubtedly arrived with human assistance, either intentionally (for instance as agents for biological control of pests) or by accident (in soil with plants, in imported foodstuffs or in other ways).

Distribution of species within the Peaks

The sampling in the Peaks Project was not intensive enough to provide reliable distributional data, but is a useful guide none the less. It was noticeable that some species were found at most sample sites whereas others were noticeably patchy in their distribution. It is difficult to discern any obvious difference between the fauna of High Peak and Diana's Peak National Park further to the east, but the number of species found in one but not the other is of interest and may be significant. The area of quality habitat at High Peak is so much smaller than in Diana's Peak National Park that it was inevitable the collecting effort there would be less.

Peak Dale and other Gumwood stands

Compared with the Peaks, the stand of Gumwoods at Peak Dale represents a very different biological community. Lower House Plain, about 150 m lower, has a typical arid land fauna. Comments relating to these sites are added where relevant in the taxonomic section.

The Gumwood stand at Peak Dale suffered severely in the early 1990s from attacks by the introduced Jacaranda Bug *Orthezia insignis*, an ensign coccid from South and Central America. The infestation was brought under control by a biological control programme using the ladybird *Hyperaspis pantherina*, introduced in 1995 (Key, 2000) although there are still occasional outbreaks of *Orthezia*. Unfortunately the roots of the Gumwoods are infested by a mealybug which has been identified during the current survey as *Pseudococcus viburni* (Signoret).

Recommendations

The impressive restoration work on the Peaks in recent years, involving clearance of flax and other invasive plants, is bound to benefit the endemic invertebrates. However, we hope that the following points can be kept in mind when considering future work:

1. Ensure that restoration succeeds in cleared areas before diverting resources to new areas

The long term goal of restoring natural habitat on the peaks will best be achieved if the initial clearance of flax and other weed species is followed by regular maintenance work to ensure the plots do not revert to their previous condition, or worse. Unless resources are applied to this purpose then the very considerable efforts to date will have been in vain in the long term.

2. Plan for rapid canopy closure

Achievement of a closed canopy as soon as possible should be the aim in newly planted areas. This will reduce opportunities for invasion by alien plant species and provide the variety of microhabitats that are essential for maintaining the variety of endemic invertebrates. This may require denser planting than is currently usual in cleared areas, and the adding of extra trees or Tree Ferns to some areas already planted. The rapid growth of some of the cabbage tree species provides an opportunity to achieve canopy closure quickly, with natural succession likely to lead to gradual change in stand composition in favour of longer-lived species.

Extra planting also provides the opportunity to make the spacing of trees less regular and thus to make new stands more similar to natural ones, in which spacing is irregular and some trees are extremely close to others. The new plantations of Redwood and She Cabbage in Grapevine Gut are examples of widely and evenly spaced planting which looks unnatural and in which canopy closure will be unnecessarily delayed.

3. Minimise damage to Tree Ferns and endemic trees when clearing invasive plants

When clearing invasive plants from areas with surviving endemic Tree Ferns or endemic trees, avoid removal of fronds or branches of the native species. This may make the clearance operation more laborious but the benefits should be great. The Tree Ferns just east of Mt Actaeon are a case where sheltered microhabitats have

been damaged during clearance of invasives. This is very important as so many of the endemic Coleoptera are associated with the cycle of decay in one way or another; the threatened Bembidiini are a particular case in point.

4. Care for outlying small populations and aim for spatial continuity of new planting with existing stands

When the number of trees in a small stand of an endemic tree species falls too low, the endemic invertebrates that have obligate relationships with that tree species will vanish. Although the obligate relationships are not easily demonstrated, they may be common. If outlying stands of endemic plants are cared for and new planting is done around them, the chance of survival of the associated invertebrates will be greatly increased. Saplings planted in such situations will need special care, but insecticides should be used on them only as a last resort. If insecticides have to be used, the greatest care should be taken to avoid harm to populations of native invertebrates on the older relict trees nearby.

New planting at a distance from relict stands of the same species does little for endemic invertebrates, many of which need a close link from tree to tree in order to expand their populations. In general, therefore, it is wise to do new planting immediately around relict stands of the same species. We realise, however, that since some relict stands are threatened by native or alien herbivores there is a case for establishing some remote stands. This provides both insurance against loss of relict stands (and potentially of the entire species) and sources of seed for additional planting.

5. Ensure continuity in maintenance of microhabitats

Many insects appear to be associated with epiphytic lichen, mosses and liverworts growing on the bark of endemic tree species but not necessarily having an obligate relationship with those tree species. It is noticeable that dead standing timber often has a more diverse insect fauna than timber rotting on the ground and with a different cycle of decay. Some alien timber would probably make a contribution to the reservoir of this habitat if killed and left standing during habitat restoration. Ring barking to kill alien trees could therefore be a useful option, instead of felling.

6. Set ambitious long-term restoration targets and work steadily towards them

Notwithstanding point 1 above, there is a case for setting simple and ambitious long-term targets. For instance, in Diana's Peak National Park it might be appropriate to

aim for eventual removal of all flax from above Cabbage Tree Road and the equivalent paths on the south side of the ridge. Simple objectives of this type can be readily understood by the general public, government agencies and potential funding bodies and can thus help to ensure continuity of support.

7. Future invertebrate survey work

Numerous random observations during the present survey suggest that non-native plant species, and tree species in particular, may be significant in providing viable microhabitats for scarce endemic invertebrates, at least in the short term. A survey of invertebrates on introduced tree species to discover which endemic species are able to complete their life history on them would provide valuable conservation information.

Conclusion

The Central Peaks of St Helena – containing fragments of the original cloud forest – are extraordinarily rich biologically and desperately endangered. The trees and their attendant invertebrates, unique to the island, are a grave responsibility for the people and government of St Helena because they are part of the heritage of all humans, not just of Saints; we shall all be the poorer if they cannot be saved. The survey reported here has shown that the majority of the endemic invertebrates survive but population levels appear to be much reduced compared with 40 years ago when the Belgians carried out their survey work. The size and health of populations of these species depends on rigorous control of invasive plants and further intensive work on the restoration of native vegetation. Continuity in management ensured by adequate long-term funding is seen as the key to success.

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Part 2 – Results by taxonomic group

The taxonomic arrangement in Part 2 follows Ashmole & Ashmole (2000); families (and genera within them) are listed alphabetically within each order or other major taxonomic group.

Numbers 1-12 in the tables used throughout Part 2 refer to the named sites below. 'Other sites' were Peak Dale (p. 122) and those listed in the section 'Invertebrates recorded at non-Peaks sites' (p. 125 onwards).

Main Peaks sites

DPNP is Diana's Peak National Park.

CTR is Cabbage Tree Road, which forms part of the northeast boundary of DPNP.

1. Cuckold's Point (DPNP).
15°58.3'S 005°42.2'W, corrected UTM: 02/1011E 82/3290N, altitude c.771m.
Recording area included:
Newfoundland.
2. Diana's Peak (DPNP).
15°58.4'S 005°42.0'W, corrected UTM: 02/10429 82/32719, altitude c.823m.
3. Mount Actaeon (DPNP).
15°58.6'S 005°41.9'W, corrected UTM: 02/1059 82/3231, altitude c.782m.
Recording area included:
Long Ground Ridge, UTM 02/1066E 82/3199N.
Warrens, UTM 02/1065E 82/3241N.
Washouse.
4. Cabbage Tree Road.
Recording area included:
Byrons, UTM 02/1017E 82/3292N.
Taylors 15°58.3'S 005°42.3'W, corrected UTM 02/09964E 82/32893N, altitude c.753m.
5. High Peak.
15°58.7'S 005°44.0'W, corrected UTM 02/0681E 82/3190N, altitude c.752m.
Recording area included:
Cliff site, corrected UTM 02/0677E 82/3186N.

Other Peaks sites

6. Cason's Gate, UTM 02/0787E 82/3289N, altitude c.715m.
7. The Depot: UTM 02/0643E 82/3115N, altitude 770m.
8. Deep Valley Head: UTM 02/1088E 82/3214N, altitude c.680m.
9. Grapevine Gut 'Redwood plantation': UTM 02/0997E 82/3343N, altitude 605m.
Grapevine Gut 'old She Cabbage': UTM 02/0988E 82/3326N, altitude 620m.
10. Hooper's Ridge: UTM 02/0598E 82/3017N, altitude 695m.
11. Mt Vesey
Includes: Mt Vesey Waterfall: corrected UTM 02/0701E 82/3175N, altitude c.620m.
Includes: Mt Vesey false gumwood: corrected UTM 02/0715E 82/3165N, altitude c. 700m.
12. Osborne's ('She Cabbages'): UTM: 02/0865E 3318N, altitude 630 m.

Mollusca: Gastropoda (snails and slugs)

The Mollusca have only been partly worked up and more records will be forthcoming in due course.

The Blushing Snail *Succinea sanctaehelenae*, a distinctive endemic species and the only representative of its family on the island, has flourished under the drastic ecological changes that the last half millennium. It is widespread on the Peaks (and at middle levels) on almost every kind of plant, apparently feeding on the thin film of algae growing on the leaf surfaces.

Our most significant find (so far identified) was *Helenoconcha relict*a. The family Charopidae (also known as Endodontidae) was once represented on St Helena by seven species in three endemic genera. *Helenoconcha relict*a is the only survivor of this radiation. It is a tiny snail which we have christened the 'Ammonite Snail' because of its flattened disc shape and prominent radial ridges, reminiscent of a fossil ammonite. *H. relict*a was discovered by the Belgians on Cabbage Tree Road and we find that it is still present there, though apparently only very locally. It seems to be specially associated with Black Scale Fern. We also found the species in Tree Fern thicket on the south of the central ridge below Diana's Peak, and in a surprising extension to the range we obtained a specimen off Gumwoods in Deep Valley.

** Endemic genus * Endemic species	1	2	3	4	5	Other 'Peaks' Sites	Other Sites
MOLLUSCA							
CHAROPIDAE							
<i>Helenoconcha</i> (Det. F. Naggs) **							
<i>relict</i> a Lesson *	✓			✓			✓
LIMACIDAE (Det. J. Ablett)							
<i>Deroceras</i>							
sp.					✓		
PUPILLIDAE (Det. J. Ablett)							
<i>Gastrocopta</i>							
sp.							✓
<i>Lauria</i>							
<i>cylindracea</i> (da Costa)				✓			✓
SUCCINEIDAE							
<i>Succinea</i>							
<i>sanctaehelenae</i> (Lesson) *	✓	✓	✓	✓	✓	6, 7, 8, 9, 10, 12	✓
VERTIGINIDAE (Det. J. Ablett)							
<i>Columella</i>							
<i>microspora</i> (R. T. Lowe)		✓	✓	✓			

Arachnida: Pseudoscorpiones (pseudoscorpions)

The two species collected on the Peaks were of little interest in that they are both obviously introduced, probably from Britain, and both were recorded from St Helena by the Belgians. The *Withidae* sp. from Peak Dale may represent a more interesting species, but unfortunately the single specimen was a female and only the males can be identified in that group (M. Harvey, *in litt.*).

** Endemic genus * Endemic species	1	2	3	4	5	Other 'Peaks' Sites	Other Sites
PSEUDOSCORPIONES (Det. M. Harvey)							
CHTHONIIDAE							
<i>Chthonius</i> (Chthonius)							
<i>ischnocheles</i> [2348]	✓		✓				
<i>Roncus</i>							
<i>lubricus</i> [2624, 2632, 2997]	✓	✓	✓		✓		
WITHIIDAE							
<i>Withidae</i> sp.							✓

Arachnida: Araneae (spiders)

NOTE. This section of text and the relevant table cover all spiders collected during the OTEP Peaks project of 2005/06, including some found at sites away from the Peaks. However, since the project was primarily concerned with the endemic fauna of the Peaks, non-endemic genera and species recorded during the project are simply listed without comment unless we have pertinent information about them. The table lists only species recorded during the Peaks Project in 2006, but in the text below we have also listed and commented on the species that have previously been recorded at high levels on the island but which were not found during the Peaks Project, since these must be the subject of some concern.

Further information on many species can be found in the Belgians' publications and in Ashmole & Ashmole (2000) *St Helena and Ascension Island: a natural history*, to which page references are given. However, it should be noted that the treatment in Ashmole & Ashmole (2000) was selective, so that not all species known from the island are mentioned. In a few cases reference is also made to Ashmole & Ashmole (2004) *Guide to Invertebrates of Prosperous Bay Plain, St Helena*, which can be accessed from www.kidstonmill.org.uk

English names for spider species are helpful in only a few cases, but in the case of the family Lycosidae (Wolf Spiders) we have given the various species provisional English names because the scientific names are in great doubt as a result of the chaotic state of taxonomy of the family (see below).

* before the name indicates a species endemic to St Helena.

** before the name indicates a genus endemic to St Helena.

AGELENIDAE (Belgians p. 126, A&A p. 304)

Tegenaria pagana C.L. Koch, 1841

This introduced northern hemisphere spider makes untidy webs leading to a funnel, often in a rock crevice or among roots and soil. On the Peaks it can most easily be found on banks along Cabbage Tree Road.

[*Reference specimens*: *3794 clear. 07 February 2006, The Depot, female. There seems to be great variation in size. Confirmed by J. Murphy. *5527 orange (ex I2 5/3). Diana's Peak pitfalls.]

ARANEIDAE (Belgians p. 184, A&A p. 305)

***Araneus* sp. indet.**

No endemic araneids have been recorded from the Peaks. However, an immature araneid from the summit of Lot is apparently referable to the genus *Araneus*. J. Murphy, who has examined the specimen, comments that it cannot be the only *Araneus* previously recorded from the island (*rufipalpis* (Lucas) since this has recently been transferred to the genus *Neoscona* and the specimen is certainly not a *Neoscona*.

[Reference specimen: *6304 yellow. 22 April 2007, Lot summit, off St Helena Rosemary *Phyllica polifolia*.]

Argiope trifasciata (Forskål, 1775) – Banded Garden Spider

Gasteracantha sanguinolenta C.L. Koch, 1845 – Kite Spider

CLUBIONIDAE (Belgians p. 68, A&A p, 305)

* ***Clubiona* (ex *Bucliona*) *dubia*** O.P.-Cambridge, 1869

This species, which is commoner at lower levels on the island than on the Peaks, can be confused with *Tecution* (see Miturgidae). The simplest distinction is that in *Clubiona dubia* the eight eyes do not fall into tight anterior-posterior pairs but are staggered (especially the laterals); also, the front of the carapace is slightly recurved (curved back at the sides), while in *Tecution* it is straight or slightly procurved, and there are four tight anterior-posterior pairs of eyes.

[Reference specimens: *5511 orange (ex E5. 7/1), female. Cabbage Tree Road, sweeping. *6311 orange (ex C1. 5/4). Diana's Peak, male. *4486 clear. 24 February 2006, Sandy Bay, off planted Redwoods *Trochetiopsis erythroxylon*, subadult male. Photo.]

CORINNIDAE (Belgians p. 64 – within Clubionidae, A&A p. 306)

Xeropigo tridentiger (O.P.-Cambridge, 1869)

This species has always been considered as a member of a genus endemic to St Helena. However, with any island species (or higher taxonomic group) described as endemic, there is the possibility that subsequent discoveries on continental areas will show that the endemism is invalid and that the species also occurs elsewhere. This has now happened with *Xeropigo*. Revision of the subfamily Corinninae and recently also of the included genus *Xeropigo* (de Souza & Bonaldo (2007) *Iheringia, Sér. Zool.*, 97(3), 301-313) has shown that the genus is widespread in the neotropics and that *X. tridentiger* itself – under several different names – is present in Brazil, north-western South America, Central America and Florida. Thus although St Helena is the type locality for *X. tridentiger*, it is extremely improbable that the species is native to the island. It is almost certain that it reached St Helena on a slave ship, probably in the mid-19th century. Given its adaptation to dry conditions, it doubtless spread quickly from Rupert's into the desert northeast of the island. However, we do not know whether it has yet reached the arid parts of Sandy Bay or of the far southwest.

DICTYNIDAE (Belgians p. 22, A&A p. 306)

Archaeodictyna conducta (O.P.-Cambridge, 1876)

The species previously described under the names *Helenactyna vicina* and *H. crucifera* and forming a genus endemic to St Helena are now considered to be members of a single species. Furthermore, this is apparently an island population – very possibly native – of *A. conducta*, a widespread species occurring in north and east Africa and the Middle East (Ashmole & Ashmole, 2004).

DYSDERIDAE (Belgians p. 45, A&A p. 306)

Dysdera crocata (often incorrectly spelled *crocota*) C.L. Koch, 1839

This cosmopolitan woodlouse-eating species is one of the most successful introduced spiders on the island, and may have seriously affected some endemic invertebrates. However, information collected during the Peaks project indicates that although *Dysdera* now dominates the ground-living niche for woodlouse-eaters, the endemic spiders in the genus *Tecution* (Miturgidae) still occupy the woodlouse-eating niche up in the vegetation, where *Dysdera* are rarely found. For example, our sample 2448 green, from litter of Tree Ferns *Dicksonia arborescens* at Cuckold's Point on 17 January 2006, contained 2 subadult males of *Dysdera*, with *Tecution* in above-ground samples on the same occasion.

GNAPHOSIDAE (Belgians p. 57, A&A p. 307, PBP Guide p. 13)

**** *Benoitodes (ex Actaeodes) sanctaehelena*** (Strand, 1909) & ***Benoitodes caheni*** (Benoit, 1977)

Separation of the two known species of *Benoitodes* is difficult and is complicated by the fact that the male of the former has never been described. The Belgians, who discovered *B. caheni*, found it only on Prosperous Bay Plain, but it was not recorded during the 2003 work there. They recorded *B. sanctaehelena* at higher levels, including the Peaks, and we think it likely that all our specimens (including the first known males) belong to this species.

[*Reference specimens*: *4318 red (ex H6. 7/1), Cabbage Tree Road, sweeping. Female, plus two males (ex G6 4/3), Cuckold's Point.]

LINYPHIIDAE

ERIGONINAE (Belgians p. 163, PBP Guide p. 14)

Erigone prominens Bösenberg & Strand, 1906

This species, which is also known from Africa and elsewhere in the southern hemisphere, was found by the Belgians mainly at middle levels on the island. Our specimens are from High Peak.

[*Reference specimens*: *5518 orange (ex F2 9/3). High Peak, pitfall traps, 3 males. *2028 green. 11 January 2006, High Peak, in Tree Fern litter. Female.]

LINYPHIINAE (Belgians p. 168, A&A p. 308)

*** *Bathyphantes helena*** van Helsdingen, 1977

This endemic species, discovered by the Belgians, appears to be restricted to the Peaks. We found the species at Newfoundland and Cuckold's Point.

[*Reference specimens*: *3797 blue. 20 February 2006, Newfoundland, in litter and dead trunks of Tree Ferns. Male, female. *5521 (ex F6 9/8). High Peak, sieving ground litter. Female.]

Diplostyla concolor (Wider, 1834)

This species occurs in North America and Eurasia, and it has also been found in Madeira. It is presumably introduced to St Helena. We found it at Cuckold's Point.

[*Reference specimens*: *5523 (ex G6. 4/3). Cuckold's Point, pitfalls. 2 males, 2 females. Photo.]

Helsdingenia extensa (Locket, 1968) (ex *Lepthyphantes extensus*)

This species is known from St Helena, Africa, Madagascar and the Comoro Islands. We found it on the clubmoss (Buckshorn) *Lycopodium cernuum* on the path along the ridge of the Peaks.

[*Reference specimen*: *6278 green. 05 January 2006, Diana's Peak and Cuckold's Point, female.]

* ***Lepthyphantes albimaculatus?*** (O.P.-Cambridge, 1873)

A single subadult was collected by Melliss but adults have never been identified. Myrtle Ashmole collected an adult female at Casons which may belong to this species. However, John Murphy, who suggested the identification, thinks that *albimaculatus* may not belong in the genus *Lepthyphantes*.

[*Reference specimen*: *6283. 08 January 2006, Casons, off endemic plants.]

Meioneta prosectes Locket, 1968 (ex *Meioneta gracilipes*)

This species is also known from Africa. The only previous St Helena specimen was a female found at Varneys by Arthur Loveridge. The new record is of a male from Lower House Plain, under stones.

[*Reference specimen*: *5507 orange (exB7. 3/ 4)]

Microlinyphia pusilla (Sundevall, 1829)

During the Peaks Project a specimen of *M. pusilla* was found on the clubmoss (Buckshorn) on the path along the ridge of the Peaks. This is a holarctic species which seems not to have been found previously in the southern hemisphere; it may have been introduced to St Helena from Europe.

[Reference specimen: *6279 green. 05 January 2006, Diana's Peak, female.]

**** *Napometa sanctaehelena* Benoit, 1977**

The endemic genus *Napometa* was established to accommodate two somewhat enigmatic St Helena spiders. The Belgians placed them in the family Araneidae but the original specimens (found in the 19th century) had been thought to be in the family Linyphiidae and then the Theridiidae; more recently the two species were placed in Tetragnathidae (Ashmole & Ashmole, p. 315). However, G. Hormiga, in a 1998 paper (*Journal of Arachnology* 26:125-132) has argued strongly that they do after all belong in the Linyphiidae, as Victorian describer O. Pickard-Cambridge originally decided. When we found specimens on the Peaks we assumed that they were linyphiids, and the hammock web in which we found one of our specimens makes it clear that they do not belong in the Tetragnathidae (which have orb webs). The high clypeus and divergent chelicerae with strong teeth also support Hormiga's judgement – based primarily on the genitalia – that they are linyphiids.

N. sanctaehelena is common on the central ridge above about 700 m, including High Peak and the Depot, and its hammock webs are conspicuous on Tree Ferns at night. The spider is recognizable by its spiny, annulated legs and strong patterning of the carapace, which has a conspicuous backward-pointing V-shaped pale mark. The chelicerae are long and divergent.

[Reference specimens: *5501 orange (ex A2 9/6). High Peak, male. *6297 clear. 07 February 2006. The Depot, off Bilberry *Solanum mauritianum* and other plants. Female. *2434 green. 17 January 2006. Cuckold's Point, hammock web in Tree Fern fronds. Female.]

**** *Napometa trifididens* (O.P.-Cambridge, 1873)**

The Belgians discovered this species on the central ridge (a single male), but it was not found during the Peaks Project. Although the diagrams in the Belgians account imply that it is readily identifiable on the basis of the pattern of the carapace, we have found that the pattern in *N. sanctaehelena* is often similar to that shown for *N. trifididens*. We therefore think that examination of the dentition of the chelicerae is necessary for secure identification.

LYCOSIDAE – Wolf Spiders (Belgians p. 106, A&A p. 308, PBP Guide p. 14)

As indicated in the Introduction to the Araneae, the taxonomy of the Lycosidae is notoriously chaotic, so that the status of many genera and species all over the world is in doubt. The Belgians made a highly professional attempt to sort out the St Helena lycosids that they collected or were aware of, but our work on Prosperous Bay Plain in 2003 and on the Peaks in 2005/06 has shown that the family is much more diverse on the island than has previously been realised. The problem is compounded by the tendency for the activity and season of maturity of males and females to be somewhat different (although the sexes must of course share a period of maturity) so that in many species males and females are rarely found together and in a number of cases only one sex is so far known.

Our approach has been to attempt to sort all our mature specimens into what we take to be distinct species, to give these provisional English names and to indicate the genera to which they may prove to belong. We mention their salient characteristics and include specimen numbers for typical individuals so that future naturalists can carry on from where we leave off. Resolution of many of the outstanding problems is likely to come only with study of these species at the molecular level.

?* ***Brevilabus***? Strand, 1908 **sp. indet.**

Small wolf spiders recorded from Prosperous Bay Plain may be referable to this West African genus.

** ***Dolocosa dolosa*** (O.P.-Cambridge, 1873)

Specimens collected by Doug Smith somewhere on the Peaks in 1995 may be referable to this species, which was originally described from Horse Point Plain but has not been found there since. *D. dolosa* was not found during the Peaks Project in 2006.

[*Reference specimens*: 880 SH. 1995. Peaks. (Retained by John Murphy).]

* ***Hogna (ex Isohogna) cinica*** (Tongiorgi, 1977)

Only two adult specimens (both females) of this species are known, collected by the Belgians on Prosperous Bay Plain; they also assigned to this species a juvenile from

High Peak. It is characterised as having three teeth on each margin of the chelicerae, a procurved anterior eye line, and lacking the pair of apical ventral spines on the front tibia that are present in *Hogna ligata* and *H. nefasta*.

* ***Hogna (ex Lynxosa) inexorabilis*** (O.P.-Cambridge, 1869)

This species has not been recorded in recent years. It is extremely similar to *H. ligata*, but should be distinguishable on the basis of the male palp and perhaps also by means of the female epigyne and the relative distances between the eyes in the anterior row. The Belgians recorded *H. inexorabilis* in several lower parts of the island and obtained one specimen on the Peaks. During the Peaks project no adult males of *H. inexorabilis* were collected. It is less easy to be certain about females but we are fairly sure that those assigned to *H. ligata* belong to that species and not to *H. inexorabilis*.

* ***Hogna (ex Lynxosa) ligata*** (O.P.-Cambridge, 1869) – Peaks Large Wolf Spider

This is the common wolf spider of the Peaks. Males range from 8-12 mm in overall length and females can reach 14 mm. In this species the inner margin of the chelicerae has two large teeth, the upper one almost touching a curved blade-like element of the socket of the base of the claw; the outer margin has two teeth (further from the claw than those on the inner margin) and with a minute tubercle beside the upper (larger) one. The legs have many long spines and are strongly annulated with dark brown and dirty white, a character visible in the field in contrast to orange brown of most of the other lycosids. The palp has a single downward pointing projection larger than the bifid one in the Waterfall Wolf Spider.

Hogna ligata occurs in two forms (morphs), which have apparently identical genitalia. The pale form (the Belgians' "form typique") has a broad off-white median band extending from the eyes back along the whole carapace and abdomen. The dark form has a fairly uniform dark carapace (usually with small pale patches near the edge) and a patterned abdomen with a narrow orange or dirty white wedge-shaped median mark in the anterior half.

This spider is found in litter and on vegetation and may be active mainly at night; females with cocoons have been found in cavities in decaying wood.

Some doubt relates to the largest specimen referred to this species (*4329), which was the only one found at Peak Dale, in soil and litter, but we have so far failed to find characters distinguishing it from *H. ligata*.

[*Reference specimens*: *2186 green. 29 December 05. Diana's 03, off dead stems of planted Jellico *Berula bracteata*. Female 13 mm dark form. *6273 black. 24 December 05. Cuckold's Point, in Tree Fern litter. Female 11 mm pale form. Photo of 2413 male and 6273 female together with male on left. Also photos of epigyne. *2466 black. 02 January 2006. Grapevine Gut, on planted Redwood. Female 12 mm pale form, plus egg cocoon. *2125 yellow. 22 December 05. Byrons, in hollow of damp dead branch of Black Cabbage *Melanodendron integrifolium*. Female 11 mm dark form with cocoon containing 70 eggs. *2413 orange. 12 January 2006. Deep Valley Head, casual, beside Jellico on bank at bottom of gut. Male 12 mm (the largest?) pale form. *5509 (ex C3. 7/1). Cabbage Tree Road, sweeping. Female 11 mm pale form, 11 mm male dark form with unusual characters possibly implying loss of front legs earlier in life. *4327 orange (ex A6 7/1). Cabbage Tree Road, sweeping. Male 12 mm pale form, male 8 mm dark form. *2154 red. 23 December 05. High Peak, on old Dogwood *Nesohedyotis arborea*. Female 10.5 mm dark form. Last three photos show 5503 male on left and 2154 female on right. *6276 orange (ex F2 9/3). High Peak, pitfall traps. Male 10.5 mm. Photo of palp 20 July 07. *2469 orange. 20 January 2006. Cuckold's Point night. Female 14 mm dark form; in life showed two strong pale marks on abdomen. *2785 green. 05 January 2006. Deep Valley head, in dead Jellico stems. Female 12 mm dark form with cocoon. *4331 (ex H5 9/11). High Peak, beaten off Dogwood. Female 11 mm dark form. Two photos. 2356 green. 05 January 2006. Deep Valley Head, in dead tree fern. Female 11 mm dark form, had egg sac. 2406 black. 12 January 2006. Deep Valley Head, off Black Cabbage foliage. Female 12 mm dark form. 2485 medium. 24 January 2006. Mount Vesey Waterfall, off rock wall beside waterfall. Female 12 mm dark patterned type but pale individual. *4329 orange (ex F1 2/1). Peak Dale, soil and litter. Female 14 mm dark form.]

* ***Hogna nefasta*** Tongiorgi, 1977 – Prowling Wolf Spider

This magnificent animal can have a body length of at least 20 mm and is the common burrow dwelling wolf spider of Prosperous Bay Plain and other arid areas; it has not been found on the Peaks. Intriguingly, males have not yet been found. The chelicerae are black, with three teeth on the inner margin and one large and one small tooth on the outside margin. The anterior two pairs of legs have only small spines, but these do include a pair of tiny apical ventral spines on tibiae I and II. These legs are densely hairy, probably as an adaptation to burrowing in gritty substrates. The female palps have a claw that is deeply pectinate.

[*Reference specimens*: 326V(PBP5) with J. Murphy. 614V(SP8) females 21 and 20 mm. 479V(SP8) female 18 mm.]

?* ***Hogna* sp. indet. 1** – High Peak Large Wolf Spider

The only known specimen of this distinctive species is a male 11 mm long. It is orange brown, with the legs longer and less strongly annulated than in *H. ligata*. The chelicerae are orange brown, the inner margin has three teeth (middle largest), the upper one extended by a straight ledge to the base of the claw; the outer margin has two teeth, with a minute tubercle at the base of the upper one, as in *H. ligata*. The spines on the front two pairs of legs are somewhat reduced, with only short spines under metatarsi I and II, contrasting with the situation in *H. ligata* (where ventral spines on tibia and metatarsus I and II almost overlap) and with that in the Peaks Burrowing Wolf Spider where they do overlap. However, it has the two ventral apical spines on tibia I which the Belgians state to be absent in *Hogna* (ex *Isohogna*) *cinica*. The anterior eye line is recurved and slightly narrower than the width of the posterior median eye pair. The palps are notably massive and short, and do not match the Belgians' drawing of *H. cinica*. The species is also clearly distinct from *H. nefasta* (in which the male is still unknown), for instance by the much longer front legs, which entirely lack the dense hairiness found in the females of *H. nefasta*.

[Reference specimen: *4316 orange (ex A3 9/4). High Peak, Malaise trap. Male 11 mm.]

?* ***Hogna* sp. indet. 2** – High Peak Small Wolf Spider

This species is known only from a single male obtained in a pitfall trap at High Peak. The body is only 5 mm long. The general colour is dark brown and dirty white, with strong annulations on the legs, so that it looks much like a miniature version of *Hogna ligata*. The chelicerae have two strong teeth on the inner margin and two (plus a distinct tubercle) on the outer margin. The carapace is very high and steep-sided anteriorly. The front eye row is narrower than the second row and its upper tangent is slightly procurved; the laterals are smaller than the medians and fractionally further from them than from each other. The posterior median eyes are less than one diameter apart. The palp (photo 20 July 07) is distinct from that of a *Hogna ligata* caught with it, although it has a similar triangular downward projection.

[Reference specimen: *5517 orange (ex F2 9/3). High Peak, pitfall traps. Male 5 mm.]

Trochosa* cfr. *urbana O.P.-Cambridge 1876 – Waterfall Wolf Spider

Females of his species were discovered by Howard Mendel on 24th January 2006 under moss clumps on the rock wall of the Mount Vesey Waterfall. The female has been examined by Dr Mark Alderweireldt, who suggests that it is related to *Trochosa urbana*, which is widespread in Africa. Female body length is up to 16 mm and colour

is yellowish brown, becoming pale orange brown when fully mature. The chelicerae are orange brown rather than black (cf. *Hogna ligata* and Peaks Burrowing Wolf Spider) and have three teeth on both the inner and outer margins, with the middle tooth in each row the largest. The legs are only dimly annulated (contrast with *Hogna ligata*) and are very spiny, with three pairs of overlapping spines on the ventral face of the tibia of leg 1, as well as a single (proximal) apical one. The anterior eye row is fractionally narrower than the second row and is slightly procurved, with the four eyes equally spaced or with medians fractionally closer to each other than to laterals; the medians are larger than the laterals. The area of the head within the eye group is pale yellowish in colour and appears slightly swollen, contrasting with the situation in *Trochosa* sp. indet. where it is reddish brown.

[*Reference specimens*: *2594 red. 24 January 2006. Mount Vesey Waterfall, under moss clump on rock wall. Female 13 mm. *5520 medium (ex F3. 10/1). Mount Vesey Waterfall base, female now in two halves. The female has a carapace length to breadth ratio of 1.42:1. The ratio of the breadth of the carapace to the distance across the outsides of the posterior lateral eyes is 2.68:1. The sample also includes a subadult male and a subadult female. The subadult male has a carapace length to breadth ratio of 1.43:1. The ratio of the breadth of the carapace to the distance across the outsides of the posterior lateral eyes is 2.43:1. The latter ratio does not conform to the adult males of *Trochosa* sp. indet. 1, which are relatively narrower across the eyes.]

***Trochosa* sp. indet. 1**

This species is known only from males, and these were initially suspected of being the males of the Waterfall Wolf Spider. They were found at High Peak and Cuckold's Point. The general orange brown coloration, the detailed pattern of the abdomen, and the characters of the chelicerae and leg spines are very similar to those in the Waterfall Wolf Spider. However, the subadult male collected at the same site as females of the Waterfall Wolf Spider and apparently belonging to that species, differs from the present species in its thicker legs and wider head. In the present species the head is noticeably more narrowed anteriorly (see data under tube *6301 below and under Waterfall Wolf Spider tube *5520 above). The legs are also generally more slender and the tarsi of the third and fourth pairs of legs are especially slender and distinctly curved. The palp is distinctive, with a conspicuous small bifid projection at right angles to the palp, best viewed from the tip of the palp (*Hogna ligata* has a single larger triangular projection).

[*Reference specimens*: *6301 green. 01 March 2006, Cuckold's Point traps, male 9 mm. Carapace length to breadth ratio 1.45:1, ratio of carapace breadth to distance

across the eyes 2.90:1. Photos 4-6 of 13 Mar 2008. *5503 orange (ex A3 9/4) (misaid). High Peak, Malaise trap. Male 10 mm. *2190 green. 29 December 05, High Peak, Ashmole traps, male 8 mm (left palp now detached). Photos 1-3 of 13 March 2008. *4328 orange (ex E6 4/3). Cuckold's Point, pitfalls. Male 10 mm. Carapace ratio 1.39: 1, across eyes 2.75:1. *4330 orange (ex G6. 4/3). Cuckold's Point, pitfalls. Male in two halves; small, and with anterior median eyes distinctly further from laterals than each other.]

?* *Trochosippa?* Roewer, 1960 – Lurking Wolf Spider

This is one of the burrowing wolf spiders of Prosperous Bay Plain. It may be referable to *Trochosippa*, which is well represented in Africa.

[*Reference specimen*: 2666 red. 23 February 2006 night, Prosperous Bay Plain SBS22, female from burrow 4-6 inch deep. Photo.]

?* *Lycosidae* sp. *indet.* 1 – Peaks Burrowing Wolf Spider

This species is among the largest spiders known from St Helena and an impressive member of the fauna of the Peaks (photo 18 December 2007). It was discovered on 27 December 05 in Taylors Gut (Taylors 007). Only females (up to 19 mm long) and small young have been found. The females make slanting burrows in bare earth banks, sometimes in stands of Jellico. This spider was at first thought to be a specimen of the little known lycosid *Dolocosa dolosa* found once in the 19th century and by the Belgians on Horse Point. However, the present species differs from *D. dolosa* (as described by the Belgians) in many ways. The epigyne (photo 18 December 2007) does not match *Dolocosa*, and our specimens have chelicerae with two teeth on the inner margin of the chelicerae and three teeth on the outer margin, contrary to the generic diagnosis (Belgians p. 116) which requires two on each margin. The ventral spination of the first leg (photo 18 December 2007, cf. Belgians fig. 50d, p. 118) and of the second leg is also incompatible with the description of *Dolosa* (the tips of the basal ventral pair of spines just overlap with the bases of the middle pair.) The female palps have a claw with shallow pectination (cf. *H. nefasta*). The species may perhaps be related to the genus *Tricassa*, which is represented in Namibia and South Africa, but more work is needed to confirm or refute this idea.

[*Reference specimens*: *2454 medium. 18 January 2006. Grapevine Gut, in burrow in bank below Jellico stand just above old She Cabbage *Lachanodes arborea*. Female 19 mm. *2163 medium red. 27 December 2005. Taylors Gut (Taylors 007), UTM grid ref. 02/0999 82/3296, 2 females, 18 mm, and young.]

?* **Lycosidae sp. indet. 2** – High Peak Cliff Wolf Spider

This species is known only from a single subadult male collected among the deep Tree Fern litter immediately above the vertical part of the cliff at High Peak which is being cleared of invasive plants. It appears to be quite distinct from all other lycosids found on the island, but it cannot be described until adults are found. At first site it is reminiscent of the Prosperous Bay Plain Mole Spider since the posterior median eyes are small, but it differs from that species in the presence of many spines on the front legs. The whole spider is pale coloured, suggesting a life in the dark, and the hind legs are very long. The chelicerae have two teeth on each margin. The anterior eye row is wider than the posterior and is recurved, with the medians larger than the laterals and further from the laterals than they are from each other.

[*Reference specimen*: *2336 red. 03 January 2006. High Peak Tree Fern litter, subadult male with abdomen separate.]

?* **Lycosidae sp. indet. 3** – Prosperous Bay Plain Mole Spider

This remarkable wolf spider was discovered by Edward Thorpe in 2006. It makes small gritty “molehills” (connected by underground tunnels) on Prosperous Bay Plain, mainly in the Central Basin where the substrate is especially friable. We suspect that females may carry out their foraging underground. However, males that are probably of the same species have been found on the surface. They show strikingly different morphology, presumably associated with a different way of life. In both sexes the chelicerae have only one tooth on the inner margin and two on the outer margin. They are blackish brown in the largest female, paler in other individuals. All the legs are strikingly stumpy (especially in females) with the distal leg segments especially short. The anterior two pairs of legs narrow distally, with the metatarsi almost conical; these legs are virtually free of spines (apart from the femurs) but they and the chelicerae have many dense hairs. The anterior spinnerets are strikingly long, especially in males, where they are reminiscent of those of prodidomids.

[*Reference specimens*: *4439. 02 March 2006. Prosperous Bay Plain SBS22. Female 12 mm, male 6 mm (one palp detached). *2709. 02 March 2006. Prosperous Bay Plain SBS22. Female 8.5 mm, male 7 mm. Photos.]

MIMETIDAE (Belgians p. 127, A&A p. 309)

Ero aphana (Walckenaer, 1802)

This widespread Old World spider is well distributed (though not abundant) on the Peaks. We did not find it at High Peak or further west, but the Belgians recorded it at Thompson's Wood (their site 65).

[*Reference specimens*: *2066 red. Female. 17 January 2006, Cuckold's Point, off Tree Fern. *6298 green. 09 February 2006. Cuckold's Point night visit. Male. *6312 Orange (ex B3 No code). Female, male. Mount Actaeon, dead stems of Jellico.]

Mimetus* cfr. *fernandi Lessert, 1930

The genus *Mimetus* has not previously been recorded from St Helena. Specimens collected at Peak Dale have been referred by John Murphy to the genus *Mimetus*, and possibly to *M. fernandi* which is known from the Congo. They are large and distinctive; extremely bristly (including the abdomen) with heavily annulated long legs.

[*Reference specimens*: *6272 blue. 21 December 05. Peak Dale, in old dead trunks of Gumwood *Commidendrum robustum*. Male, female, juveniles. *5516 orange (ex F1. 2/1). Peak Dale, soil and litter. 2 females, 2 juveniles *6290 blue. 24 January 2006, Mount Vesey Waterfall, off rock wall beside and under waterfall. Male. *4315 blue. 21 December 05. Peak Dale Gumwoods, under rocks. Female and subadult male (ex 2720).]

MITURGIDAE (Belgians p. 64 – in Clubionidae, A&A p. 310)

**** *Cheiracanthium* (ex *Helebiona*) *wilma*** Benoit, 1977

The Belgians, who discovered this species, found three specimens on Prosperous Bay Plain. In 1995 P & M Ashmole collected immature specimens, probably of the same species, on Gumwoods at Peak Dale, but none were found during the Peaks project in 2005/06.

[*Reference specimens*: 977SH. Peak Dale.]

**** *Tecution*** Benoit, 1977 (Belgians p. 71, A&A p. 310)

The spiders in the endemic genus *Tecution* appear to be highly successful predators of woodlice (Isopoda) on the Peaks and at middle levels on St Helena. Two species (*T. mellissi* and *T. planum*) were described in the 19th century as members of the genus *Cheiracanthium*, which until recently was included in the family Clubionidae. The Belgians added a third species (*T. helenicola*) and established the new genus

Tecution for the three species. At the end of the Belgians' work *T. mellissi* was known only from two male specimens and *T. helenicola* only from a single male (plus some juveniles thought to be of the same species). *T. planum* was known from about five males and three females, plus some juveniles. In 1995 the Ashmoles collected a male on Gumwoods at Peak Dale which was provisionally assigned to *T. mellissi*.

During the Peaks project a good series of *Tecution* was collected, and about eight samples included adults of both sexes collected together. So far, however, we have been unable to separate these specimens with confidence into the three described species. In both sexes the genitalia are extremely similar among all specimens, and no clear morphological distinctions are apparent in other characters. The most striking feature of the material is the extraordinary variation in the size of the male chelicerae (and the large fangs that they carry) especially among the large males. In the largest male the chelicerae make up one quarter of the length of the whole body.

An initial hypothesis was that the chelicerae were subject to 'allometric' growth, in which different parts of the body grow at different rates, resulting in a change in proportions as size increases. Such a phenomenon is known to occur in the chelicerae of tetragnathid spiders, so that larger individuals have chelicerae that are larger relative to the rest of the body as well as in absolute terms. Our data for *Tecution* specimens, however, do not easily fit the expected pattern. The six largest males, in which carapace (prosoma) length varied only from 4.5 to 4.8 mm, showed variation in chelicera length of 2.5 to 4.3 mm and with only a weak relationship between carapace length and chelicera length within this group.

These six males form a fairly distinct group in terms of overall size and chelicera length and form, and may correspond to the largest of the described species, *T. mellissi*. However, they do not appear to differ consistently from the rest of the males in other characters. Furthermore, there is no obviously corresponding group of large females, although a few individuals have carapace length almost as large as these males. The remaining specimens of both sexes are smaller, have shorter chelicerae, and show relatively little variability in these characters.

Further study may make it possible to distinguish more than one valid species of *Tecution* on St Helena, as the Belgians felt they could, but we think it is also possible that there is actually only a single interbreeding population showing substantial polymorphism in males. This polymorphism might be related either to differences in feeding behaviour or to competition for females.

[*Reference specimens*: *4324 orange (ex D4 5/7). Diana's peak, beating Black Cabbage. Largest male, female. Photo of male A with *Dysdera*. *6310 orange (ex D3). Mount Actaeon, beaten off dead stems of Jellico. 2 males, female. *4323 orange (ex H6. 7/1). Cabbage Tree Road, swept. 2 males, 2 females.]

MYSMENIDAE (Belgians p. 129 – in Symphytognathidae, A&A p. 314)

* ***Mysmena isolata*** Forster, 1977

M. isolata was discovered by the Belgians, who found three specimens on Mount Actaeon. It has relatives on many islands in the southern hemisphere. This minute species seems to be adapted to life in the litter below Tree Ferns. During the Peaks project we found it at several localities on the Central Peaks.

[*Reference specimens*: *5522 mini in orange (ex G2. 4/6). Cuckold's Point, sieving litter of Tree Fern. Female ?adult. *2424 mini. 12 January 2006, Deep Valley Head, in Tree Fern litter. Female. *6302 green. Mount Actaeon, pitfalls. Female, subadults.]

OECOBIIDAE (Belgians p. 27-8, Ashmole & Ashmole p. 311, PBP Guide pp. 19-20)

Oecobius Lucas, 1846

Members of the genus *Oecobius* are typical of dry habitats, although the Belgians did have records from Teutonic Hall and Plantation House. During the Peaks project an unidentifiable juvenile was found at Newfoundland in dead wood of Black Cabbage *Melanodendron integrifolium*. Other records are from dry areas and add little to previously known information. However, the finding of *O. navus* on Egg Island is of interest.

OONOPIIDAE (Belgians p. 31, A&A p. 311, PBP Guide pp. 20-21)

Gamasomorpha Karsch, 1881

The status of the genus *Gamasomorpha* on St Helena is confused. John Murphy is convinced that the species described by the Belgians as *Gamasomorpha atlantica* cannot belong to that genus. Nonetheless, it appears that two species of *Gamasomorpha* are present on the island, since the Belgians referred some of their specimens to *G. insularis* Simon, 1907, yet a male *Gamasomorpha* that we collected

on Prosperous Bay Plain in 1995 (tube 1066 SH) does not conform to the Belgians' description of their *insularis*. Pending examination of Simon's type of *insularis*, uncertainty must remain as to which of the St Helena specimens are the real *G. insularis* and which belong to another (probably new) species.

During the Peaks project only one adult *Gamasomorpha* was collected, on Prosperous Bay Plain (4485).

Heteroonops spinimanus Simon, 1891

The Belgians found a single female of this widespread species in Fisher's Valley. During the Peaks Project one more specimen was found, near Flagstaff.

[Reference specimen: *2578 red. 11 February 2006. Flagstaff Scrubwoods *Commidendrum rugosum*.]

PRODIDOMIDAE (Belgians p. 50, A&A p. 312, PBP Guide p. 21)

Prodidomus rufus Hentz, 1847

This species is typical of barren areas and has not been found on the Peaks, but a juvenile was collected near King and Queen Rocks.

* ***Zimirina relegata*** Cooke, 1977

This species was discovered by the Belgians. It is scarce, occurring locally in barren habitats.

[Reference specimen: *1632V red. 4320 orange (ex D2 3/1). Lower House Plain. Female.]

SALTICIDAE (Belgians p. 87, Ashmole & Ashmole p. 312, PBP Guide p. 22)

Dendryphantes purcelli Peckham & Peckham, 1903

This is an African species and is likely to have been introduced from South Africa, although there is a possibility that it is indigenous. It is patchily distributed on St Helena, occurring only at middle levels. It seems to be associated mainly with Scrubwoods, but has also been found on Gumwoods (though not at Peak Dale)

[Reference specimens: 3793 blue. 05 February 2006. Piccolo Hill Gumwoods. 2 males, female, immatures.]

Hasarius adansoni (Audouin, 1826)

This introduced species is widespread in the drier parts of the island and is generally found at ground level. Records during the Peaks project include Lower House Plain and Egg Island.

Myrmarachne isolata Clark & Benoit, 1977

This species was discovered by the Belgians, who said that it was readily distinguished from known African species of the genus. However, since these are always associated with ants and there are not thought to be any native ant species on St Helena, it is unlikely to be endemic. It is more probable that *M. isolata* has actually been introduced to the island along with ants. It was not found during the Peaks Project but recorded subsequently by Edward Thorpe.

[Reference specimen: *2671 red. 24 February 2006. Cambrian House, Jamestown. Female]

**** *Paraheliophanus jeanae*** Clark & Benoit, 1977

The Belgians were responsible for the discovery of three out of the four species of *Paraheliophanus* and also for recognising them as members of an endemic genus. They pointed out that the members of the group are characteristic of the high and middle levels of the island, in relatively humid places typically with endemic vegetation. As implied by the Belgians, it seems clear that Melliss (1875) was confusing *Paraheliophanus subinstructus* (the one species of the genus then described) with other salticids when he stated that it was characteristic of barren and hot parts of the island. We found no *Paraheliophanus* species in the Eastern Arid Area (including Prosperous Bay Plain) during the work there in 2003.

Nonetheless, *Paraheliophanus jeanae* is a species of relatively dry habitats. During the Peaks Project it was found at Cuckold's Point but is more typical of middle levels. It occurs on Gumwoods at both Peak Dale and Deep Valley and was also found on Scrubwoods at Joan Hill, as well as among mainly introduced vegetation at Hooper's Ridge and Teutonic Hall.

[Reference specimens: 2515 orange, male, female, juveniles, 31 January 2006. Deep Valley Gumwoods. Photo. *4321 orange. I1. 4/1. Cuckold's Point, sweeping, male. 4435 blue. 21 December 05. Peak Dale, under rocks. Male. 2719 blue. 21 December 05. Peak Dale, off Gumwood leaves. Female.]

**** *Paraheliophanus napoleon* Clark & Benoit, 1977**

This species was previously known only from a single male collected by the Belgians at Great Stone Top. During the Peaks Project additional males and an associated female were obtained at Turks Cap and another female was found at Blue Point. Both sexes are readily distinguished from other species in the genus. There is no trace of a median pale stripe on either the carapace or abdomen. Tibiae I and II have only two pairs of spines ventrally. The genitalia are distinctive in both male and female. These spiders are notably hairy (being to some extent convergent with *Pellenes* spp. in this respect, which is possibly an adaptation to life in the hot and dry desert parts of the island.

[Reference specimens: *3792 yellow. 04 February 2006. Turks Cap, off St Helena Tea Plant *Frankenia phyllicifolia*. 2 males, female, 2 subadult females, juvenile; the female had cocoon in dead twig, with just three large eggs. *6288 yellow. 21 January 2006. Blue Point Scrubwoods. Female, 2 juveniles.]

**** *Paraheliophanus sanctaehelena* Clark & Benoit, 1977**

This species and *P. subinstructus* are the main salticids of the Peaks of St Helena, but they also occur in moist habitats at middle levels. They appear to have very largely coincident ranges and both are frequently found in damp dead wood. The Belgians found *P. sanctaehelena* below 500 m at Oakbank and we found a good population at the Osborne's She Cabbage stand. The Belgians did not find *P. sanctaehelena* in Gumwood habitats (where *P. jeanae* is abundant) but we found several specimens on Gumwoods at Peak Dale (where *P. subinstructus* was not found).

[Reference specimens: *2670 red. 24 February 2006. Mount Actaeon, emerged from dead wood of Black Cabbage. Male, female. Photo. *2123V yellow. 22 December 05. Byrons. Male, female (recently moulted).]

**** *Paraheliophanus subinstructus* (O.P.-Cambridge, 1873)**

P. subinstructus, like *P. heliophanus*, is found primarily on the Peaks and in moist habitats at middle levels. It seems never to have been found in Gumwood habitats.

[*Reference specimens*: *3795 clear. 07 February 2006. The Depot, off Bilberry and other plants. Female. *5508 orange. Diana's Peak sweeping. Male, female (recently moulted).]

* ***Pellenes inexcultus*** O.P.-Cambridge, 1873 (including ***P. perexcultus*** Clark & Benoit, 1977)

As explained in the *Guide to Invertebrates of Prosperous Bay Plain, St Helena* (Ashmole & Ashmole 2004) we have been unable to distinguish reliably the two species of *Pellenes* which the Belgians thought were present on St Helena. *P. inexcultus* is a desert-adapted, ground-living species which has not been recorded on the Central Peaks, although it does occur in relatively dry places at middle levels, including the Depot. [*Reference specimens*: 925V (PBH18).]

SEGESTRIIDAE (Belgians p. 45, A&A p. 314)

Segestria florentina (Rossi, 1790)

SELENOPIIDAE (Belgians p. 63, A&A p. 314)

Anypops stauntoni (Pocock, 1902)

The Belgians suggested that this South African species was introduced to St Helena shortly before 1940. It is one of the most invasive introduced invertebrates on the island and is now abundant almost everywhere.

SICARIIDAE (Belgians p. 47, A&A p. 308)

Loxosceles rufescens (Dufour, 1820)

SYMPHYTOGNATHIDAE

?* ***Anapistula*** Gertsch, 1941 **sp. indet.**

The genus *Anapistula* has not previously been recorded from St Helena. However, in 1995 the Ashmoles collected a minute female spider in a pipe trap near the base of Lot, which was identified by Dr Norman Platnick as belonging to this genus. The

specimen is now awaiting detailed examination by Dr Mark S. Harvey, who comments that it appears to be a typical member of the genus. Species of *Anapistula* are poorly known but widely distributed, mainly in the Southern Hemisphere. Although the genus is known from the African continent it seems not to have been recorded in South Africa, so natural colonisation of St Helena seems more likely than introduction by humans.

TETRAGNATHIDAE (Belgians p. 156, A&A p. 315)

* *Leucauge digna* (O.P.-Cambridge, 1869)

Leucauge digna is common on the Central Ridge, but also at middle levels on the island in relatively moist habitats, with either native or introduced vegetation. During the Peaks Project it was found at Peak Dale and the Gumwood stand in Deep Valley, indicating that its original range included the Gumwood forest.

[*Reference specimens*: *2595V red. Female Mt Vesey Waterfall, plus male from 2150 High Peak. *5526 (ex I1. 4/1). Cuckold's Point, sweeping. Female ?subadult, juvenile female. *2317 blue. 31 December 2005. Peak Dale Gumwoods, west group. Female, immature.]

(*Napometa* species. These are now in LINYPHIIDAE.)

THERIDIIDAE (Belgians p. 131, Ashmole & Ashmole p. 315)

Achaearanea acorensis (Berland, 1932)

This species was recorded by the Belgians at a variety of sites at middle and high levels. During the Peaks Project it was found only at Peak Dale.

[*Reference specimens*: *6313 orange (ex B2. 2/10). Peak Dale Gumwoods, dead wood. Female, 2 immature males. Epigyne photo 01 March 2008.]

Argyrodes argyroides (Walckenaer, 1842)

This species was collected by Melliss in the 19th century from the large webs of *Argiope trifasciata*, but the Belgians found it to be very scarce in the 1960s. We have not searched in *Argiope* webs, but two females of *A. argyroides* were collected by Edward Thorpe on the summit of Lot in April 2007.

[*Reference specimens*: *6305 yellow, 22 April 2007, Lot Summit, 2 females.]

* ***Argyroides mellissi*** (O.P.-Cambridge, 1869) – Golden Sail Spider

This species appears to be confined to the Peaks. The lowest elevation at which we have found it was at 640 m in Grapevine Gut. Juveniles probably of this species have been collected on foliage and in litter of Tree Ferns.

[*Reference specimens*: *2468 blue 18 January 2006, beside old She Cabbage in Grapevine Gut, female. *6286 blue. 18 January 2006. Grapevine Gut high up in Taylors 06, off Tree Fern, female. *2425 black. 12 January 2006. Deep Valley Head, in Tree Fern litter, juvenile.]

?* ***Argyroides*** Simon, 1864 **sp. indet.**

This species appears to be new for St Helena, and only the males have been seen. It is generally whitish all over. There is a median grey stripe on the carapace, blackish at the fovea, which is in a broad and deep depression. The abdomen typically has a row of almost continuous blackish marks on each side of the mid line; the rows converge suddenly and almost touch at the anterior end. There is a strongly developed stridulatory apparatus between the carapace and abdomen; the anterior border of the abdomen projects forwards at either side to scrape on the rear corners of the carapace. The abdomen is strongly elongated, depressed and with long hairs on the upper side posteriorly. The leg joints are blackish. The chelicerae are elongated, with a boss, and the teeth are similar to those illustrated by the Belgians for *Theridion sciaphilum*, but the palp is quite distinct.

[*Reference specimens*: *6299 green. 09 February 2006. Cuckold's Point night visit. Male. Photo alone and with *6281 *T. sciaphilum* female. *5526 (ex I1. 4/1). Cuckold's Point, sweeping. 2 males. *5529 orange (ex I4. 5/5). Mount Actaeon, rotten core of Tree Fern. Male. *3796 green. 09 February 2006. Cuckold's Point, night. Male. *5506 orange. B3. Mount Actaeon, dead stems of *Berula bracteata*. Male. *6287 blue. 18 January 2006. Grapevine Gut high up in Taylors 06, off Tree Fern. Male (small and pale, photo). *6306 orange (retained by J. Murphy).]

Latrodectus geometricus C.L. Koch, 1841 – Brown Widow Spider

This species, which is widespread in warm parts of the world, was first found in St Helena in 2003 (Ashmole & Ashmole, 2004) and has not yet been recorded outside the arid north-eastern part of the island.

Parasteatoda (ex Achaearanea) tepidariorum (C.L. Koch, 1841)

This is a widespread species, probably of New World origin, which is often associated with humans. The Belgians recorded it mainly at middle levels, but also on the Central Ridge. It was not found during the Peaks Project.

Steatoda capensis Hann, 1990 (ex *S. lepida*)

[Reference specimens: 2755 blue. 30 December 2005. Lower House Plain. Female with 214 young.]

Steatoda grossa (C.L. Koch, 1838)

[Reference specimens: HM B5. 9/1. High Peak, general collecting. Female. *6289 blue. 24 January 2006. Mount Vesey Waterfall, off rock wall by waterfall. Female.]

Theridion ?purcelli O.P.-Cambridge, 1904

A small female theridiid collected on Gumwoods in the Millennium Forest has been identified by John Murphy as a species of *Theridion* in the '*mystaceum*' group; it is probably *Theridion purcelli*, a South African species which has previously been found in several dry parts of the island including Horse Point Plain.

[Reference specimen: *4170. 31 January 2006. Millennium Forest Gumwoods (Longwood).]

*** *Theridion sciaphilum* Benoit, 1977**

This species was discovered by the Belgians, who found it mainly on the Central Peaks but also at Teutonic Hall. Several samples collected during the Peaks Project contained females with the highly characteristic epigyne illustrated by the Belgians, but no adult males were found (although a few subadult males associated with females are probably of this species).

[Reference specimens: *6284 black. 12 January 2006. Deep Valley Head, off Black Scale Fern *Diplazium filamentosum*. Female, subadult male. *6281 green. 07 January

2006. Cuckold's Point, off Tree Fern foliage. Female and paler female from 2382 green from same site. *6306 orange (ex E5 7/1). Retained by John Murphy. Cabbage Tree Road, sweeping. Female, subadult male.]

**** *Theridion solium* Benoit, 1977**

This species was described by the Belgians, who found a single male at Oakbank. During the Peaks Project Michael Thorpe brought us a specimen from the same site, and our sampling elsewhere showed that the species is present at middle levels in a number of sheltered moist habitats with well grown trees. Curiously, we found it abundant at Teutonic Hall, where the Belgians failed to find it although they were based there and did much collecting.

[*Reference specimens*: *6282 clear. 08 January 0606. Casons, off endemic plants. Male, second known specimen of the species. *6292 yellow. 03 February 2006. Teutonic Hall, general collecting. 2 males, 2 females, others. First known females (epigyne hard to see). *2674 red. 24 February 2006. Sandy Bay, off planted Redwoods. Female and juv.]

***Theridion* sp. indet. 1**

This *Theridion* is probably new for the island but has not yet been identified or named. It is not very bristly. Margin and centre of the carapace are dusky but the dark colour does not reach forward to the eyes.

[*Reference specimens*: *6307 orange E5 7/1. Cabbage Tree Road, sweeping. Female (?mature) and immature. Possibly belonging to the same species is: *6293 yellow. 03 February 2006. Teutonic Hall. Male subadult, immature.]

***Theridion* sp. indet. 2**

This is another species of *Theridion* which has not yet been identified but is probably new for the island.

[*Reference specimen*: *6280 green. 05 January 2006. Diana's Peak, off Buckshorn. Male. Small, abdomen patterned, with double row of dark dots along centre followed by a slightly raised dark spot on median line; very long front legs; dark leg joints; Tm I prob c.0.37.]

*** *Theridula huberti* Benoit, 1977**

This species, found by the Belgians on the Central Peaks and at High Peak and Casons, was not collected during the Peaks Project.

**** *Zercidium helenense* Benoit, 1977**

This species was discovered by the Belgians at high levels on the Central Peaks. During the Peaks Project it was found also at High Peak, an important extension of range for a significant endemic species. The Belgians decided to establish a new genus for this minute but distinctive spider, although one expert on theridiids considered that it might reasonably be included within the genus *Coleosoma*, a pantropical group with a representative in the Cape Verde Islands.

The species is closely associated with Tree Ferns and individuals have been found in litter, on trunks and on foliage. We found some specimens in hollows of underside of individual leaflets of Tree Fern fronds.

[*Reference specimens*: *2437 Mini. 17 January 2006. Cuckold's Point, off Black Scale Fern. Two males, female. Male palp doesn't seem right but the one in Belgians' Fig. 66a p. 151 was expanded. *2382 green. 10 January 2006. Cuckold's Point. Female, immature. *4322 black (ex 2411 black). 12 January 2006. Deep Valley Head, off Black Scale Fern. Male, subadult male and female.]

Theridiidae sp. indet. 1

A female theridiid collected at night on Prosperous Bay Plain is distinctive but has not yet been identified. John Murphy points out that the sternum pattern suggests the genus *Enoplognatha*, but it does not belong to *E. oelandica* (Thorell), the only species of *Enoplognatha* recorded by the Belgians (as *E. mandibularis* (Lucas)).

[*Reference specimen*: *6300 orange. 16 February 2006. Prosperous Bay Plain (SOW15) night. Female.]

Theridiidae sp. indet. 2

These minute theridiids have been examined by John Murphy, who thinks that they do not belong in the genus *Theridion*. The carapace has only weak dark median pattern and the eyes are large and red. The abdomen is very bristly, with fine white blotches, no black spots but with a pair of diffuse longitudinal dusky stripes along the sides at rear. Tm I probably c.0.5.

[*Reference specimens*: *3788 blue. 18 January 2006, Grapevine Gut, off Jellico foliage near old She Cabbage. Male, subadult male, subadult female.]

THOMISIDAE (Belgians p. 82, A&A p. 316)

* ***Philodromus signatus*** O.P.-Cambridge, 1869

This species has only been recorded from St Helena, and although the Belgians were inclined to think that it was probably introduced (from an unknown source area) we think that for the moment it should be accepted as endemic. It is a member of a large and worldwide genus, which in itself is evidence of high dispersal ability in the group.

The Belgians recorded at least one individual of *P. signatus* from the Peaks but we encountered the species only in drier habitats, where it can be found on both Gumwood and Scrubwood.

[*Reference specimen*: 955V red. Female.]

Runcinia grammica (C.L. Koch, 1837)

ULOBORIDAE (Belgians p. 25, A&A p. 317)

Uloborus Latreille, 1806 **sp. indet.**

The Belgians recorded *U. walckenaerius* Latreille as being abundant in a number of sites at middle levels, usually associated with water, but they did not find it on the Peaks. During the Peaks Project several *Uloborus* specimens were found on the Peaks, but John Murphy is sure that they are not *U. walckenaerius*. Two of our specimens are rather different and may belong to a different species, although they are thought to be in the *Walckenaerius* group.

[*Reference specimens*: *2708 red. 01 March 2006. Cabbage Tree Road. Female.
*3791 green. 09 February 2006, night. Cuckold's Point. Male.]

** Endemic genus * Endemic species	1	2	3	4	5	Other 'Peaks' Sites	Other Sites
ARANEAE (det. Philip Ashmole and John Murphy)							✓
AGELENIDAE							
<i>Tegenaria</i>							
<i>pagana</i> C.L. Koch		✓			✓	7, 10, 11	✓
ARANEIDAE							
<i>Araneus</i>							
sp. indet.							✓
<i>Argiope</i>							
<i>trifasciata</i> Forskal							✓
<i>Gasteracantha</i>							
<i>sanguinolenta</i> C.L. Koch							✓
CLUBIONIDAE							
<i>Clubiona</i> (ex Bucliona)							
<i>dubia</i> O.P.-Cambridge *		✓		✓		7, 9	✓
CORINNIDAE							
<i>Xeropigo</i>							
<i>tridentiger</i> (O.P.-Cambridge)							✓
DICTYNIDAE							
<i>Archaeodictyna</i>							
<i>conducta</i> (O.P.-Cambridge)							✓
DYSDERIDAE							
<i>Dysdera</i>							
<i>crocata</i> C.L. Koch	✓	✓	✓	✓	✓	10, 12	✓
GNAPHOSIDAE							
<i>Benoitodes</i> **							
<i>sanctahelenae</i> (Strand) *	✓		✓	✓	✓		
LINYPHIIDAE: Erigoninae							
<i>Erigone</i>							
<i>prominens</i> Bösenberg & Strand					✓		
LINYPHIIDAE: Linyphiinae							
<i>Bathyphantes</i>							
<i>helenae</i> van Helsdingen *	✓	✓			✓		
<i>Diplostyla</i>							
<i>concolor</i> (Wider)	✓	✓	✓		✓	10	
<i>Helsdingenia</i>							
<i>extensa</i> (Locket)		✓					
? <i>Lepthyphantes</i>							
? <i>albimaculatus</i> (O.P.-Cambridge) *						6	
<i>Meioneta</i>							
<i>prosectes</i> Locket							✓
<i>Microlinyphia</i>							
<i>pusilla</i> (Sundevall)		✓					

<i>Napometa</i>	**							
<i>sanctaevelenae</i> Benoit	*	✓		✓	✓	✓	7	
LYCOSIDAE								
<i>?Brevilabus</i>								
sp. indet.								✓
<i>Hogna</i> (ex <i>Lynxosa</i>)								
<i>ligata</i> (O.P.-Cambridge). Peaks Large Wolf Spider	*	✓	✓	✓	✓	✓	8, 9, 11	✓
<i>nefasta</i> Tongiorgi. Prowling Wolf Spider	*							✓
sp. ind. 1 High Peak Large Wolf Spider?	*					✓		
sp. ind. 2 High Peak Small Wolf Spider?	*					✓		
<i>Trochosa</i>								
cfr. <i>urbana</i> O.P.-Cambridge. Waterfall Wolf Spider?	*						11	
sp. indet. 1		✓				✓		
<i>?Trochosippa</i> Roewer								
sp. indet. Lurking Wolf Spider?	*							✓
sp. indet. 1. Peaks Burrowing Wolf Spider?	*				✓		9	
sp. indet. 2. High Peak Cliff Spider?	*					✓		
sp. indet. 3. Prosperous Bay Plain Mole Spider?	*							✓
MIMETIDAE								
<i>Ero</i>								
<i>aphana</i> (Walckenaer)		✓	✓	✓	✓		8, 9	
<i>Mimetus</i>								
<i>?fernandi</i> Lessert							9	✓
MITURGIDAE								
<i>Tecution</i>	**	✓	✓	✓	✓	✓	6, 7, 8, 10	
sp. indet.	*							
MYSMENIDAE								
<i>Mysmena</i>								
<i>isolata</i> Forster	*	✓		✓			8	
OECOBIIDAE								
<i>Oecobius</i>								
<i>navus</i> Blackwall								✓
<i>similis</i> Kulczinski								✓
sp. indet.		✓						
OONOPIIDAE								
<i>Gamasomorpha</i>								
<i>insularis</i> Simon								✓
<i>Heteroonops</i>								
<i>spinimanus</i> (Simon)								✓
PRODIDOMIDAE								

<i>Prodidomus</i>								
<i>rufus</i> Hentz								✓
<i>Zimirina</i>								
<i>relegata</i> Cooke *								✓
SALTICIDAE								
<i>Dendryphantes</i>								
<i>purcelli</i> Peckham & Peckham						7		✓
<i>Hasarius</i>								
<i>adansoni</i> (Audouin)								✓
<i>Myrmarachne</i>								
<i>isolata</i> Clark & Benoit								✓
<i>Paraheliophanus</i> **								
<i>jeanae</i> Clark & Benoit *	✓					10		✓
<i>napoleon</i> Clark & Benoit *								✓
<i>sanctae-helenae</i> Clark & Benoit *	✓	✓	✓	✓	✓	6, 8, 12		✓
<i>subinstructus</i> (O.P.-Cambridge) *	✓	✓	✓	✓	✓	6, 7, 8, 11		
<i>Pellenes</i>								
<i>inexcultus</i> O.P.-Cambridge s.l. *						7		✓
SEGESTRIIDAE								
<i>Segestria</i>								
<i>florentina</i> (Rossi)								✓
SELENOPIIDAE								
<i>Anyphops</i>								
<i>stauntoni</i> (Pocock)	✓	✓	✓	✓		8, 9, 10, 11		✓
SICARIIDAE								
<i>Loxosceles</i>								
<i>rufescens</i> (Dufour)								✓
TETRAGNATHIDAE								
<i>Leucage</i>								
<i>digna</i> (O.P.-Cambridge) *	✓		✓	✓	✓	7, 9, 11		✓
THERIDIIDAE								
<i>Achaearanea</i>								
<i>acorensis</i> (Berland)								✓
<i>Argyrodes</i>								
<i>argyrodes</i> (Walckenaer)								✓
<i>mellissi</i> (O.P.-Cambridge) Golden Sail Spider *	✓		✓	✓		9		
sp. indet.? *	✓		✓	✓				
<i>Latrodectus</i>								
<i>geometricus</i> C.L. Koch. Brown Widow								✓
<i>Steatoda</i>								
<i>capensis</i> Hann								✓
<i>grossa</i> (C.L. Koch)					✓	11		
<i>Theridion</i>								
? <i>purcelli</i> O.P.-Cambridge								✓
<i>sciophilum</i> Benoit *	✓	✓	✓	✓	?	8		
<i>solium</i> Benoit *						6		✓

sp. indet. 1				✓			
sp. indet. 2		✓					
<i>Zercidium</i> **							
<i>helenense</i> Benoit *	✓	✓	✓	✓	✓	8	
THERIDIIDAE							
sp. indet. 1 (?Enoplognatha Pavesi)							✓
sp. indet. 2						9	
THOMISIDAE							
<i>Philodromus</i>							
<i>signatus</i> O.P.-Cambridge *							✓
<i>Runcinia</i>							
<i>grammica</i> C.L.Koch	✓		✓	✓		8	✓
ULOBORIDAE							
<i>Uloborus</i>							
sp. indet.	✓			✓		4	

Isopoda (woodlice)

The isopod (woodlouse) fauna of St Helena is now fairly well known. Some 20 species have been recorded, but more than half of these are introduced. The most ubiquitous woodlouse on the Peaks is the large European species *Oniscus asellus*. However, another large species found at many sites is the endemic *Littorophiloscia* (previously *Helenoscia*) *alticola*, which is of special interest since it is a member of a seashore-living group; its ancestors probably arrived by sea but it is now common on the Peaks. The Belgians noted this species being preyed on by the endemic spiders of the genus *Tecution*.

The well-known endemic Spiky Yellow Woodlouse *Pseudolaureola* (previously *Laureola*) *atlantica* has very restricted distribution. It is well known from High Peak, but now proves also to have a highly localised population near Cuckold's Point, and we were told of sightings in Wells Gut, immediately north of Diana's Peak. We suspect that this species requires very high humidity. It has been seen feeding on fern spores but this is certainly not its only food.

The isopods collected during the Peaks project were identified by the Italian specialist Stefano Taiti, who found that they included an undescribed and presumably endemic species in the genus *Styloniscus* (family Styloniscidae). Although it appears that specimens of this were collected by the Belgians, they were misidentified as the very similar Eurasian parthenogenetic species *Trichoniscus pusillus*. The genus *Styloniscus* has a typical 'Gondwanan' distribution, occurring in all the southern continents and many islands. Dr Taiti comments that the new species is morphologically close to but certainly distinct from *Styloniscus australis* from the Tristan group and it can thus be considered as a newly found piece in the jigsaw of biodiversity in the South Atlantic. The species is present right along the summit ridge above about 700 m, from the head of Deep Valley in the east to High Peak and Hooper's Ridge in the west. The Belgians' records (as *Trichoniscus pusillus*) include some slightly lower sites such as Deadwood and Teutonic Hall, but the presence of *Styloniscus* in these places requires confirmation. Our specimens were found by sweeping and beating, in tree fern litter and also in dead stems of Jellico *Berula bracteata* and Black Cabbage *Melanodendron integrifolium*. In contrast to the Spiky Yellow Woodlouse, this species is not readily identifiable except by a specialist.

Only a little progress was made in understanding the status of the genus *Pseudodiploexochus* (family Armadillidae) on the island. Our only record is from Tree

Ferns *Dicksonia arborescens* at Cuckold's Point. The species cannot be determined and it is not known whether it belongs to *P. tabularis*, which is known from Africa and may have been introduced, or to one of three other previously described species that may not be valid and may or may not be endemic. However, in response to our puzzlement at the very small number of specimens of this genus that have been found, Dr Taiti commented that members of this genus generally occur more or less deep in the soil, so that collection requires special methods. Further work on this group is therefore needed.

** Endemic genus * Endemic species	1	2	3	4	5	Other 'Peaks' Sites	Other Sites
ISOPODA (Det. Stefano Taiti)							
ARMADILLIDAE							
<i>Pseudodiploexochus</i>							
sp. 1 [2384]	✓						
<i>Pseudolaureola</i>							
<i>atlantica</i> (Vandel) [2191, 2363, 2389, 2992] *	✓				✓		
HALOPHILOSCIIDAE							
<i>Littorophiloscia</i>							
<i>alticola</i> (Vandel) [2031, 2036, 2040, 2058, 2061, 2171, 2184, 2191, 2314, 2321, 2363, 2367, 2373, 2384, 2387, 2389, 2399, 2724, 2736, 2341, 2503, 2742, 2743, 2747, 2778, 2905, 2982, 2985, 4364, 4375, 4406, 4462, 4465] *	✓	✓	✓	✓	✓	6, 8	
ONISCIDAE							
<i>Oniscus</i>							
<i>asellus</i> L. [2016, 2031, 2040, 2064, 2138, 2327, 2363, 2367, 2389, 2701, 2901, 2903, 2905, 2987, 4192, 4200]	✓	✓	✓	✓	✓	7, 8, 9, 10	
PHYLOSCIIDAE							
<i>Atlantoscia</i>							
<i>floridana</i> (Van Name) [2116]					✓		✓
PLATYARTHRIDAE							
<i>Trichorhina</i>							
<i>tomentosa</i> (Budde-Lund)							✓
PORCELLIONIDAE							
<i>Porcellio</i>							✓
<i>scaber</i> Latreille [2082, 2092, 2373, 2733, 2903, 4151, 4156, 4167, 4177, 4194, 4200, 4386, 4476]					✓	6, 7, 11, 12	✓
<i>leavis</i> Latreille [2116]							✓

STYLONISCIDAE							
<i>Styloniscus</i>							
n.sp. [2016, 2105, 2142, 2191, 2347, 2669, 2701, 2704, 2772, 2783, 2903, 2905, 2981]	*	✓	✓	✓	✓	✓	8, 10
Trichoniscidae							
<i>Haplophthalmus</i>							
<i>danicus</i> Budde-Lund [2905]				✓			

Myriapoda: Chilopoda (centipedes)

The Myriapoda that have been identified to date are mostly, and perhaps all, introductions. They are adventive species that have been spread around the globe with shipping and undoubtedly got to St. Helena in that way. Some of the myriapod groups (Diplopoda, Geophilomorpha, Lithobiomorpha) that have not yet been identified may include more interesting species.

Chilopoda Scolopendromorpha

On the Peaks, *Cryptops hortensis* is the widespread and fairly common scolopendromorph. It is a European species that is also widespread and common in Britain, and is now well established in the USA and other parts of the world, as well as St Helena. It feeds on slugs and snails which is probably bad news for some of the rarer molluscs on the Peaks.

Off the Peaks, *C. basilewsky* was collected on Prosperous Bay Plain. Although once considered to be endemic to St Helena, J.G.E. Lewis who identified our samples commented that it was identical to a species from Africa which may prove to be widespread. In the near future, it will undoubtedly acquire a new name and formally lose its endemic status.

The large and vicious *Scolopendra mortisans* continues to be all too common on Horse Point Plain.

Chilopoda Scutigeraomorpha

Scutigera coleoptrata, the only scutigeraomorph known from St Helena, was recorded off the Peaks. The species was probably introduced to St Helena from the Mediterranean region.

** Endemic genus * Endemic species	1	2	3	4	5	Other 'Peaks' Sites	Other Sites
MYRIAPODA, CHILOPODA Centipedes							
SCOLOPENDROMORPHA							
<i>Cryptops</i> (Det. J.G.E. Lewis)							
<i>hortensis</i> Donovan [2019, 2134, 2951, 2956, 4361, 4475, 6259, 6260, 6264, 6268, 6271]	✓	✓	✓		✓		
<i>basilewskyi</i> Matic & Darabantu [6296] *?							✓
<i>Scolopendra</i>							
<i>mortisans</i> Linnaeus							✓
SCUTIGEROMORPHA (Det. G. Edgecombe)							
<i>Scutigera</i>							
<i>coleoprata</i> (Linnaeus)							✓

Collembola (springtails)

The Belgians recorded 21 species of Collembola from St Helena and there is considerable doubt that any of them are endemic. We recorded fourteen species in total, twelve of them from the Peaks. Several species have not been recorded from St Helena before. *Brachystomella parvula* is new, although the Belgians did find a *Brachystomella* sp. which could not be identified further. Other species that we recorded during the Peaks Project that do not appear on the St Helena list are; *Deuterosminthurus pallipes*, *Dicyrtomina ornata*, *Lepidocyrtus cyaneus*, *L. lanuginosus*, *Sminthurinus aureus* and *Shoettella ununguiculata*. Some/most of these may prove to be the current names of species previously recorded.

Our samples of Collembola represent a depauperate subset of a generally depauperate and largely introduced fauna. Most species are common and widespread in Britain and were probably introduced on St Helena with plants. However, a few species, like *Schoettella ununguiculata*, found on Prosperous Bay Plain, are very uncommon in Britain. The only non-European 'flowerpot' species we found was on Egg Island; a species of *Pseudonurida* which is a genus of pan tropical intertidal / littoral species.

The Peaks Collembola fauna was dominated by just two species, *Tomocerus minor* and *Orchesella cincta*, both of which are common in Britain. Compared with specimens of *O. cincta* found in an average piece of woodland in Britain, Dr Peter Shaw (Roehampton University, London) who identified our material, found the St Helena samples very homogeneous in colour. Probably, the St Helena population has grown from founder individuals with a reduced spectrum of the genes found in European populations. He plans to analyse and quantify the differences to better understand the cause. Similar differences in other species found on St Helena have previously been noted by P.N. Lawrence who identified the Belgians' material.

** Endemic genus * Endemic species	1	2	3	4	5	Other 'Peaks' Sites	Other Sites
COLLEMBOLA (Det. P. Shaw)							
NEANURIDAE							
<i>Pseuanurida</i>							
sp. [1816]							✓
PODURIDAE							
<i>Ceratophysella</i>							
<i>denticulata</i> (Bagnall)	✓		✓		✓		
<i>Brachystomella</i>							
<i>parvula</i> (Schäffer) [1708, 4471]					✓		✓
<i>Neanura</i>							
<i>muscorum</i> (Templeton) [4354]						7	
HYPOGASTRURIDAE							
<i>Shoettella</i>							
<i>ununguiculata</i> (Tullberg) [1677, 4479]							✓
ENTOMOBRYIDAE							
<i>Entomobrya</i>							
<i>multifasciata</i> (Tullberg) [22, 250, 374, 393, 471, 842, 943, 4396]			✓	✓			✓
<i>Orchesella</i>							
<i>cincta</i> (Linnaeus) [2137, 2907, 2911, 2912, 2914, 2915, 2918, 2919, 2958, 2986, 4198, 4370]	✓	✓	✓	✓		6, 7, 8, 9, 10, 11, 12	✓
<i>Lepidocyrtus</i>							
<i>cyaneus</i> Tullberg [4193]						7	
<i>lanuginosus</i> (Gmelin) [216, 250, 471, 562, 623, 632, 983, 1000, 1675, 1716, 2822, 2920, 4479]		✓			✓		✓
<i>Tomocerus</i>							
<i>minor</i> (Lubbock) [2106, 2128, 2137, 2145, 2151, 2162, 2170, 2750, 2906, 2908, 2909, 2911, 2912, 2914, 2916, 2917, 2920, 2922, 2923, 2924, 2946, 2958, 4354, 4370, 4376]	✓	✓	✓	✓	✓	6, 7, 8, 9, 10	
<i>Seira</i>							
sp. [1816, 4471]					✓		✓
BOURLETIELLIDAE							
<i>Deuterosminthurus</i>							
<i>pallipes</i> (Bourlet) [4479]			✓				✓
DICYRTOMIDAE							
<i>Dicyrtomina</i>							
<i>ornata</i> (Nicolet) [2946]	✓				✓		
KATIANNIDAE							
<i>Sminthurinus</i>							
<i>aureus</i> (Lubbock) [2352, 2913, 2924, 2986, 4370, 4376]	✓	✓	✓				

Insecta: Orthoptera (grasshoppers and crickets)

The Orthoptera and a few other 'orthopteroid' insects (Dermaptera and Blatodea; earwigs and cockroaches) are with specialists and we are awaiting identifications. However, we are now able to report on some interesting scaly crickets (family Mogoplistidae) collected in 1995

Ashmole & Ashmole (2000, p. 334) reported finding a species of mogoplistid on St Helena, but at that time the specimens had not been studied by a specialist. Further specimens were obtained during the Prosperous Bay Plain investigations of 2003. Study of this material (and of several mogoplistid species collected on Ascension Island) has now been completed by A.V. Gorochov of the Russian Academy of Sciences, St. Petersburg, and will be published shortly. The St Helena specimens are all *Cycloptiloides canariensis* (Bolivar, 1914), a species described from the Canary Islands and first collected on Ascension Island in 1990 and on St Helena in 1995. The Belgians did not find *C. canariensis* on St Helena, raising the possibility that it is a recent introduction. However, we are inclined to think that it has been overlooked, since we have found it in subterranean, coastal and extremely arid habitats that were not much sampled by the Belgians. It is likely that the occurrence of this non-endemic species on both islands is the result of transportation by ship.

Insecta: Hemiptera (bugs, hoppers, aphids and scale insects)

Auchenorrhyncha

CICADELLIDAE

Argaterma alticola* and *A. multesignata (Deltocephalinae: Macrostelini)

These are the only two species in a very distinctive endemic genus; they are robust, stumpy hoppers with striking 'stained glass' patterns on the elytra. The species are very closely related and with virtually identical genitalia, but easy to distinguish; *A. alticola* has a shiny blackish brown 'face' and the elytra are mainly orange, and *A. multesignata* is slightly larger, with a yellowish brown 'face' and mainly greenish elytra. Both species are confined to the Central Ridge and have not been found at High Peak. They are generally found on Tree Ferns *Dicksonia arborescens*, but a nymph was collected on Buckshorn *Lycopodium cernuum*. A surprising number of specimens of both species were obtained in pitfall traps, suggesting that these leafhoppers move around a good deal on the ground. It would be interesting to know if there are any significant differences in the ecology of the two species; up to now they have been collected in similar situations, although *A. multesignata* may be more restricted in its distribution.

'*Atlantisia*' *leleupi* (Deltocephalinae: Macrostelini)

The Belgians described this species from N.W. Flagstaff (site 9 in their site list). This was apparently the only place where they collected on Scrubwood *Commidendrum rugosum*. In 1995 the Ashmoles re-found it there, but also obtained it on Scrubwoods at Ruperts Hill, Powell Valley, Rock Mount and Joan Hill. The 2006 Peaks Project records include Scrubwood at Blue Point, Flagstaff, Joan Hill, Pipe Path, Powell's and Turks Cap. Intriguingly, *A. leleupi* was also found in one sample from foliage of Gumwoods *Commidendrum robustum* at Peak Dale and also on the Gumwood stand in Deep Valley, demonstrating that the species is not entirely restricted to Scrubwoods. There is also a specimen from the dead stems of Jellico *Berula bracteata* at Deep Valley Head.

'*Chlorita*' *edithae* (Typhlocybinae)

This is a whitish yellow species with distinct red markings found by the Wollastons at Cason's, High Peak and Diana's, but not seen by the Belgians. It is considered to be a member of an undescribed genus closely related to *Afrasca* (I. Dworakowska, pers.

comm. in Webb 1987). One or more species of Typhlocybae (see below) were collected during the Peaks Project, but they do not match the 19th century specimens of *edithae*. [**Note:** This species was found on Whitewood (*Petrobium arboretum*) above Wrangham's by Lourens Malan (Terrestrial Conservation Officer, EMD) in April 2013].

Nehela vulturina (Agallinae or Megophthalminae: Agallini)

This endemic species (incorrectly indicated as a generic endemic in Ashmole & Ashmole 2000) has relatives in Australasia, around the Indian Ocean and in Nigeria. It seems to be particularly associated with Dogwood *Nesohedyotis arborea* but has also been found – though without direct evidence of feeding – on many other species: Tree Fern, Black Cabbage *Melanodendron integrifolium*, She Cabbage *Lachanodes arborea*, He Cabbage *Pladaroxylon leucadendron*, Whitewood, Gumwood, Jellico *Berula bracteata* and Lobelia *Trimeris scaevolifolia*.

Strangely, no nymphs that appear to belong to this species have ever been found. This led us to consider, during the field work for the Peaks Project, the possibility that the nymphs might be root feeders, but examination of a small number of roots failed to reveal any. We now learn that nymphs (and in some cases males) of other members of the Agallini do spend time at ground level, and we suspect that *Nehela* nymphs may live in litter rather than on roots. Some cicadellid nymphs collected in litter at High Peak are being studied by Jacek Swedo, but his initial opinion is that they belong to the Sagmatiini (see below). If this proves to be the case, the niche of the nymphs of *Nehela* remains unknown.

Nyhimbricus wollastoni (Deltocephalinae: Macrostelini)

This very distinctive species, described by White as *Jassus wollastoni* and given generic rank by Mick Webb, seems not to be mentioned by the Belgians. It is c.5mm long and is pale yellow with orange marks on the head and pronotum and orange longitudinal bands on the forewings. It was found by the Wollastons at Casons and Vine Tree Gut (probably the same as Grapevine Gut) but has not been seen since. Further search for this species in Grapevine Gut would be very worthwhile, especially on the old She Cabbage there, on the chance that this was its food-plant.

Sanctahelenia sanctaehelenae (= *Thamnotettix sanctae-helenae* (White), *Sanctahelenia synavei* Dlabola)

This golden species was recorded by the Belgians and by Webb (1987) only on the central ridge. The Belgian records were from Tree Fern. Most of our records conform

to this pattern, although there are two from Jellico (2737 and 2864) and one from Lobelia (2794). There is also one record (2388) from Tree Fern at High Peak, which represents an interesting extension of the known range.

Sanctahelenia decellei

The Belgians established the new species *S. decellei* for pale yellow or whitish specimens that they obtained on Gumwood at Longwood (= our Piccolo Hill), Luffkin's and Peak Gut (= our Peak Dale) but also on Tree Fern on the High Central Ridge. They also recorded a female from High Peak, but the morphological distinction from *S. sanctaehelena* (= *S. synavei*) appears less secure in that sex.

During the Peaks Project this species was collected from Gumwood at Peak Dale (e.g. 2479), Deep Valley Gumwood site (2514) and Piccolo Hill (2545). However, a single specimen was also found at Mount Actaeon on Tree Fern. It thus appears that *S. decellei* is adapted to the Gumwood forest at middle levels on the island, but that it also occurs in small numbers on the Central Ridge.

***Sanctahelenia insularis* (= *Gryptotes* (?) *insularis* White, 1878)**

This species is based on specimens collected by Wollaston. It was not mentioned by the Belgians and the assignment to the genus *Sanctahelenia* was made by Webb (1987), who described and figured the differences between this species and its congeners. During the Peaks Project specimens of this species were collected from False Gumwood *Commidendrum spurium* at Mount Vesey (2426). This record is of considerable importance, since the Mount Vesey stand of False Gumwood is one of the last in the wild, and it is possible that *Sanctahelenia insularis* is specific to this host. The 19th century type series is from West Lodge, and although the host plant was not recorded, this is in the area where the False Gumwood seems to have been concentrated in the past.

***Sophonia orientalis* (Matsumura) (Evacanthinae) – Two-spotted Leafhopper**

This leafhopper is apparently new for St Helena. A single specimen was found in a sample collected on 10 January 2006 at Cuckold's Point, on Tree Fern. The species is distinctive and the identification is thought to be secure, but the record is somewhat puzzling since this native of Asia is extremely polyphagous. If it was established on the island it would be expected to be common on agricultural crops, but the island pest control authorities have recently confirmed that they have not encountered the species.

During the last few decades *S. orientalis* – which has often been recorded under the name *Sophonia rufofascia* (Kuoh & Kuoh) – has been accidentally introduced to California and to islands around the world, including Hawai'i, French Polynesia and Macaronesia, threatening both crops and native plants. The species therefore poses a major threat on St Helena, and it is important to determine its current status. The agricultural authorities have been alerted and any specimens suspected of belonging to this species will be sent to the Natural History Museum for checking. If *S. orientalis* proves to be established on St Helena it will be appropriate to consult with people elsewhere who have experience of the species, to consider whether anything can be done to limit its impact on the island.

(*Stirellus* sp. (Deltocephalinae: Stenometopiini))

Ashmole & Ashmole (2000) mentioned a record of this species based on identification at the Natural History Museum of a specimen collected on Gumwoods at Peak Dale in 1995. The absence of specimens in collections made at the same site during the Peaks Project led us to suggest re-examination of the 1995 specimen, which proves to belong to the extremely similar endemic species *Sanctahelenia decellei*. The genus *Stirellus* should therefore be removed from the St Helena list.)

***Stonasia consors* and *S. undulata* (Agallinae)**

These are the only relatives of *Nehela* found on the island. *S. consors* is 7-9 mm long and brownish, while *S. undulata* is 8-10 mm long and yellowish green. The original Wollaston specimens of *S. consors* came from Diana's Peak and Halley's Mount, and those of *S. undulata* from Casons. The Belgians found one individual of each species – plus some nymphs – at High Peak, by beating Dogwood. Neither species was found during the Peaks project, but since both were evidently rare at the time of the Belgians' work, it is possible that they are still present but still rare; further search on Dogwoods at High Peak would be worthwhile.

***Cicadellidae* (Deltocephalinae: Macrostelini) sp. n.**

Specimens of this leafhopper, which is thought to represent a new endemic genus, were first collected in 1995 on Scrubwood on the slopes west of Flagstaff (Ashmole & Ashmole 2000, p.350). Additional specimens were found at the same site during the Peaks Project.

Cicadellidae (Typhlocybinae) spp. indet.

Specimens referable to the subfamily Typhlocybinae were collected during the Peaks Project on the Central Ridge at Cuckold's Point and Deep Valley Head, but also in Grapevine Gut at about 640 m. These specimens, which have been provisionally assigned to three species, represent a new group for St Helena, since they are apparently distinct from '*Chlorita edithae*' (see above) which is the only member of the Typhlocybinae previously recorded from the island. Additional, dry-collected specimens are needed before proper study of these insects can be attempted, but it is likely that they represent new endemic species.

In the field these frail-looking, small and almost colourless insects were referred to as 'ghost hoppers' and in the laboratory the adults were easy to confuse with nymphs. Species indet. 1 was collected at two sites, in both cases on Jellico. Species indet. 3 was collected on Jellico at one of the same sites, but it was also found on Whitewood.

Cicadellidae (Euacanthellinae) Sagmatiini sp. indet.

The finding of cicadellid nymphs in litter at High Peak (and of an exuvium probably of the same species at Cuckold's Point) is one of the significant achievements of the Peaks Project. Initial study of the specimens by Jacek Szwedo of the Polish Academy of Sciences suggests that they belong to the Tribe Sagmatiini. This is one of the groups of obscure litter-dwelling Membracoidea of the Southern Hemisphere which have become better understood in recent decades and are considered to fall into three unrelated tribes: Myerslopiini from Chile and New Zealand (sometimes separated as a new family Myerslopiidae), Evansiolini from the Juan Fernandez Islands (Chile) and Sagmatiini. The latter group includes species of *Sagmation* from Australia and New Caledonia and *Paulianiana* and an undescribed taxon from Madagascar (Szwedo, *in litt.*). Although it is conceivable that this insect was introduced to St Helena with New Zealand flax, the absence of Sagmatiini from New Zealand makes it highly improbable. Further study of the specimens, and of additional material (adults in particular) which will now be sought urgently, should clarify the situation. We expect that this insect will prove to be endemic to St Helena.

CIXIIDAE

Helenolius dividens* and *H. insulicola

These two endemic planthopper species are insects of dry habitats and have apparently evolved in different parts of the island from a common stock. *H. dividens*

– which has the face black with yellow markings – has been found only near Flagstaff in the north of the island, on Scrubwood. *H. insulicola* – which has the face yellow to greyish – was originally found near Joan Hill in the far southwest, on Scrubwood and also St Helena Tea Plant *Frankenia portulacifolia*. However, during the Peaks Project it was collected from St Helena Rosemary *Phylica polifolia* on the summit of Lot. This discovery led to investigation by Edward Thorpe of one of the few other wild stands of Rosemary, on High Hill, where *H. insulicola* again proved to be present.

DELPHACIDAE

*Ilburnia diana*e and *I. ignobilis*

The genus *Ilburnia*, listed by Ashmole & Ashmole (2000) as endemic to St Helena, was originally established by White (1878) as a subgenus of *Liburnia* Stål, for the species *Liburnia (Ilburnia) ignobilis* which he described from St Helena. The Belgians discovered a second species, *diana*e, and treated the two species as the only members of an endemic genus *Ilburnia*. They considered that the common ancestor had reached the island in the distant past and that the St Helena species had no close relatives in either Africa or South America.

Although some modern taxonomic databases show *Ilburnia* as having many species in other parts of the world, we have been informed by Manfred Asche, a specialist in the group, that the genus should still be considered endemic to St Helena and containing only the two species *I. ignobilis* and *I. diana*e. Dr Asche confirms that *Ilburnia* thus defined is taxonomically isolated and that its origins remain obscure. The modern species evidently evolved on the island from an ancient colonising stock.

Ilburnia ignobilis and *I. diana*e have broadly overlapping distributions on the island. Both occur on the highest parts of the central ridge and at High Peak. However, *I. diana*e also occurs at somewhat lower levels, including Teutonic Hall. Both species are found on Tree Fern, sometimes together, and the Belgians record them both in 'fern brake'. Our records, however, indicate a possible difference in host plant preference. *I. diana*e was found in dead wood of the old She Cabbage in Grapevine Gut, and judging by numbers in pitfall traps it must spend a considerable time on the ground. *I. ignobilis* was found on Black Cabbage and Dogwood in addition to Tree Fern, and was much less often collected in pitfall traps.

Heteroptera (true bugs)

ANTHOCORIDAE

The endemic *Lasiochilus contortus* is still present on the central ridge, including High Peak, but has not been found below 650 m. It seems always to be associated with dead stems (particularly Jellico *Berula bracteata* and Lobelia *Trimeris scaevolifolia*). The other endemic anthocorid, *Cardiastethus bicolor*, has wider distribution on the island, from the central ridge down to the arid northeast, but it is not abundant.

BERYTIDAE

The endemic *Metacanthus concolor* was discovered (single specimen) in 1878 but then lost for more than a century. It was rediscovered in 1995 and now proves to be common on Scrubwood *Commidendrum rugosum* in many parts of the island, although it was not found during careful sampling (in 2006) of Scrubwoods at Blue Point. During the Peaks Project it was also found on Gumwoods at Peak Dale and on St Helena Tea *Frankenia portulacifolia*, although in the latter case there were Scrubwoods nearby. *Plyapomus longus*, an ancient endemic species discovered by the Belgians, is confined to the central ridge including High Peak. It is often associated with Tree Ferns *Dicksonia arborescens*, but has also been collected on Dogwood *Nesohedyotis arborea*, on a rock face at Cuckold's and also by general sweeping.

COREIDAE

There are no confirmed records of the family Coreidae (leaf-footed bugs) on St Helena, and none were found during the Peaks Project. However, they are worthy of mention in that F. Buchanan White, author of the seminal paper (1878) on the Hemiptera of the island, which was based on the Wollaston's collections, commented that among the immature and thus indeterminable specimens collected on the high central ridge were some that appeared to represent the Coreini. No specimens referable to that group have been recorded since that time. Unfortunately, it has not been possible to locate these putative Coreidae among Wollaston's material in the Natural History Museum (BMNH London).

LYGAEIDAE

The only lygaeid found on the Peaks is the False Chinch Bug *Nysius ericae*, a widespread Old World species that may be native to St Helena, where it occurs in all parts of the island. Its close relative, the endemic *N. sanctaehelena*, seems to be

patchily distributed in dry parts of the island; it is generally larger than *N. ericae* but is not easy to distinguish reliably.

The collecting of an individual of *Sweetocoris minutus* on Scrubwoods *Commidendrum rugosum* at Blue Point represents an interesting addition to the fauna of St Helena. *Sweetocoris* is a genus of lygaeids established only in 1974 for 14 species in the tribe Stygnocorini from southern Africa. The discovery of a member of the genus on an endemic plant in a remote part of St Helena raises the question of whether it is indigenous or has been introduced from South Africa.

MIRIDAE

This is by far the most important family of Heteroptera on St Helena. About a dozen species were found during the Peaks Project, but only half of these – including about five endemics – occurred at the main sites on the central ridge.

Within the family, the subfamily Mirinae includes the endemic species *Orthops mutabilis* (previously *Lygus*) which occurs on the Peaks and elsewhere on the island. During the Peaks project it was found on a variety of endemic plants including Tree Fern, Gumwood *Commidendrum robustum*, Jellico and Lobelia. This species is one of the endemic species of the island with the ability to feed on introduced plants as well as on its original hosts, which were evidently Jellico and perhaps also Black Cabbage. The species is now found in cultivations as well as on the central ridge. Also present on the Peaks were the non-endemic *Taylorilygus pallidulus* and *Trigonotylus dohertyi*.

The tribe Phylini in the subfamily Phylinae is represented on the island by one widespread species (found mainly in agricultural areas) and about a dozen endemic species, some of which have not yet been described. These have probably evolved on the island from only one or two colonising stocks, and represent one of the clearest cases of adaptive radiation on St Helena.

On the Peaks the most common of these endemic species is *Neisopsallus vinaceus*, which also occurs in some sites at middle levels. The Belgians thought that the original host was Tree Fern; we found it on this species but also repeatedly on Black Scale Fern *Diplazium filamentosum*, another endemic species which tends to spread into disturbed areas, normally above 550 m; we also found it on Jellico and Black Cabbage *Melanodendron integrifolium*. What are almost certainly two specimens of the closely related endemic *Neisopsallus lutosus* (identification in some small doubt because of their poor preservation) were recorded on Gumwood *Commidendrum robustum* at Peak Dale.

One of the most unusual of the endemic Phylini is *Helenocoris horridus*, in which there is extreme brachyptery, the wings entirely lacking the membranous tip section that characterises the order Heteroptera. *H. horridus* apparently lives on Tree Ferns and other fern species. However, its occurrence in pitfall traps indicates that it spends much time on the ground. The Belgians, who discovered the species, found a good many specimens on the central ridge including High Peak. During the Peaks Project *H. horridus* was recorded at Cuckold's Point and High Peak, but also at The Depot, the latter record representing a significant addition to the known range of the species.

The generic endemic *Agrametra aethiops* was discovered in the 19th century and found again by the Belgians in the Peak Dale area and at Longwood, always on Gumwoods. In 1995 we found the species at Peak Dale and during the Peaks Project it was recorded both there, at the Gumwood stand in Deep Valley, and in the Peaks at Mount Actaeon.

Hirtopsallus suedae is a generic endemic discovered by the Belgians, which occurs in many dry areas on the island. Its only recorded foodplant is Samphire *Suaeda fruticosa*, but during the Peaks Project it was also found on St Helena Tea *Frankenia portulacifolia* at Turks Cap. Another generic endemic, *Insulopus asteri*, has previously been recorded only on Scrubwood, but it was also found on the St Helena Tea at Turks Cap. These two new foodplant records probably reflect the fact that few collections have previously been made on St Helena Tea, which grows in association with Scrubwoods at Turks Cap and some other sites.

Oligobiella fuliginea is the only known member of an endemic genus, and is one of the smallest members of the family Miridae at 1-1.5 mm long. Only about four specimens have been found previously, from West Lodge and the Peaks. Our record of this species (or possibly a closely related new species) from the Depot is thus important evidence of the survival of the genus and of the significance of the Depot as a site deserving conservation effort. Unfortunately, the voucher specimen cannot now be traced, but photographs of it were taken.

A single male mirid of the tribe Phylini (indet. sp. no. 2) is likely to represent a new endemic species. It was found in deep tree fern litter on the cliff at High Peak, an area that is being actively restored by a team working on ropes. A photograph, which shows it alongside a specimen of *Helenocoris horridus*, gives a clear idea of the uniform pale yellow brown colour and the bright red eyes (which are much smaller than in *Helenocoris*). The very pale colouring is reminiscent of cave-dwelling arthropods and suggests that the species lives in the dark, perhaps in rock crevices on the cliff and in

cavities within the deep layer of litter. The hind femur is very large, as in *Helenocoris*, so this is presumably a jumping bug. It is brachypterous, the wings being much shorter than the abdomen and reduced to about the same degree as in *Helenocoris*. The antennae and legs are long, but relatively a little less so than in *Helenocoris*. The beak extends exactly to the tip of the abdomen and is strikingly slender, which does not suggest a root feeding existence. One possibility is that these bugs probe into egg sacs of spiders and suck the eggs. Another probably new species of the mirid tribe Phylini (indet. sp. no. 5) was collected in Malaise traps at Mount Actaeon (two specimens) and Diana's Peak (one specimen). Most likely it will prove to be endemic.

NABIDAE

The Nabidae, which are predaceous bugs, have two endemic species in separate endemic genera on St Helena. Both have been found only on the Peaks and are considered to be ancient endemics, very distinct from their closest known continental relatives. *Kerzhneria hirsuta* is up to 5 mm long and has minute wings and an oval abdomen. It was discovered by the Belgians, who found 11 specimens, on Cabbage Tree Road and at High Peak. Worryingly, it was not found during the Peaks Project in 2006, in spite of intensive sampling in both these areas. However, some hope for the survival of the species can be derived from the fact that it was also missed by earlier entomologists – in particular the Wollastons – and is thus evidently easily overlooked. We do not know the microhabitat(s) in which the Belgians found their specimens.

The second endemic nabid, *Vernonia wollastoniana* (this is the original spelling), which we christened the Rainbow Bug, is one of the most significant endemic invertebrates on St Helena. It is up to 13 mm long and has long legs and extremely long tapering antennae. The minute wings distinguish it from adults of its non-endemic relative *Nabis capsiformis*, but nymphs can be confusing. The somewhat flattened and laterally extended abdomen distinguishes it from the endemic berytid *Plyapomus longus* (see above). The Belgians found it only on the Central Peaks and Wollaston's finds were probably also there. Only 13 specimens were known at the start of the Peaks Project. However, our work shows that the species still survives on the Central Peaks in significant numbers, and we were pleased to find it also at High Peak.

PENTATOMIDAE

The Pentatomidae include only one St Helena endemic species, *Macrorhaphis wollastoni*. The single previously known specimen was one found by Wollaston at West Lodge. A specimen collected at the light trap at Woodcot, during the Peaks Project, proves to belong to the same species. This and other records of endemic

species from Woodcot show that wooded areas at middle levels on the island are of importance to representatives of the indigenous fauna as well as to many introduced species. It should be noted, however, that some taxonomists have expressed doubt as to whether *Macrorhaphis wollastoni* deserves its endemic status, since it is very similar to *M. acuta*, an African species that is also recorded from the Cape Verde Islands.

REDUVIIDAE

Only one endemic species of reduviid has been found on St Helena. This is *Napoleon vinctus*, the sole species in an endemic genus discovered by the Belgians, who collected one male, two females and a few nymphs on the Central Peaks and at High Peak. *N. vinctus* is an entirely wingless species, about 12 mm long, dark reddish brown and solidly built. It shows a number of neotenic characters (larval characters retained in the adult) and differs from its closest relatives (probably in the genus *Oncocephalus*) in several significant ways. Sadly, this species was not found during the Peaks Project. However, it has probably always been rare and it may yet be found again in the future.

SALDIDAE

The only member of this family recorded from St Helena is the generic endemic *Helenasaldula aberrans*. This species was discovered by Wollaston in the 19th century and re-found by the Belgians. Both collections were made on the Central Peaks but the two groups of specimens show significant differences. During the Peaks Project the species was found only at the base of Mt. Vesey Waterfall on exposed wet rock. Saldids are cryptically coloured, typical of damp habitats and may spend time underground, so they are easily overlooked. *H. aberrans* is an important member of the invertebrate fauna of the island and it may be worth looking for it in guts and other cool, damp places.

Sternorrhyncha

On St Helena this section of the Hemiptera is represented by a selection of world pest species, some of them with a taste for endemic plants. Having survived attack by the introduced Jacaranda Bug *Orthezia insignis*, an ensign coccid from South and Central America, the Gumwoods at Peak Dale are now infested by the mealy bug *Pseudococcus viburni* which is attacking their roots. The infestation appeared to be sufficiently heavy to weaken the trees.

** Endemic genus * Endemic species	1	2	3	4	5	Other 'Peaks' Sites	Other Sites
HEMIPTERA: AUCHENORRHYNCHA							
CICADELLIDAE (Det. M.D. Webb)							
<i>Argaterma</i> **							
<i>alticola</i> F.B.White [2366, 2383, 2408] *	✓	✓	✓	✓		8	
<i>multisignata</i> F.B.White [2067, 2383, 2408] *	✓		✓			8	
<i>Atlantisia</i> **							
<i>leleupi</i> Synave & Dlabola [2355, 2415, 2470, 2474, 2479, 2514, 2518, 2545, 2573, 2718, 2784, 2847, 2851, 2852, 2860] *						8	✓
sp. (nr. <i>leleupi</i>) [2545] *							✓
<i>Nehela</i> **							
<i>vulturina</i> F.B.White [2041, 2130, 2200, 2388, 2391, 2431, 2487, 2499, 2514, 2768, 2826, 2833, 2856, 2864, 4160, 4372] *	✓	✓	✓	✓	✓	8	✓
<i>Sanctahelenia</i> **							
<i>decellei</i> Dlabola [2479, 2514, 2545, 2718, 2828] *			✓				✓
<i>insularis</i> F.B. White [2426] *						11	
<i>sanctahelenae</i> (F.B. White) [2067, 2383, 2388, 2408, 2737, 2794, 2835] *	✓	✓	✓	✓	✓	8	✓
<i>Sophonia</i>							
<i>orientalis</i> (Matsumura) [2383] ✓							
Cicadellidae indet.							
Cicadellidae (Macrostelini) sp. n. A&A p. 350 [2711] *							✓
Cicadellidae, Sagmatiini sp. n. immatures) [2697] ?*					✓		
Cicadellidae (Typhlocybinae) indet.							
sp. 1 [2841, 2864] ✓						8	
sp. 3 [2029, 2034, 2864] ✓			✓			8	
CIXIIDAE (Det. M.D. Webb)							
<i>Helenolius</i> **							
<i>insulicola</i> Van Stalle [2504, 2852, 2591] *							✓
DELPHACIDAE (Det. M. Asche)							
<i>Ilburnia</i> **							
<i>dianae</i> Fennah [2388, 2865, 4472] *		✓		✓	✓	9	
<i>ignobilis</i> F.B.White [2076, 2200, 2388, 2499, 2561, 2833, 4466] *	✓	✓	✓	✓	✓		

<i>Toya</i>								
<i>thomasseti</i> Muir				✓				
<i>tuberculosa</i> (Distant)			✓	✓				
<i>Sogatella</i>								
<i>kolophon</i> (Kircaldy)	✓	✓	✓	✓				✓
HEMIPTERA: HETEROPTERA								
ANTHOCORIDAE (Det. M.D. Webb)								
<i>Cardiastethus</i>								
<i>bicolor</i> F.B. White [2834, 4460] *	✓		✓			8		
<i>Lasiochilus</i>								
<i>contortus</i> (F.B. White) [2395, 2459] *			✓		✓	9		
<i>Orius</i>								
<i>thripoborus</i> (Hesse) [2530, 2589, 2729, 2846, 2848, 4166]	✓			✓				✓
BERYTIDAE (Det. M.D. Webb)								
<i>Metacanthus</i>								
<i>concolor</i> F.B. White [2418, 2483, 2536, 2574, 2585, 2843, 2850, 4392] *								✓
<i>Plyapomus</i> **								
<i>longus</i> Stusak [2364, 2450, 2571] *	✓		✓	✓	✓			
LYGAEIDAE (Det. M.D. Webb)								
<i>Nysius</i>								
<i>ericae</i> (Schilling) [2574, 2585, 2615, 2617, 2714, 2732, 2777, 2827, 2831, 2849, 2850, 2853, 2585, 2852, 2857, 4392]	✓	✓	✓	✓		9		✓
<i>sanctae-helenae</i> F.B. White [2615, 4392] *						11		✓
<i>Sweetocoris</i>								
<i>minutus</i> (Scudder) [2842]								✓
MIRIDAE (Det. M.D. Webb / T.J. Henry)								
<i>Agrametra</i> **								
<i>aethiops</i> F.B. White [2118, 2484, 2716, 2753, 4166] *			✓					✓
<i>Creontiades</i>								
<i>pallidus</i> (Rambur) [2714]								✓
<i>Helenocoris</i> **								
<i>horridus</i> Schmitz [2548, 2766] *	✓			✓	✓	7		
<i>Hirtopsallus</i> **								
<i>suedae</i> Schmitz [2531, 2534] *								✓
<i>Insulopus</i> **								
<i>asteri</i> Schmitz [2417, 2531, 2574, 2531, 2585, 2714, 2842, 2843, 2861] *								✓
<i>Neisopsallus</i> **								
? <i>lutosus</i> (F.B. White) *								✓
<i>vinaceus</i> (F.B. White) 2047, 2060, 2070, 2401, 2839, 2840, 2459] *	✓	✓	✓	✓	✓	8, 9		

<i>Oligobiella</i>	**							
? <i>fuliginea</i> (F.B. White) [2552]	*						7	
<i>Orthops</i> [Lygus]								
<i>mutabilis</i> (F.B. White) [2024, 2015, 2716, 2732, 2786, 2796, 2838]	*	✓	✓	✓	✓	✓	6, 10	✓
<i>Taylorilygus</i>								
<i>apicalis</i> (Fieber)		✓		✓	✓			
<i>Trigonotylus</i>								
<i>dohertyi</i> Distant (= <i>tenuis</i> Reuter)		✓						
Miridae indet. (excluding immatures)								
Phylini sp. (sp. no. 2) [2335]	?*					✓		
Phylini sp. (sp. no. 5)	?*		✓	✓				
NABIDAE (Det. M.D. Webb)								
<i>Tropiconabis</i>								
<i>caspiformis</i> Kerzhner [2530, 2722, 4356]							7	✓
<i>Vernonia</i>	**							
<i>wollastoniana</i> F.B. White [2306, 2400]		✓	✓	✓	✓	✓		
PENTATOMIDAE								
<i>Macrorhaphis</i>								
<i>wollastoni</i> F.B. White (Det. P. Kment) *								✓
<i>Nezara</i>								
<i>viridula</i> (Linnaeus) (Det. M.D. Webb) 2530, 2586, 2672, 4497]								✓
REDUVIIDAE								
<i>Empicoris</i>								
<i>rubromaculatus</i> Wolff								✓
SALDIDAE (Det. M.D. Webb)								
<i>Helenasaldula</i>	**							
<i>aberrans</i> (F.B. White)	*						11	
TINGIDAE (Det. M.D. Webb)								
<i>Teleonemia</i>								
<i>scrupulosa</i> Stål [2861]								✓
HEMIPTERA: STERNORRHYNCHA								
APHIDIDAE (Det. J.H. Martin)								
<i>Aulacorthum</i>								
<i>solani</i> (Kaltenbach) [2832]		✓						
<i>Myzus</i>								
? <i>persicae</i> (Sulzer)			✓					
<i>Rhopalosiphoninus</i>								
<i>latysiphon</i> (Davidson)						✓		
sp. ?					✓			
<i>Sitobion</i> sp. [2764]					✓		9	
ORTHEZIIDAE (Det. J.H. Martin)								
? <i>Orthezia insignis</i> Browne [4176]								✓
PSEUDOCOCCIDAE (Det. D.J. Williams)								
<i>Pseudococcus</i>								
<i>viburni</i> (Signoret)								✓

Insecta: Psocoptera (barkflies)

The psocopteran fauna of St Helena is now fairly well known (22 species). Seven endemic species have been documented, two of them not yet described (*Cerobasis* sp. nov., *Blaste* sp. nov.). One highly distinctive species (*Helenatropos abrupta*) is known only from St Helena and South Africa and an undescribed subterranean species (*Sphaeropsocopsis* sp. nov.) is common to Ascension and St Helena. Two species of *Liposcelis* could possibly also be new to science. The fauna also includes another eleven widespread species: most of these are doubtless introduced to St Helena.

The psocopterans collected during the Peaks Project have been identified by Dr Charles Lienhard. Few species occur in the cloud forest. However, the cosmopolitan *Ectopsocus briggsi* was found right along the main ridge of the island and on Gumwoods and other vegetation at middle levels. The closely related *Ectopsocus trauchi* has not been found on the high central ridge but occurs at middle levels, especially in dry areas, where it has been found on Gumwoods and Scrubwoods. This species has now been introduced to many parts of the world, but its original range was probably North Africa and the Macaronesian islands, so it is possibly native to Ascension Island and St Helena. The same applies to *Trichopsocus clarus*, the only other species found in the cloud forest, which is another widespread species occurring in Europe and the Macaronesian islands. It has not been found on Ascension Island but is conceivably native to St Helena, where it occurs mainly at middle level sites, including Gumwood stands.

The very distinct endemic species *Blaste (Euclismia) basilewskyi* was discovered by the Belgians. Their data and ours show that it is a species of middle levels, often occurring on Gumwoods *Commidendrum robustum* and sometimes on Scrubwoods *C. rugosum*. Of special interest was the finding of three nymphs in dead wood of the surviving stand of False Gumwoods *C. spurium* at Mt. Vesey. Specimens referable to the genus *Blaste* collected on St Helena Rosemary *Phyllica polifolia* at the summit of Lot probably represent a new endemic species, closely related to *B. basilewskyi* (C. Lienhard, pers. comm.).

Two additions were made during the Peaks Project to the list of widely distributed species known from St Helena. *Lepinotus inquilinus* now has worldwide distribution and *Liposcelis entomophila* is a pest of stored products and libraries; both species are doubtless introduced to St Helena.

A noteworthy extension of range within St Helena was documented for the scarce endemic *Peripsocus leleupi*, previously known only from Teutonic Hall, Longwood

and one site on Prosperous Bay Plain. During the Peaks Project it was found on Gumwoods at Peak Dale.

Ruperts Battery Cave, where the only known blind psocopteran (*Sphaeropsocopsis myrtleae*) was discovered in 1995, is also a habitat for a second (undescribed) species of *Sphaeropsocopsis*, collected in 2003 and again in 2006. This species has reduced eyes and was also found in a subterranean habitat on Ascension Island in 1995.

** Endemic genus * Endemic species	1	2	3	4	5	Other 'Peaks' Sites	Other Sites
PSOCOPTERA (Det. C. Lienhard)							
ECTOPSOCIDAE							
<i>Ectopsocus</i>							
<i>briggsi</i> McLachlan [2017, 2039, 2062, 2098, 2380, 2480, 2516, 2715, 2751, 2789, 2798, 4175, 4199, 4365, 4420, 4467]	✓	✓	✓	✓		6, 7, 8, 9, 10	✓
<i>strauchi</i> Enderlein [2012, 2087, 2098, 2480, 2516, 2681, 2715, 2758, 2763, 4175, 4186, 4352, 4381, 4390, 4487]						6, 7, 9	✓
LIPOSCELIDIDAE							
<i>Liposcelis</i>							
<i>bostrychophila</i> Badonnel [2645] *							✓
<i>entomophila</i> (Enderlein) [2821, 4444]							
sp. 1 (species group 'A') [2811]							✓
MYOPSOCIDAE							
<i>Myopsocus</i>							
<i>eatoni</i> McLachlan [2754]							✓
PERIPSOCIDAE							
<i>Peripsocus</i>							
<i>leleupi</i> Badonnel *							✓
PSOCIDAE							
<i>Blaste</i> (<i>Euclismia</i>)							
<i>basilewskyi</i> Badonnel [2046, 2052, 2054, 2085, 2098, 2318, 2380, 2516, 2715, 2735, 2758, 2760, 2801, 4186, 4199, 4352] *		✓				7, 8, 9, 10, 11, 12	✓
sp. (probably new) [4165] ?*							✓
SPHAEROPSOCIDAE							
<i>Sphaeropsocopsis</i>							
sp. [2805]							✓

TRICHOPSOCIDAE							
<i>Trichopsocus</i>							
<i>clarus</i> (Banks) [2081, 2098, 2319, 2516, 2715, 2758, 4175, 4186]		✓				9, 12	✓
TROGIIDAE							
<i>Cerobasis</i>							
<i>annulata</i> (Hagen) [2087, 2421, 2613, 4165, 4180, 4379, 4440]							✓
<i>guestfalica</i> (Kolbe) [2480, 2715, 4165, 4186, 4381, 4442]							✓
<i>Lepinotus</i>							
<i>inquilinus</i> Heyden [2619]							✓

Psocoptera of St Helena – (updated by David Pryce)

The list below records all species of Psocoptera known from St Helena as of September 2013. Comments indicate when the species was added to the list and any changes since the above text was written. An asterisk indicates that a species endemic to St Helena.

TROGIIDAE

- Helenatropos abrupta* Lienhard, 2005. Described as endemic, later found in South Africa.
* *Cerobasis atlantica* Lienhard, 2011. *Cerobasis* sp. nov above; from Prosperous Bay Plain.
Cerobasis annulata (Hagen, 1865). Faune Terrestre.
Cerobasis guestfalica (Kolbe, 1880). Faune Terrestre.
Lepinotus inquilinus von Heyden, 1850. Peaks Project 2005-6.

PSYLLIPSOCIDAE

Psyllipsocus ramburii Sélys, 1872. A&A, 1995.

LIPOSCELIDAE

- Liposcelis bostrychophila* Badonnel, 1931. Faune Terrestre.
Liposcelis entomophila (Enderlein, 1907). Peaks Project 2005-6.
Liposcelis sp. (species group A). A&A, 2003 ('sp. 1' above).
Liposcelis sp. (species group C). A&A, 2003.

SPHAEROPSOCIDAE

- * *Sphaeropsocopsis myrtleae* Lienhard & Ashmole, 1999. A&A, 1995.
Sphaeropsocopsis insularum Lienhard, 2011. A&A, 2003. Also on Ascension Island.

CAECILIUSIDAE

- * *Stenocaecilius benoiti* (Badonnel, 1976). Faune Terrestre.
Stenocaecilius caboverdensis (Meinander, 1966). Peaks Project 2005-6.

ECTOPSOCIDAE

- Ectopsocus briggsi* McLachlan, 1899. Faune Terrestre.
Ectopsocus strauschi Enderlein, 1906. Faune Terrestre.

PERIPSOCIDAE

- Peripsocus pauliani* Badonnel, 1949. Faune Terrestre.
Peripsocus leleupi Badonnel, 1976. Faune Terrestre. Also on Ascension Island.
* *Peripsocus decellei* Badonnel, 1976. Faune Terrestre.

TRICHOPSOCIDAE

Trichopsocus clarus (Banks, 1908). Faune Terrestre.

PSOCIDAE

- * *Blaste basiliewskyi* Badonnel, 1976. Faune Terrestre.
* *Blaste helenae* Lienhard, 2011. Peaks Project 2005-6. The '*Blaste* sp.' above.

MYOPSOCIDAE

Myopsocus eatoni McLachlan, 1880. Faune Terrestre.

Coleoptera (beetles)

The statistics given by Ashmole & Ashmole (2000) indicate just how incredibly important the Coleoptera fauna of St Helena is in evolutionary terms; some 257 species (representing 36 beetle families) of which 148 are thought to be endemic, many of them so divergent that it has been necessary to describe 32 endemic genera in which to place them. There have been major radiations in the Anthribidae, Carabidae (Bembidiini) and Curculionidae, and small groups of closely related species have evolved in other families (*e.g.* Anthicidae and Chrysomelidae).

Beetles are by far the most diverse order of invertebrates on the Central Peaks, with 140 species previously recorded, 107 of them endemic to St Helena. Of these 107 endemics, 58 (54%) are apparently confined to the Peaks, with no records from elsewhere on the island. In contrast, out of the 33 non-endemic beetle species recorded from the Peaks, only two are apparently restricted to this part of the island.

Although the beetle fauna of St Helena was comprehensively studied by Wollaston in 1875-76 and by the Belgians (1965-67), the number of new species we recorded during the Peaks Project is an indication of just how much more there is to discover.

It is of paramount importance to protect what remains of the near natural vegetation on the Peaks. The endemic biodiversity of sites like Taylors, at Cabbage Tree Road level and along the gut leading down to Grapevine Gut, show that management efforts to claw back natural communities degraded by invasive plant species are thoroughly worthwhile. Probably this whole area is worthy of special conservation attention. Outside the Peaks the Gumwood forest remnants at Peak Dale also proved to support a high level of endemic biodiversity.

ANOBIIDAE (woodworm and bread beetles)

The anobiid fauna of St Helena comprises two endemic species (one placed in an endemic genus) and a few cosmopolitan pests no doubt introduced with commerce. The only Anobiidae found during the Peaks Project were away from the Peaks, from Prosperous Bay Plain. The three specimens have been identified as *Xyletomerus insulanus* Español, a species originally described from the Belgians' material (including specimens from Prosperous Bay Plain) and thought to be associated with Samphire *Suaeda fruticosa*. A very small element of doubt about the identity of the specimens and endemic status of this species remain. In the specimens collected, the shape of the pronotum differs from Español's figure but the male genitalia correspond exactly. When the species was described by Español the male of its nearest known relative, the

African species, *Xyletomerus longitarsis* Español, was not known; male genitalia in Anobiidae are diagnostic.

ANTHICIDAE (flower beetles)

No Anthicidae were recorded from the Peaks but *Anthicodes fragilis* was recorded from Prosperous Bay Plain and Horse Point Plain, both well-known localities for the species. A second species in the same endemic genus (*A. maculatus*) used to inhabit the upland areas but was not found by the Belgians who suggested it might be extinct. We also failed to find *A. maculatus* but think it premature to write it off.

ANTHRIBIDAE (fungus weevils)

The anthribid fauna of St Helena is extraordinary; 27 endemic species in 3 endemic genera and a single cosmopolitan species presumably introduced. The fauna is the product of one of the major adaptive radiations that has taken place on the island. Apart from the cosmopolitan species *Araecerus fasciculatus* (De Geer), which probably does not occur within the Peaks area, the endemic genera are *Acarodes* (single species), *Homoeodera* (14 species) and *Valenfriesia* (= *Notioxenus*) (12 species). Anthribidae are usually associated with the fungal decay of plant material and most species live in rotten wood.

Acarodes gutta, incredibly mite-like as the name suggests, was recorded by us from High Peak, but rather surprisingly not from High Central Ridge. The Belgians found it in abundance in both areas and its apparent decline is something of a mystery.

We found seven of the fourteen species of *Homoeodera* within the Peaks area, and two additional species outside that area; *H. rotundipennis* at Peak Dale and an undescribed species from Joan Hill off Scrubwood *Commidendrum rugosum*. It was good to find *H. paivae* which the Belgians thought was on the verge of extinction, and reassuring to find *H. major*, which has never been common, on the Peaks and at High Peak. Not all of the remaining species in this genus are associated with the Peaks, but we might have been expected to find three that are. There are serious concerns for the survival of *H. nodulipennis* which was also not found by the Belgians. They did find *H. elateroides* on High Central Ridge but it was clearly a rarity, so not very surprising we did not chance upon it. They found *H. edithia* commonly, so it is a concern that we did not collect any specimen at all.

In the endemic genus *Valenfriesia*, we are able to confirm the continued survival of 10 of the 12 known species, 8 of them in the Peaks area. It is gratifying to place on record that a specimen of *V. aenea*, a species thought to be extinct by the Belgians, was swept along Cabbage Tree Road. *V. delei*, one of two *Valenfriesia* species collected away from the Peaks (almost certainly from the Peak Dale) was considered on the verge of extinction by the Belgians. Of the two species of *Valenfriesia* we did not collect, *V. rotundata* is clearly a rarity (the Belgians only collected a single specimen, at High Peak) and *V. congener* is also very scarce although the Belgians collected six examples on Cabbage Tree Road.

In spite of serious habitat degradation, the anthribid fauna of St Helena is largely intact.

CANTHARIDAE (soldier beetles)

The sole species of Cantharidae recorded by the Belgians was *Caccodes oceaniae*, which is known from many remote islands around the world. During the Peaks Project it was recorded from Joan Hill so it is clearly now established on St Helena.

CARABIDAE (ground beetles)

The carabid fauna of the Peaks comprises three closely related endemic genera (Bembidiini) of very small beetles, *Apteromimus* (2 species), *Endosomatium* (1 species) and *Pseudophilochthus* (9 species). Two other endemic carabids, *Harpalus prosperus* and *Lymnastis sanctaehelenae*, are known from the Peaks but have been found mostly elsewhere. These are the Carabidae we might expect to find in the Peaks area, although some of the introduced species, and particularly *Laemostenus complanatus*, could turn up anywhere on St Helena.

In spite of considerable efforts to locate these species, we found only a single specimen of a *Pseudophilochthus* sp. (*gemmulipennis* gp.), in the rotten core of a Tree Fern *Dicksonia arborescens* at High Peak. Surprisingly, this was a new species rather than one that had been previously described, underlining the importance of High Peak.

The St Helena Bembidiini apparently prey on the endemic weevils that are still abundant on the Peaks and there are no explicit records of any of them away from the Peaks. The scarcity and inaccessibility of rotten wood, particularly tree fern trunks, and our reluctance to take apart (and thereby destroy) all those that we

came across, may provide a partial explanation. Also, in some areas the canopy and structure of the cloud forest was much more open than we believe it used to be, leading to dryer conditions at ground level, conditions likely to be detrimental to the rotting process. However, even taking these factors into consideration, the scarcity of these small endemic carabids is a real concern.

The Belgians failed to find *Endosomatium megalops* and *Pseudophilochthus dicksoniae*, *fossor*, *sublimbatus* and *trechoides*, and we failed to find any of the twelve known species in these three endemic genera. They are of ancient lineage and closely associated with the cabbage tree / Tree Fern cloud forest on the Peaks. Their survival is of grave concern and in serious doubt.

CERAMBYCIDAE (longhorn beetles)

Both species of Cerambycidae that have been recorded from St Helena, from time to time since the 19th century, were found during the Peaks Project but outside the area of the Peaks. They are clearly well established. *Curtomerus flavus* was frequent at Woodcot, at light, and was discovered breeding in stacked logs near to the house.

CHRYSOMELIDAE (leaf beetles)

Although the Chrysomelidae is a massive family worldwide, only four species are known from St Helena, three closely related endemics in the genus *Longitarsus*, and *Uroplata girardi* introduced to control the invasive Wild Currant *Lantana camara*.

We recorded only *Longitarsus mellissi* which was nearly always present wherever Jellico *Berula* spp. was found on the Peaks. It is likely that *L. janulus* Wollaston is extinct, as it was associated with She Cabbage *Lachanodes arborea* which used to be common on the High Central Ridge, but has virtually disappeared as a wild species. We had hoped to find the third species, *Longitarsus helenae* Wollaston, but failed in spite of paying particular attention to its foodplant, the endemic Lobelia *Trimeris scaevolifolia*. It must now be very scarce and may even have been lost.

COCCINELLIDAE (ladybirds)

In total we recorded seven species of ladybirds on St Helena, but only three, common, introduced species on the Peaks. One of the species we recorded has apparently not been noted from St Helena before. *Cryptolaemus montrouzieri*,

originally an Australian species, was found at Deep Valley, Blue Point, Joan Hill, Lower House Plain and Piccolo Hill. It has been introduced around the world as a biological control for mealy bugs (Booth & Pope, 1986) and is clearly well established on St Helena.

Nephus binaevatus, an African species, was recorded from Blue Point, Horse Point Plain, Joan Hill, Lower House Plain, Peak Dale and Prosperous Bay Plain. In earlier literature about the fauna of St Helena it was called *Scymnus helenae* Fürsch and thought to be endemic but the two names have been synonymised (Fürsch, 1992). According to Canepari (2001), *Scymnus africanus*, recorded from St Helena, should now be called *S. nubilus*; we recorded it from Piccolo Hill. Our particular thanks to Dr Roger Booth at the Natural History Museum for helping us through these nomenclatural difficulties.

COLYDIIDAE

During the Peaks Project we recorded only *Aglenus brunneus*, a tiny, blind beetle associated with moulds on decaying vegetation in synanthropic situations (farm buildings, manure heaps *etc.*). The single specimen was found by Sophie Thorpe at Woodland, on the foot of her pet guinea-pig! Although cosmopolitan, *A. brunneus* has not been noted on St Helena before, and is in addition to the two species of colydiid that have been recorded previously.

CORYLOPHIDAE (minute fungus beetles)

Only *Sericoderus lateralis* was recorded during the Peaks Project and there is some small doubt about the identity owing to the state of preservation of the specimen. The species is one of the two Corylophidae, both introductions, already known from St Helena.

COSSYPHODIIDAE

Cossyphodes wollastoni the single species of these small, flat, myrmecophilous beetles on St Helena was found in ant nests at Peak Dale.

CRYPTOPHAGIDAE (fungus beetles)

In the family Cryptophagidae there are literally hundreds of very similar, small, brown beetles, many of them incredibly difficult to identify with certainty. A single reputedly endemic *Micrambe* and several introduced *Cryptophagus* have been recorded from St Helena. We recorded the endemic *Micrambe gracilipes* from Gorse *Ulex europaeus* at Flagstaff. It would be no surprise if *M. gracilipes* was discovered elsewhere in the world and proved not to be endemic.

CURCULIONIDAE (weevils)

For the purpose of this report, to enable easy comparison with the earlier literature, the Curculionidae are treated in the traditional, wider sense, to include all weevils, rather than in the narrower sense of the world catalogue (Alonso-Zarazaga & Lyal, 1999). It is true to say that most of the beetles on St Helena are weevils. On the Peaks there are at least 55 described species in no less than 15 endemic genera. However, several of these species were not found by the Belgians and may be long extinct. Others that we found are undoubtedly new, undescribed endemics.

The major adaptive radiations have been in the subfamilies Cossoninae and Nesiotinae. Below, we comment on each of the endemic genera in turn, following the order of genera adopted by the Belgians to facilitate comparison.

Rhyparanotus (Hylobiinae)

On St Helena a single endemic species of this genus is known; we recorded it from the Peaks, Lower House Plain and Peak Dale.

Nesiobius (= *Nesiotes*) (Nesiotinae)

Individual specimens of a significant proportion of the thirteen described species of the endemic genus *Nesiobius* are often very difficult to identify, which is why there are remaining uncertainties, including approximately 40 specimens from the Peaks Project that are as yet unidentified. Uncertainties apart, we recorded six species of *Nesiobius* on the Peaks. Species that we failed to find that were not found by the Belgians either are *N. barbatus* (Wollaston), *N. brevisculus* (Wollaston), and *N. fimbriatus* (Wollaston). Although it cannot be assumed they are extinct, there has to be concern that they may be.

N. simplex was another species the Belgians failed to find, but they did report that P.R. Messent found specimens as recently as 1970, on *Lobelia Trimeris scaevolifolia* near Mount Actaeon. We collected what we consider is this species (literally dozens of specimens) from dead twigs of the same host plant at High Peak, while searching for the chrysomelid *Longitarsus helenae*, which we failed to find.

Tychiorhinus (Nesiotinae)

Of the six species of *Tychiorhinus* associated with the dead wood of cabbage trees on the Peaks, we recorded only two. *T. porrectus* Wollaston found by Wollaston at Cason's may be extinct, but it is too soon to be absolutely certain. The Belgians only found three examples of *T. inaequalis* which is obviously very rare.

Cryptommata (Nesiotinae)

Cryptommata cucalata Wollaston was associated with False Gumwood *Commidendrum spurium* and has not been seen since the 19th century; it is probably extinct. Only ten False Gumwoods survived in the wild in 1990.

Tapiromimus (Cossoninae)

It is disappointing that we failed to find *Tapiromimus gibbistrois* Wollaston; the Belgians collected 42 specimens from the dead wood of cabbage trees on the High Central Ridge and Cabbage Tree Road.

Xestophasis (Cossoninae)

We did not find either of the two species of *Xestophasis*. *X. nasalis* is associated with Gumwood *Commidendrum robustum*. It was not found by the Belgians but it would be no surprise to us if it was rediscovered in a gumwood area like at Peak Dale. The second species, *X. xerophilus*, was described from the Belgians' material from Prosperous Bay Plain; it is not a Peaks species.

Lamprochrus (Cossoninae)

We were pleased to find both species of *Lamprochrus*. The nominate race of *L. cossonoides*, almost always associated with Black Cabbage *Melanodendron integrifolium*, was found widely on the Peaks, including the Depot a new locality. The distinct variety, var. *commidendri*, recorded from Gumwood *Commidendrum robustum* by the Belgians, was found only on False Gumwood *Commidendrum spurium* at Mt Vesey, the host tree species with which it was originally associated by

Wollaston. It is possible that *C. robustum* is an inferior host, on which the var. *commidendri* is just managing to survive, making it all the more important to protect and augment the small stand of wild *C. spurium* at Mt Vesey.

L. hedyotinus, described by the Belgians and associated with Dogwood *Hediotis arborea* at High Peak, continues to coexist with the nominate form of *L. cossonoides* at that locality.

Eucoptoderus (Cossoninae)

It has not yet been possible to positively identify a specimen from litter at Cuckold's Point that almost certainly belongs to one of the two described species of *Eucoptoderus*.

Chalcotrogus (Cossoninae)

We failed to find any of the three species of *Chalcotrogus*, all of which have been recorded from the High Central Ridge. However, *C. oblongior* Wollaston is only known from two specimens collected by Wollaston; it was not found by the Belgians. The Belgians only collected two examples of *C. apionides* which was clearly very rare. It is possible that both species are extinct. It is surprising that we failed to find *C. semipolitus* which the Belgians found widely on the Peaks and elsewhere, but impossible to draw any conclusions about its present status from this.

Acanthinomerus (Cossoninae)

The Belgians recorded thirteen species of *Acanthinomerus*, only about half of which are particularly associated with the Peaks. We found three of the four species in the nominate subgenus; the fourth, *A. monilicornis*, was not found by the Belgians either. Of the subgenus *Chrysotrogus*, we found six of the nine species; only one of the other three, *A. wollastoni*, is really a Peaks species. It was described from a single male collected by the Belgians and a further 18 examples among material in the Natural History Museum (BMNH, London) collected by Howland Roberts (dating to the 19th century). *A. robertsi* was also described from the Belgians' material (four specimens from West Point, Man and Horse) and a much earlier specimen collected by Howland Roberts, in whose honour it was named. It is not a Peaks species but unfortunately we have no precise locality data for the specimen we collected.

Isotornus (Cossoninae)

None of the four species of *Isotornus* is associated with the Peaks. We recorded a single species, *I. proximus* (Lower House Plain, Prosperous Bay Plain and Signal House). *I. aterrimus* is very interesting in that it was not found by the Belgians and is probably extinct; it was thought to be found only on the endemic Boxwood *Mellissia begoniifolia* which is extinct in the wild.

Peltophorus (Cossoninae)

A monospecific endemic genus; the Belgians found single specimen (now the holotype of *P. commidendri* Decelle) on Gumwood *Commidendrum robustum*, between Peak Gut and Luffkins. We failed to find further specimens.

Pentarthodes (Cossoninae)

This is another endemic monospecific genus but, unlike the last, the sole species *P. dicksoniae* is widespread and fairly common on the Peaks, in decaying trunks of Tree Fern.

Pseudomesoxenus (Cossoninae)

An endemic genus of four species, two of which are Peaks species which we recorded during the Peaks Project. Of the other two, one is associated with middle elevations rather than the Peaks and the other is known only from the unique holotype from Rock-Rose Hill.

Pentatemnodes (Cossoninae)

A monospecific endemic genus; *P. rupertsianus* is known only from Rupert's Valley and would not be expected in the Peaks.

Hexacoctus (Cossoninae)

A monospecific endemic genus; recorded from the Peaks by the Belgians but not found by us.

Pachymastax (Cossoninae)

A monospecific endemic genus; *P. crassus* Wollaston is the largest of the endemic weevils. It is disappointing that we failed to find this classic Peaks species.

Pseudostenoscelis (Cossoninae)

Six endemic species of this genus are known from St Helena, four of which were recorded during the Peaks Project. The other two, *P. sculpturata* Wollaston and *P. asteriperda* Wollaston, are also Peaks species and the former is especially important in that *Apteromimus wollastoni* Basilewsky (Carabidae) probably lives in its borings, in the dead wood of Cabbage Trees (or possibly Whitewood *Petrobium arboreum*; there is some confusion with tree names in the Curculionidae section of the report of the Belgians' expeditions).

In the Curculionidae, one of our most exciting finds was a new species within the subfamily Molytinae. A single specimen swept on Cabbage Tree Road, will almost certainly prove to be a new endemic species of a new endemic genus of a new endemic tribe. Three of the world's weevil experts have been unable to place it.

The comparatively few introduced weevils are of little interest but *Sciobius tottus*, now common and widespread, was not recorded by the Belgians and is presumably a more recent arrival.

ELATERIDAE (click beetles)

Two endemic species of Elateridae in the genus *Anchastus* were recognised on St Helena. Only one of them, *A. atlanticus*, found widely on the island, is likely to occur on the Peaks, but we did not find it. The second species, *A. compositarum* has been recorded only from Prosperous Bay Plain and Horse Point Plain. However, the *Anchastus* species we recorded from both these localities proved to be a third species, almost certainly also endemic. This throws into question the earlier records and specimens from Horse Point Plain (R. Veale and D. Clarke, 13.iv.1988; Ashmole & Ashmole, 2.i.1995) that I have examined have proved to be the new, undescribed species.

HYDROPHILIDAE

Dactylosternum abdominale, the only hydrophilid recorded from St Helena, was found on Lower House Plain. It is found widely in warm parts of the world.

LATHRIDIIDAE (plaster beetles)

The three Lathridiidae recorded from St Helena are virtually cosmopolitan and undoubtedly introduced. *Cartodere nodifer*, the one we recorded both on and off the Peaks, is common in gardens in England.

MORDELLIDAE (tumbling flower beetles)

The endemic *Glipostenoda mellissiana*, the only species of the family recorded from St Helena is mostly a species of the middle levels but we also recorded it from the Peaks. It was regularly attracted to light at Woodcot.

NITIDULIDAE (sap beetles)

These small beetles that feed on rotting fruit and fungi are easily transported around the world with commerce; four species have recorded from St Helena and two of them were found during the Peaks Project.

PTILIIDAE (feather wing beetles)

This family of tiny insects includes the smallest beetles known; one endemic species and one possibly endemic species (described from the Belgians' material), have been recorded from St. Helena. Both species have been recorded from the Peaks but we found only the endemic *Ptinella matthewsiana*.

PTINIDAE (spider beetles)

Ptinidae have travelled the world, mostly as stored product pests. Three of them have reached St Helena and one was found during the Peaks Project although not on the Peaks.

SCARABAEIDAE (scarabs, chafers and dung beetles)

We continue to use the family name Scarabaeidae, to facilitate comparison with earlier literature on the beetle fauna of St Helena, even though some of the species are now in different families (within the superfamily Scarabaeoidea).

We recorded two of the three introduced dung beetles, genus *Aphodius*, neither of them from the Peaks; the third species *Aphodius granarius* (Linnaeus) is possibly extinct on St Helena. *Adoretus versutus*, a major pest of vines in the 19th century was also not found on the Peaks but regularly came to light at Woodcot, and was also found in Jamestown. *Heteronychus arator*, another introduced species, once known by the endemic-sounding name *H. sanctaehelenae*, was also recorded from Jamestown during the Peaks Project.

By far the most interesting beetles in the Scarabaeoidea on St Helena, are the four species, and possibly more, that form the endemic genus *Mellissius* (currently placed in the beetle family Aclopidae). Wollaston described two species (*M. eudoxus* and *M. adumbratus*) and a third species (*M. oryctoides*) was described from the Belgians' material. In 1972, the year of publication of the Coleoptera section based on the Belgians' expeditions, *M. popei* was also described (Endrodi, 1972).

These are large beetles (up to 20 mm in length), probably the largest endemic insects to survive on St Helena. There are few specimens in museum collections making it difficult to characterise the species; females are virtually impossible to identify. Numerous remains are found but living beetles are much scarcer (we were unable to identify remains found at Peak Dale). We need to know more about the fascinating genus *Mellissius*, the species of which should be made a conservation priority.

SCOLYTIDAE (bark beetles)

Both bark beetles recorded from St Helena were probably introduced, even though one of them, *Xyleborus aemulus*, was first described from St Helena. This was the only species we recorded (Peak Dale and Woodcot).

SILVANIDAE

Cryptamorpha desjardinsi a beetle found widely in tropical and subtropical regions was common on the Peaks. Possibly it was introduced to St Helena with banana plants.

STAPHYLINIDAE (rove beetles)

The Staphylinidae is the largest family of beetles and many species are very similar and difficult to identify. Most likely, some of the species found on St Helena will prove to be endemic but, equally, most are only known from St Helena because they have not yet been recognised in the area from which they originate. We only recorded three species on the Peaks.

TENEBRIONIDAE (darkling beetles)

Most darkling beetles are associated with desert or semi-desert conditions and it is not surprising that few occur on the Peaks. The most interesting species we might have hoped to find was *Tarphiophasis tuberculatus*, known only from two old specimens from West Lodge. However, we didn't find any Tenebrionidae on the Peaks.

TROGIDAE

A single specimen of *Trox rhyparoides*, probably introduced from South Africa, was collected in a pitfall trap on Mount Actaeon.

** Endemic genus * Endemic species	1	2	3	4	5	Other 'Peaks' Sites	Other Sites
COLEOPTERA							
ANOBIIDAE (Det. H. Mendel)							
<i>Xyletomerus</i>							
<i>insulanus</i> Español [2600, 2616]	*						✓
ANTHICIDAE (Det. M.V.L. Barclay)							
<i>Anthicodes</i>	**						
<i>fragilis</i> Wollaston [2606, 2608, 2639, 2649, 2653, 2682]	*						✓
ANTHRIBIDAE (Det. R.T. Thompson)							
<i>Acarodes</i>	**						
<i>gutta</i> Wollaston [2189, 2631]	*				✓		
<i>Homoeodera</i>	**						
<i>alutaceicollis</i> Wollaston [2543, 2616, 2526, 2649, 2662]	*		✓				✓
<i>globulosa</i> Wollaston	*	✓	✓	✓	✓		
<i>major</i> Wollaston [2165, 2166, 2481, 2482, 2500, 2631, 2693]	*			✓	✓		
<i>compositarum</i> Wollaston [2013, 2079, 2095, 2174, 2176, 2187, 2196, 2332, 2337, 2343, 2376, 2430, 2526, 2553, 2560, 2800]	*	✓	✓	✓	✓	6, 7, 9, 10, 11, 12	✓
<i>paivae</i> Wollaston	*		✓	✓			
<i>pumilio</i> Wollaston [2069, 2079, 2174, 2322, 2331, 2332, 2342, 2430, 2432, 2442, 2446, 2458, 2526]	*	✓	✓	✓	✓	9, 11, 12	✓
<i>pygmaea</i> Wollaston [2129, 2308, 2343, 2405, 2579]	*	✓	✓	✓	✓	7, 8	
<i>rotundipennis</i> Wollaston	*						✓
sp. n. [2587]	*						✓
<i>Valenfriesia</i> (= <i>Notioxenus</i>)	**						
<i>aenea</i> (Wollaston)	*			✓			
<i>alutacea</i> (Wollaston) [2013, 2055, 2075, 2079, 2136, 2144, 2166, 2196, 2301, 2312, 2313, 2337, 2340, 2343, 2361, 2368, 2381, 2390, 2404, 2407, 2435, 2439, 2500, 2567, 2620, 2788, 2795, 4161, 4363]	*	✓	✓	✓	✓	6, 8, 11, 12	✓
<i>bewicki</i> (Wollaston)	*			✓			
<i>dalei</i> (Wollaston)	*						✓
<i>dimidiata</i> (Wollaston)	*		✓				
<i>ferruginea</i> (Wollaston) [2312, 2313, 2376]	*	✓	✓	✓	✓	1, 10, 11	✓
<i>grayi</i> (Wollaston) [2079, 2152, 2155, 2174, 2176, 2185, 2196, 2301, 2312, 2343, 2446, 2620]	*	✓	✓	✓	✓	9, 12	

<i>janischi</i> (Wollaston)	*								✓
<i>rufopicta</i> (Wollaston) [2069, 2442]	*				✓			9	
<i>subfasciatus</i> (Wollaston)	*				✓				
CANTHARIDAE									
Caccodes									
<i>oecaniae</i> (Bourgoin) [2587, 2592]									✓
CARABIDAE (Det. M.V.L. Barclay)									
<i>Laemostenus</i>									
<i>complanatus</i> (Dejean)						✓		12	✓
<i>Pseudophilochthus</i>	**								
sp. n. (<i>gemmulipennis</i> gp.) [2146]	*					✓			
CERAMBYCIDAE (Det. M.V.L. Barclay)									
<i>Coptops</i>									
<i>aedificator</i> (Fabricius)									✓
<i>Curtomerus</i>									
<i>flavus</i> [2543]									✓
CHRYSOMELIDAE (Det. H. Mendel)									
<i>Longitarsus</i>									
<i>mellissi</i> Wollaston [2176, 2180, 2182, 2301, 2313, 2393, 2731, 2402, 2620]	*	✓	✓	✓	✓			8, 12	
COCCINELLIDAE (Det. R.G. Booth)									
<i>Cheilomeles</i>									
<i>lunata</i> (Fabricius) [2376]						✓		10	
<i>Cryptolaemus</i>									
<i>montrouzieri</i> Mulsant [2471, 2513, 2543, 2581]									✓
<i>Exochomus</i>									
<i>flavipes</i> (Thunberg) [2471, 2513, 2526, 2539, 2543, 2553, 2581, 2587, 2592, 2614, 2616, 4169]								7	✓
<i>Rodolia</i>									
<i>cardinalis</i> (Mulsant) [2376, 2513, 2581, 2752]								10	✓
<i>Hyperaspis</i>									
<i>pantherina</i> (Fürsch) [2095]									✓
<i>Nephus</i>									
<i>binaevatus</i> (Mulsant) [2471, 2587, 2659, 4173]									✓
<i>Scymnus</i>									
<i>nubilus</i> Mulsant [2543]									✓
COLYDIIDAE (Det. M.V.L. Barclay)									
<i>Aglenus</i>									
<i>brunneus</i> (Gyllenhal)									✓
CORYLOPHIDAE (Det. R.G. Booth)									
<i>Sericoderus</i>									
? <i>lateralis</i> (Gyllenhal)									✓
COSSYPHODIDAE (Det. M.V.L. Barclay)									

<i>Cossyphodes</i>							
<i>wollastoni</i> Westwood							✓
CRYPTOPHAGIDAE (Det. H. Mendel)							
<i>Micrambe</i>							
<i>gracilipes</i> (Wollaston) *							✓
CURCULIONIDAE (Det. R.T. Thompson)							
<i>Acanthinomerus</i> (s.s.) **							
<i>armatus</i> Boheman [2606, 2616] *							✓
<i>chevrolatii</i> (Wollaston) [2160, 2620] *	✓			✓	✓		
<i>conicollis</i> (Wollaston) [2127, 2129, 2166, 2187, 2308, 2328, 2358, 2376, 2471, 2553, 2560, 2620] *	✓	✓	✓	✓	✓	7, 8, 9, 10	✓
<i>Acanthinomerus</i> (<i>Chrysotrogus</i>) **							
<i>angustus</i> (Wollaston) [2471, 2575, 2581, 2592, 2614, 2713] *							✓
<i>debilis</i> (Wollaston) [2379, 2430, 2442, 2553] *		✓				7, 9, 10, 11	
<i>obliteratus</i> (Wollaston) [2513, 2526] *							✓
<i>robertsi</i> Decelle *							✓
<i>similis</i> (Wollaston) [2129, 2496, 2513] *			✓	✓			✓
<i>terebrans</i> (Wollaston) [2013, 2127, 2129, 2133, 2136, 2149, 2174, 2176, 2187, 2196, 2198, 2328, 2337, 2361, 2376, 2379, 2390, 2404, 2430, 2432, 2453, 2481, 2494, 2500, 2521, 2540, 2549, 2553, 2627, 2693] *	✓	✓	✓	✓	✓	6, 7, 9, 10, 11, 12	✓
<i>Eucoptoderus?</i> sp. [2699] **	✓						
<i>Hypohypurus</i>							
<i>aequatorialis</i> Hustache							✓
<i>Isotornus</i> **							
<i>proximus</i> Voss [2006, 2614, 2646, 2649, 2682] *							✓
<i>Lamprochrus</i> **							
<i>cossonoides</i> Wollaston [2301, 2343, 2405, 2490, 2560, 2567, 2579] *	✓	✓	✓	✓	✓	7, 8	
<i>cossonoides</i> var. <i>commidendri</i> Decelle [2430] *						11	
<i>hedyotinus</i> Decelle [2133, 2500] *					✓		
<i>Microxylobius</i> **							
<i>bisectus</i> Wollaston [2442] *	✓				✓	9	
<i>calcaratus</i> Wollaston [2149] *			✓		✓		
<i>dimidiatus</i> Wollaston [2453] *				✓			
<i>lacertosus</i> Wollaston [2127, 2129, 2149, 2166, 2196, 2198, 2303, 2308, 2358, 2379, 2442, 2453, 2546, 2553, 2560, 2620, 2627] *	✓	✓	✓	✓	✓	7, 8, 10	
<i>lucifugus</i> Wollaston [2476] *					✓	12	✓

<i>oculatus</i> Wollaston [?2513]	*								✓
<i>opacus</i> Wollaston [2063, 2141, 2338, 2343, 2357, 2422, 2567, 2702, 2781]	*	✓	✓	✓		✓		8	
<i>vestitus</i> Wollaston [2013, 2069, 2127, 2169, 2182, 2198, 2313, 2322, 2337, 2342, 2343, 2359, 2361, 2369, 2396, 2402, 2422, 2432, 2435, 2442, 2458, 2521, 2524, 2526, 2549, 2553, 2560, 2567, 2620]	*	✓	✓	✓	✓	✓		6, 8, 9	✓
<i>westwoodii</i> Chevrolat [2140, 2506, 2539, 2600, 2612, 2614, 2616, 2646, 2653, 2662, 2713]	*								✓
<i>Nesiobius</i>	**								
<i>ascendens</i> (Wollaston)	*			✓					
<i>gracilis</i> (Wollaston) [2079, 2174, 2176, 2343, 2453, 2540]	*	✓			✓	✓		12	
? <i>horridus</i> (Wollaston) [2129, 2133, 2560]	*			✓	✓	✓			
? <i>minor</i> (Wollaston) [2343, 2579]	*	✓	✓	✓		✓		7	
? <i>simplex</i> (Wollaston) [2521, 4161]	*					✓			
<i>squamosus</i> (Wollaston) [2129, 2149, 2453, 2494]	*	✓	✓	✓	✓	✓			
<i>Pantomorus</i>									
<i>cervinus</i> (Boheman) [2095, 2152, 2323, 2331, 2332, 2334, 2376, 2442, 2471, 2513, 2526, 2575]		✓			✓			9, 10	✓
<i>Pentarthrodes</i>	**								
<i>dicksoniae</i> Wollaston [2103, 2139, 2147, 2149, 2303, 2338, 2422, 2668, 2699, 2702]	*	✓	✓	✓	✓	✓		8	
<i>Phlyctinus</i>									
<i>callosus</i> Schönherr [2032, 2095, 2180, 2152, 2155, 2312, 2323, 2340, 2343, 2361, 2404, 2405, 2428, 2513, 2526, 2543, 2546, 2553, 2560, 2567, 2575, 2581, 2587, 2620, 2627, 2659, 2680, 2713, 2795, 4152, 4161, 4363]		✓	✓	✓	✓	✓		6, 8, 9, 11	✓
<i>Pseudomesoxenus</i>	**								
<i>filicum</i> (Wollaston) [2303]	*		✓						
<i>minutissimus</i> Wollaston	*			✓					
<i>Pseudostenoscelis</i>									
<i>alutaceicollis</i> Wollaston [2198]	*		✓						
<i>compositarum</i> Wollaston [2079, 2174, 2442]	*					✓		9, 12	✓
<i>longitarsis</i> Wollaston [2496, 2513, 2587]	*								✓
sp. (? <i>longitarsis</i> Wollaston)	*					✓			
<i>minima</i> Wollaston [2379, 2513]	*							10	✓

<i>Rhyparonotus</i>							
<i>impar</i> Voss [2721]	*	✓	✓				✓
<i>Sciobius</i>							
<i>tottus</i> Sparrmann [2055, 2069, 2075, 2079, 2144, 2152, 2155, 2165, 2176, 2180, 2182, 2301, 2313, 2323, 2331, 2332, 2343, 2361, 2376, 2379, 2381, 2390, 2393, 2402, 2407, 2428, 2435, 2439, 2526, 2731]		✓	✓	✓	✓	✓	7, 8, 9, 10, 11, 12 ✓
<i>Tychiorhinus</i>	**						
<i>lineatus</i> Wollaston [2149, 2432, 2439, 2521, 2631]	*	✓				✓	
<i>subochraceus</i> Wollaston	*	✓	✓			✓	
<i>Trachyphloeosoma</i>							
<i>setosum</i> Wollaston [2631, 2699]		✓	✓			✓	
Molytinae sp. n.	**				✓		
ELATERIDAE (Det. H. Mendel)							
<i>Anchastus</i>							
sp. n. [2691]	*						✓
HYDROPHILIDAE							
<i>Dactylosternum</i>							
<i>abdominale</i> (Fabricius)							✓
LATHRIDIIDAE (Det. M.V.L. Barclay)							
<i>Cartodere</i>							
<i>nodifer</i> Westwood [2526, 2795, 2800]		✓		✓		6	✓
MORDELLIDAE (Det. M.V.L. Barclay)							
<i>Glipostenoda</i>							
<i>mellissiana</i> (Wollaston) [2376, 2581, 2752, 4169]	*			✓		10	✓
NITIDULIDAE (Det. M.V.L. Barclay)							
<i>Brachypeplus</i>							
<i>depressus</i> (Erichson) (= <i>caffer</i> Boheman)		✓	✓				
<i>Lasiodites</i>							
<i>maculatus</i> (Palisot de Beauvios)							✓
PTILIIDAE (Det. M.V.L. Barclay)							
<i>Ptinella</i>							
<i>matthewsiana</i> Wollaston [2621]	*	✓					
PTINIDAE (Det. M.V.L. Barclay)							
<i>Sphaericus</i>							
<i>gibboides</i> Boieldieu [2614]							✓
SCARABAEIDAE							
<i>Adoretus</i> (Det. M.V.L. Barclay)							
<i>versutus</i> [2673]							✓
<i>Aphodius</i> (Det. D.J. Mann)							
<i>heinekeni</i> (Wollaston)							✓
<i>pseudolividus</i> Balthasar							✓
<i>Heteronychus</i>							

<i>arator</i> (= <i>sanctae-helenae</i>) [2673]							✓
<i>Mellissius</i> **							
<i>oryctoides</i> Decelle [2508, 2608]	*						✓
sp. [2607, 2649, 2682]	*						✓
SILVANIDAE (Det. M.V.L. Barclay)							
<i>Cryptamorpha</i>							
<i>desjardinsi</i> (Guérin) [2020, 2160, 2176, 2313, 2315, 2322, 2332, 2361, 2560]	✓	✓	✓	✓	✓	9, 11	
SCOLYTIDAE (Det R.T. Thompson)							
<i>Xyleborus</i>							
<i>aemulus</i> (Wollaston)							✓
STAPHYLINIDAE (Det. P.M. Hammond)							
<i>Anotylus</i>							
<i>nitidifrons</i> (Wollaston) [2631, 2696]		✓			✓		
<i>Atheta</i>							
<i>laticollis</i> gp. [2176, 2189, 2696]	✓	✓	✓		✓	12	
<i>Carpelimus</i>					✓		
sp. [2631]							
TENEBRIONIDAE (Det. M.V.L. Barclay)							
<i>Gonocephalum</i>							
<i>simplex</i> (Fabricius) [2642, 2659, 2600, 2756]							✓
<i>Hemasodes</i>							
<i>batesi</i> Waterhouse [2606, 2608, 2639, 2646, 2649, 2653, 2655, 2662, 2682]							✓
<i>Pseudoleichenum</i> **							
<i>benoiti</i> Ardoin [2606, 2608, 2616, 2639, 2662, 2682]	*						✓
TROGIDAE (Det. M.V.L. Barclay)							
<i>Trox</i>							
<i>rhyparoides</i> Harold	*		✓				

Insecta: Hymenoptera (bees, wasps and parasitic wasps)

David G. Notton

More than 47 species of Hymenoptera, excluding ants (Formicidae), were recorded during the Peaks Project, representing a wide range of families from the parasitic and aculeate Hymenoptera. No Symphyta (sawflies and relatives) were recorded. As might be expected for a remote oceanic island with a long history of human occupation, there is a depauperate fauna with a small core of endemics and a larger number of (mostly accidentally) introduced species. Ashmole & Ashmole (2000) give an overview of records.

Endemic species recorded included: *Dendrocerus wollastoni*, *Echthromorpha agrestoria atrata*, *Kleidotoma microscutellaris*, *Macroteleia gracilicornis*, *Mymarilla wollastoni*, *Netelia insulicola*, *Pison wollastoni*, *Pteromalus ipsea*. Of these, *Echthromorpha agrestoria atrata* and *Pteromalus ipsea* were particularly common.

A number of new records were made; *Aphidius camerunensis*, *A. colemani*, *Cotesia vestalis*, *Hexacola* nr. *hexatoma*, *Leptopilina heterotoma*, *Trichopria natalensis*, *Sceliphron spirifex*, *Liris haemorrhoidalis* (the latter previously recorded as Larrini sp. A. by Ashmole & Ashmole, 2004) and *Vespula vulgaris* are probably all introductions. Most are likely to be from Africa but a few may be from further afield; all probably with introduced plants and other cargo. Three genera of Platygastroidea were also newly recorded; *Baeus* sp., *Platygaster* sp. and *Synopeas* sp. It is hard to say if these are endemic or not at this stage, since they are all small and might easily have been overlooked. It is a concern that the rate of introductions appears to have been high in recent years, the *Sceliphron*, *Liris* and *Vespula* identified in the Peaks Project are large and colourful and unlikely to have been overlooked for long.

Of the introduced species, *Vespula vulgaris* is a serious concern because of the public health and conservation risks. It probably arrived as hibernating queens in cargo. The natural range is the temperate Holarctic, but it has colonised Australia and New Zealand. This wasp can nest in large numbers, often in close association with people, since it favours cavities such as roof spaces. Reference to pest control records on the island showed it had been present for several years before being recognised as a potentially serious problem. The females sting, produces unpleasant and, on rare occasions, severe reactions. The mild climate of St Helena means there is a risk that wasp numbers could build up to the point where their predatory behaviour might have a detrimental effect on the endemic insects and other invertebrates. Other species, such as the endemic wire bird, which depends on insect food might also be affected; such an effect has been documented in New Zealand. The St Helena

authorities have been informed and launched a public information and eradication programme.

Much work remains to be done on the smaller Hymenoptera of St Helena, particularly the speciose Chalcidoidea, Platygastroidea and Proctotrupeoidea.

** Endemic genus	1	2	3	4	5	Other 'Peaks' Sites	Other Sites
* Endemic species							
HYMENOPTERA							
APHELINIDAE (Det. D.G. Notton/J.S. Noyes)							
<i>Aphelinus</i>							
sp. 1		✓	✓		✓		
sp. 2		✓		✓			
sp. 3	✓						
Genus ?							
sp. 4	✓		✓				
sp. 5	✓						
APIIDAE (Det. D.G. Notton)							
<i>Apis</i>							
<i>mellifera</i> Linnaeus, 1758	✓	✓	✓				
BRACONIDAE (Det. G. Broad)							
<i>Aphaeraeta</i>							
<i>minuta</i> (Nees) [3798, 4409]		✓	✓			12	
<i>Aphidius</i>							
<i>colemanni</i> Viereck	✓	✓	✓	✓			
<i>camerunensis</i> Mackauer	✓	✓					
<i>Cotesia</i>							
<i>vestalis</i> (Haliday) [2953, 6326]	✓	✓	✓	✓	✓		
Doryctinae							
sp. 1 [2927]							✓
CRABRONIDAE (Det. D.G. Notton)							
<i>Pison</i>							
<i>wollastoni</i> Turner [4382, 4388, 4455] *							✓
DIAPRIIDAE (Det. D.G. Notton)							
<i>Trichopria</i>							
<i>natalensis</i> Sundholm [2022, 2988]	✓		✓		✓	12	
sp. 2		✓					
sp. 3	✓						
sp. 4	✓						
ENCYRTIDAE (Det. J.S. Noyes)							
<i>Syrphophagus</i>							
sp. 1			✓				
Genus ?							
sp. 2		✓					
sp. 3	✓						

EUCOILIDAE (Det. M. Forshage)							
<i>Leptopilina</i>							
<i>heterotoma</i> (Thomson)	✓	✓		✓	✓		
<i>Hexacola</i>							
nr. <i>hexatoma</i> (Hartig)	✓						
EULOPHIDAE (Det. D.G. Notton)							
Genus ?							
sp. 1					✓		
EURYTOMIDAE (Det. J.S. Noyes)							
<i>Tetramesa</i>							
sp. 1							
sp. 2		✓	✓				
FIGITIDAE (Det. D.G. Notton/M. Forshage)							
<i>Leptopilina</i>							
<i>heterotoma</i> (Thomson) [2555, 4470, 6348]	✓	✓		✓	✓	7	
sp. nr. <i>hexatoma</i> (Hartig)	✓						
<i>Kleidotoma</i> (=Polbourdouxia) **							
<i>microscutellaris</i> Dessart [4359] *			✓				
ICHNEUMONIDAE (Det. D.G. Notton/G. Broad)							
<i>Diadegma</i>							
<i>mollipla</i> (Holmgren) [2416, 2988, 2993, 4382, 4388, 4409]	✓	✓	✓	✓	✓	12	✓
<i>Diplazon</i>							
<i>laetatorius</i> (Fabricius)			✓		✓		
<i>Echthromorpha</i>							
<i>agrestoria atrata</i> Holmgren [2072, 2509, 2555, 4158, 6331] *	✓	✓	✓		✓	7, 9	✓
? <i>Habronyx</i> sp. [2096]					✓		✓
<i>Netelia</i>							
<i>insulicola</i> (Morley) [2604] *							✓
MEGASPILIDAE (Det. D.G. Notton)							
<i>Dendrocercus</i>							
<i>wollastoni</i> (Dodd) [6335] *							✓
MYMARIDAE (Det. D.G. Notton)							
<i>Mymarilla</i> **							
<i>wollastoni</i> (Westwood) *					✓		
<i>Anaphes</i>							
nitens ?	✓	✓					
Genus ?							
sp. 2	✓						
sp. 3		✓					
PLATYGASTRIDAE (Det. D.G. Notton)							
<i>Platygaster</i>							
sp. 1	✓						
<i>Synopeas</i>							
sp. 1					✓		

PTEROMALIDAE							
<i>Pteromalus</i>							
<i>ipsea</i> Walker	✓		✓	✓	✓		
SCELIONIDAE (Det. D.G. Notton)							
<i>Baeus</i>							
sp. 1	✓						
<i>Macroteleia</i>							
<i>gracilicornis</i> Dodd [2022, 2038, 2622, 4158, 6331] *	✓				✓	8	
<i>Telenomus</i>							
sp. 1 [4388]	✓						
SPHECIDAE (Det. D.G. Notton)							
<i>Sceliphron</i>							
<i>spirifex</i> (Linnaeus) [6345]							✓
TRICHOGRAMMATIDAE (Det. D.G. Notton)							
sp. 1	✓	✓			✓		
sp. 1 ?	✓						
VESPIDAE (Det. G. Broad)							
<i>Vespula</i>							
<i>vulgaris</i> (Linnaeus) [2455, 4488]	✓					9	✓

The ants that we collected have been identified by Dr Xavier Espadaler (Universitat Autònoma de Barcelona) but have not been tabulated. The data has been submitted to Professor J.K. Wetterer (Wilkes Honor College, Florida), and a paper entitled *Ants (Hymenoptera: Formicidae) of the South Atlantic islands of Ascension Island, St Helena and Tristan da Cunha* is in press [*Myrmecological News* 10:29-37, 2007].

Insecta: Lepidoptera (moths and butterflies)

Although the Belgians collected Lepidoptera on St Helena, the results were never published and the material was never fully worked up. Consequently, the Lepidoptera of St Helena are comparatively poorly known and the 'micros', in particular, are seriously under-worked. However, Karisch (2001, 2003, 2007) has reviewed quite a few of the families and we expect Robinson's revision of world Tineidae, with a separate section on the St Helena species, to be published in 2009 or 2010.

During the Peaks Project, only Woodcot was recorded anything like thoroughly for Lepidoptera. At Woodcot MV light was relied upon and although it is the best means of recording Lepidoptera overall, is not good for some groups and obviously no good at all for flightless forms. Butterflies were not systematically recorded and have not been included in the summary table. Few were seen, although larvae of African Monarch *Danaus chrysippus* were noticed on the introduced Silk Cotton *Asclepias rotundifolia* from time to time (e.g. Lower House Plain).

CRAMBIDAE (Karisch, 2007)

The Crambidae is now a family in its own right, rather than a subfamily within the Pyralidae. On St Helena, the endemic genus *Helenoscoparia* is particularly important, with at least five endemic species. Three of these were recorded during the Peaks Project, two at Woodcot and two at Peak Dale. Compared with the records listed by Karisch (2007), who had all five species from the Peaks area (including all five from Cuckold's Point), it is surprising that none of our records were from the Peaks area. This can only be because we paid comparatively little attention to Lepidoptera. We were particularly pleased to record *H. helenensis* at Peak Dale, as this species was thought to have become very rare (Ashmole & Ashmole, 2000).

Species of *Helenoscoparia* are thought to be associated with mosses and lichens encrusting the bark of trees, the larvae constructing silken galleries in which they feed. That being the case, they are unlikely to be restricted to native tree species and, within an area managed for conservation, it will always be better to kill and leave standing, old lichen encrusted trees rather than fell them. For the same reason, and for the benefit of other invertebrates it will usually be better to leave felled trees to rot in situ.

Other crambids collected during the Peaks Project are widespread species, most likely relatively recent introductions rather than indigenous species.

GEOMETRIDAE (Karisch, 2001)

Neither of the two St Helena geometrids were recorded during the Peaks Project. They would be more likely turn up at lower elevations but the single endemic species *Scopula separata* might have been expected at light at Woodcot.

GLYPHIPTERIGIDAE (Karisch, 2003)

The single St Helena species in this family, an endemic, was recorded from three localities during the Peaks Project, two of them within the Peaks area. These records in the context of earlier ones indicate the species is widespread on the island. Lichen feeders so not associated with endemics in particular.

NOCTUIDAE (Karisch, 2001)

Some 30 species of Noctuidae have been recorded from St Helena, four of them endemic and another (*Chrysodeixis dalei*, also known from Ascension) probably also endemic; Karisch (2001) listed 19 noctuids including the five endemics. All of the Noctuidae recorded on the Peaks Project, a total of 17 species, were from Woodcot (just outside, and at a slightly lower elevation than the accepted Peaks area), and collected at light. Rather surprisingly we recorded all five of the endemic Lepidoptera. The native flora in the vicinity of Woodcot is highly degraded. Noctuids are fast flying highly mobile species and the endemics might have been breeding in pockets of native vegetation elsewhere and merely 'passing through'. However, more likely the larvae of these species are polyphagous and are feeding on non-native plant species; casual observations suggest that is the case. If so their future is secure, but it would be useful to know for certain by breeding them in captivity.

Many of the non-endemic Noctuidae are widespread pest species that have been introduced. Two species we recorded at Woodcot that were not included by Karisch (2001) are *Trichoplusia vittata* and *Condica pauperata*. The former was first recorded in the 19th century by Mrs Wollaston and included by Ashmole & Ashmole (2000); our record has now been published (Karisch, 2007). The latter, *Condica pauperata*, is an African species and most likely an introduction.

PTEROPHORIDAE (Karisch, 2003)

Of the four species of plume moths that are known from St Helena, we recorded the same two at light, at Woodcot, that Karisch recorded in various localities in 1995 (Karisch, 2003). One of the two is endemic, and in the context of earlier records, both of them are probably widespread. A second probably endemic plume moth (*Platyptilia subnotatus*) has not now been recorded for many years which is a concern.

PYRALIDAE (Karisch, 2007)

Only *Hypargyria metalliferella*, evidently the commonest pyralid on St Helena (Karisch, 2003), was recorded during the Peaks Project (at light, at Woodcot). However, two unidentified specimens of Phycitinae, representing different species, await expert attention. The Crambinae, formerly considered a subfamily of the Pyralidae, and considered that way by Ashmole & Ashmole (2000), has now been elevated to family rank and is treated separately (above).

SPHINGIDAE (Karisch, 2001)

St Helena's only hawkmoth, the Death's-head *Acherontia atropos* was a regular visitor to the light at Woodcot. The moths squeak when handled which may be disconcerting to the uninitiated. Anecdotal reports (mainly larvae) from elsewhere on the island indicate that it is widespread and relatively common.

TINEIDAE

The Tineidae is a speciose and very difficult family of small, fragile moths, whose larvae feed on various types of detritus and often live in portable, well camouflaged cases. On St Helena, there has been the largest endemic radiation of Tineidae known in any island or island group on the planet. We have been fortunate that Dr Gaden Robinson at the Natural History Museum (BMNH, London), one of a very few experts on the family, has been (and is still) working on our material. He remarked (*in litt.*) that St Helena has an extraordinary tineid fauna dominated by the genus *Opogona* comprising of at least thirty-five endemic species, one of which, at least (*Opogona sacchari*), has spread to colonise other territories. Robinson advises that the St Helena *Opogona* now include eight species (*aureomarmorata*, *bicolor*, *fasciolata*,

flavofimbriata, *minutissima*, *piperata*, *pulveripennis* and *pulverulenta*) previously placed in other genera, which were grouped together as '*Tinea*' by Ashmole & Ashmole (2000).

Gaden Robinson is scheduled to complete a major revision of world tineid fauna in 2009. It will include a detailed review of the St Helena species, and our collecting during the Peaks Project has made an important contribution to his work. In the course of the Peaks Project, we managed to record some 25 species of *Opogona*, 15 of them from the Peaks. Of the non-Peaks sites, the relict gumwood forest area at Peak Dale was particularly rich with ten species recorded, four of them New to Science. Amazingly, seven of the *Opogona* species we collected are New to Science, an indication that there are many more new species to be discovered on St Helena.

The Tineidae of St Helena are eminently worthy of further study and closer attention, more impressive in evolutionary terms than Darwin's Finches on the Galapagos. Most of them are presumably adapted to specific niches which are not clearly known so conservation efforts, except at the broad habitat level, are made much more difficult. Some of the *Opogona* species attack the bark of live twigs on endemic trees and seem to cause death of branches and perhaps sometime of whole trees. This biology is very unusual in the Tineidae and needs further study. On a positive note, most of the species are detritus feeders and probably less susceptible to habitat degradation than many other invertebrate groups. In qualitative terms, at least, the fauna seems to be largely intact.

** Endemic genus * Endemic species	1	2	3	4	5	Other 'Peaks' Sites	Other Sites
LEPIDOPTERA							
CRAMBIDAE (Det. T. Karisch / M. Schaffer)							
<i>Cnaphalochrosis</i>							
<i>poeyalis</i> (Boisduval)							✓
<i>Helenoscoparia</i> **							
<i>helenensis</i> (Wollaston) *							✓
<i>nigritalis</i> Walker) *							✓
<i>transversalis</i> (Wollaston) *							✓
<i>Herpetogramma</i>							
<i>licarsisalis</i> (Walker)							✓
<i>Uresiphita</i>							
<i>gilvata</i> (Fabricius)							✓
<i>Spoladea</i>							
<i>recurvalis</i> (Fabricius)							✓

GLYPHIPTERIGIDAE							
<i>Glyphipterix</i>							
<i>semilunaris</i> Wollaston [2502, 2537] *		✓		✓			✓
NOCTUIDAE							
<i>Agrapha</i>							
<i>limbirena</i> (Guenée)							✓
<i>Agrotis</i>							
<i>ippsilon</i> (Hufnagel)							✓
<i>segetum</i> (Denis & Schiffermüller)							✓
<i>Aletia</i>							
<i>ptyonophora</i> (Hampson) *							✓
<i>Anomis</i>							
<i>flava</i> (Fabricius)							✓
<i>Cardepi</i>							
<i>subvelata</i> (Walker, 1875) *							✓
<i>Chrysodeixis</i>							
<i>dalei</i> (Wollaston) *							✓
<i>Condica</i>							
<i>pauperata</i> (Walker)							✓
<i>Helicoverpa</i>							
<i>helenae</i> (Hardwick) *							✓
<i>Hypena</i>							
<i>helenae</i> (Berio) *							✓
<i>Hypocala</i>							
<i>rostrata</i> (Fabricius)							✓
<i>Ophiusa</i>							
<i>tirhaca</i> (Cramer)							✓
<i>Pandesma</i>							
<i>robusta</i> (Walker)							✓
<i>Spodoptera</i>							
<i>littoralis</i> (Boisduval)							✓
<i>Thysanoplusia</i>							
<i>orichalcea</i> (Fabricius)							✓
<i>Trichoplusia</i>							
<i>ni</i> (Hübner)							✓
<i>vittata</i> (Wallengren)							✓
PYRALIDAE							
<i>Hyparagyria</i>							
<i>metalliferella</i> Ragonot							✓
PTEROPHORIDAE (Det. M. Schaffer)							
<i>Agdistis</i>							
<i>sanctae-helenae</i> *							✓
<i>Stenodacma</i>							
<i>wahlbergi</i> (Zeller)							✓
SPHINGIDAE							
<i>Acherontia</i>							
<i>atropos</i> (Linnaeus)							✓

TINEIDAE							
<i>Monopis</i>							
<i>crociacapitella</i> (Clemens)							✓
<i>Opogona</i>							
<i>anticella</i> (Walker) *	✓		✓				✓
<i>atlantica</i> Wollaston [2489, 2542, 2572] *	✓					12	✓
<i>apicalis</i> Wollaston [2465, 2769] *	✓					12	
? <i>aureomarmorata</i> (Wollaston) [2542] *							✓
? <i>brunneomarmorata</i> (Wollaston) [2488] *							✓
<i>compositarum</i> Wollaston [2489, 2542] *						12	
? <i>congenera</i> [2769] *	✓						✓
<i>divisa</i> Wollaston [2489, 2551, 2572] *	✓				✓	7,11,12	✓
<i>fasciculata</i> Wollaston [2584] *							✓
<i>flavotincta</i> Wollaston [2427, 2473, 2551, 2563] *			✓			7,11	✓
<i>flavofimbriata</i> (Wollaston) *							✓
<i>helenae</i> Wollaston [2551] *						7	
<i>niveopicta</i> [2419] *						8	✓
<i>piperata</i> (Wollaston) [2493, 2498, 2541, 2551, 2572, 2769] *	✓		✓		✓	7,9	✓
<i>recurva</i> Wollaston [2371] *	✓		✓				
<i>sacchari</i> Bojer [2569, 2867] *	✓						✓
<i>subaeneella</i> *							✓
<i>ursella</i> Walker [2523, 2695, 4490, 4491] *	✓				✓	7,12	
sp. 1 (n. sp. 'a') *							✓
sp. 2 (n. sp. 'b') *							✓
sp. 3 (n. sp. 'c') nr. <i>brunneomarmorata</i> (Wollaston) [2460] *					✓		✓
sp. 4 (n. sp. 'd') (<i>brachypterus</i> sp.) [2661, 2667, 2710] *							✓
sp. 5 (n. sp. 'e') [2598] *							✓
sp. 6 (n. sp. 'f') [2618] *						12	
sp. 7 (n. sp. 'g') *							✓
<i>Tinea</i>							✓
sp. (<i>pellionella</i> gp.) [2687]							

Insecta: Diptera (flies)

Description of the fauna

Andrew E. Whittington, FlyEvidence, 2 Newhouse Terrace,
Queen's Road, Dunbar, EH42 1LG, Scotland, UK.

[**N.B.:** Since this was written, a second Hoverfly (*Eumerus obliquus lugens* Wiedemann, 1830) that was an endemic subspecies has been elevated to full species status. It was found only at High Peak during the Peaks Project. This information has been added to the analysis. The taxonomy has also been updated where necessary. – David Pryce, September 2013].

The St Helena Peaks Project team collected 6,704 specimens of Diptera, representing a total of 68 species in 26 families. Of these, 12 species were endemic, compared with a total of 15 endemic species (Basilewsky, 1977) recorded for the whole of St Helena. Basilewsky (1977) included 31 families, of which Scatopsidae, Culicidae, Chamaemyiidae, Agromyzidae, Asteiidae, Tethinidae, Chyromyidae, Hippoboscidae and Gasterophilidae were not encountered during the St Helena Peaks Project. Species listed by Alexander (1977) under Tipulidae are now classed as Limoniidae and Fanniidae are now considered separate from the Muscidae. Cecidomyiidae and Sarcophagidae found during the Peaks Project were not listed by Basilewsky (1977).

Disregarding Psychodidae for the moment (see discussion below) the following families represent a significant proportion of the fauna examined from the St Helena Peaks Project. Listed is the percentage of the total St Helena Peaks Project sample that each family represents, and the number of species encountered; the number of species known from St Helena through previous studies (essentially Basilewsky, 1977) are in parentheses.

Drosophilidae	20%	10	(10)
Dolichopodidae	7%	2	(2)
Syrphidae	5%	6	(6)
Muscidae	4%	5	(13)
Sphaeroceridae	3%	6	(11)
Sciaridae	3%	2	(1)

As with the 1977 publication, there are still some outstanding issues of identification in families for which the taxonomy is inadequately known. For ease of discussion these have been allocated morpho-species status and numerically included in the

analysis. The endemic Diptera recorded during the Peaks Project are underlined in the following list of recorded endemics:

Dicranomyia basilewskyana (Alexander, 1977) (Limoniidae)
Dicranomyia loveridgeana (Alexander, 1962) (Limoniidae)
*Dicranomyia sanctaehelena*e (Alexander, 1962) (Limoniidae)
Simulium (Dexomyia) atlanticum Crosskey, 1969 (Simuliidae)
Simulium (Eusimulium) loveridgei Crosskey, 1965 (Simuliidae)
Simulium (Eusimulium) politum Crosskey, 1976 (Simuliidae)
Loveridgeana beattei van Doesburg & van Doesburg, 1976 (Syrphidae)
Eumerus lugens Wiedemann, 1830 (Syrphidae)
Scaptomyza (Lauxanomyia) horaeoptera Tsacas & Cogan, 1977 (Drosophilidae)
Scaptomyza (Scaptomyza) mimitantalia Tsacas & Cogan, 1977 (Drosophilidae)
Scaptomyza (Scaptomyza) sanctaehelena Tsacas & Cogan, 1977 (Drosophilidae)
Anarista vittata Sabrosky, 1977 (Asteiidae)
*Aubertinia sanctaehelena*e Richards, 1951 (Sphaeroceridae)
Limnophora helenae Pont, 1977 (Muscidae)
Atlantomyia nitida Crosskey, 1977 (Tachinidae)

Basilewsky's (1977) list of the St Helena endemics included two undescribed species of *Scatella* (Ephydriidae) (see Cogan, 1977), which may be the same as two undetermined species examined from the Peaks Project material, but without further revisionary work this cannot be established. However, the implication (Cogan, 1977), was that these two species were endemics. Therefore, as pointed out by Basilewsky (1977) families such as the Mycetophilidae, Sciaridae and Ephydriidae may include additional endemic species.

The highest number of endemic Diptera (nine) was found on Mount Actaeon, while only one site (Lower House Plain) had a single endemic species. In general the sites with the higher number of specimens collected, also exhibit a higher number of endemic species present (Table 1) suggesting that some endemic species may also be rare and hard to find. This is borne out by the absence of *Aubertinia sanctaehelena*e Richards, 1951 (Sphaeroceridae) in the Peaks Project samples. This small (2.2 mm) unobtrusive wingless species has only been collected from leaf litter on High Peak and High Central Ridge (Vanschuytbroeck, 1977), and would be quite difficult to locate without focussed, intensive searching. It is unlikely to appear in Malaise traps, but might occur in pitfalls, but would be more likely to be found using Tullgren funnels or very careful searches in leaf litter.

Table 1. Summary of Diptera collected at 11 major sites in the Peaks project.

Site	Total number of specimens	Percentage %	Species per site	Endemics per site
Mount Actaeon	3769	56.22	43	9
Diana's Peak	1457	21.73	43	7
Cuckold's Point	631	9.41	39	6
High Peak	520	7.76	37	4
Cabbage Tree Road	152	2.27	23	4
Prosperous Bay Plain	59	0.88	8	2
Peak Dale	41	0.61	14	2
Grapevine Gut	34	0.51	13	4
Lower House Plain	20	0.30	5	1
Mount Vesey	12	0.18	7	3
Woodcot	9	0.13	4	2
Total specimens	6704	100		

An interesting trend from high altitude to low suggests that Diptera endemism may be related to the altitudinal profile, with the greatest number of endemic flies being caught at the higher end of the altitudinal range. Some species seem to be restricted to above about 700m, at which point Tree Fern thicket and cabbage tree woodland begin to dominate. For example, at about 700m, *Dicranomyia sanctaehelenae* replaces *Dicranomyia loveridgeana*, which seems to prefer altitudes below this level (Table 2). Other species (*Limnophora helenae* and *Atlantomyia nitida*) do not exhibit this altitudinal preference, and have been captured over the full range of altitudes (310-823 m). The apparent trend may be related to the vegetation profile and/or the availability of water. Nearly all of these species have a high moisture requirement and are therefore unlikely to be found on the drier plains and lava fields. The pattern needs further testing over a wider range of habitats across the whole island.

In stark contrast, some of the non-endemic species were enormously abundant in a few locations, particularly where Malaise traps were used (Malaise traps are one of the most successful means of catching many families of flies). One species alone, *Psychoda surcoufi* Tonnoir, accounted for 52% of specimens, mostly taken from two localities (Mount Actaeon and Diana's Peak).

Also of note were:

<i>Campsicnemus mirabilis</i> Frey (Dolichopodidae)	387 specimens
<i>Drosophila punctatonervosa</i> Frey (Drosophilidae)	257 specimens
<i>Scaptomyza pallida</i> Zetterstedt (Drosophilidae)	248 specimens
<i>Zaprionus vittiger</i> Coquillet (Drosophilidae)	209 specimens

Each of these species was represented in the traps each by more than 200 specimens and together they represented 16% of the catch. None of these 'top five' species, accounting for 68% of the Diptera collected, is endemic to St Helena.

Table 2. Altitudinal profile of endemic Dipteran the St Helena Peaks Project.

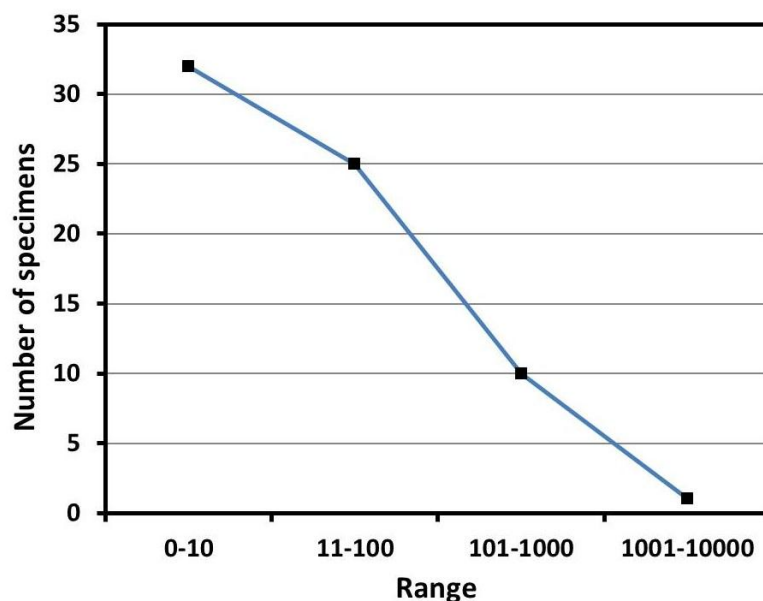
Species	Mount Actaeon	Diana's Peak	Cuckold's Point	Cabbage Tree Road	High Peak	Mount Veseley	Grapevine Gut	Peak Dale	Woodcot	Lower House Plain	Prosperous Bay Plain
<i>Dicranomyia sanctahelenae</i>	■	■	■	■	■	■	■	■	■	■	■
<i>Dicranomyia loveridgeana</i>	■	■	■	■	■	■	■	■	■	■	■
<i>Simulium loveridgei</i>	■	■	■	■	■	■	■	■	■	■	■
<i>Simulium atlanticum</i>	■	■	■	■	■	■	■	■	■	■	■
<i>Simulium politum</i>	■	■	■	■	■	■	■	■	■	■	■
<i>Loveridgeana beattei</i>	■	■	■	■	■	■	■	■	■	■	■
<i>Eumerus lugens</i>	■	■	■	■	■	■	■	■	■	■	■
<i>Scaptomyza minitantalina</i>	■	■	■	■	■	■	■	■	■	■	■
<i>Scaptomyza horaeoptera</i>	■	■	■	■	■	■	■	■	■	■	■
<i>Scaptomyza sanctahelenia</i>	■	■	■	■	■	■	■	■	■	■	■
<i>Limnophora helenae</i>	■	■	■	■	■	■	■	■	■	■	■
<i>Atlantomyia nitida</i>	■	■	■	■	■	■	■	■	■	■	■
No. endemic species per site	9	7	6	4	5	3	4	2	2	1	2
Approximate altitude (m)	728	823	771	754	752	650	640	572	489	425	310

A single Malaise trap on Mount Actaeon accounted for 52% of the total catch because 81% of the specimens collected were *Psychoda surcoufi*! This same Malaise trap collected 36 species, however, indicating the importance of the location. Overall, samples collected from Mount Actaeon accounted for 56% of the overall Peaks Project Diptera specimens (Table 1). Slightly less numerically productive was the Malaise trap on Diana's Peak, from which 17% of the catch originated (1172 specimens), representing the most species rich haul for any single location (40 species). The Malaise trap on Cuckold's Point was also notable, accounting for a further 7% of the catch (460 specimens) representing 37 species. Twenty-six species were common to all three catches.

Psychoda surcoufi is a widespread and common species, breeding in a broad range of decaying organic materials. Almost certainly it is an introduction. That it skews the results is evident, in that the next most abundant species, *Campsicnemus mirabilis* Frey (Dolichopodidae) was represented by only 389 specimens. However, even if

Psychoda surcoufi is removed from the analysis the relative rank of sites (by number of species or by specimens collected) remains the same. The collection profile for Diptera paints an interesting picture (Figure 1) in that 32 out of the 68 species were recorded from a single specimen and should be regarded as rare. Twenty-five species were represented by between 11 and 100 specimens and 10 species by 101-1000 specimens.

Figure 1. St Helena Peaks Project Diptera collection profile.



Additional references:

ALEXANDER, C.P. 1977. Tipulidae. Pp. 20-27. In: Basilewsky, P. (ed.) La faune terrestre de l'île de Sainte-Hélène. Part 3. *Annales Musée Royal de l'Afrique Centrale, Sciences zoologiques*: 215.

COGAN, B.H. 1977. Ephydriidae. Pp. 106-110. In: Basilewsky, P. (ed.) La faune terrestre de l'île de Sainte-Helene. Part 3. *Annales Musée Royal de l'Afrique Centrale, Sciences zoologiques*: 215.

VANSCHUYTBROECK, P. 1977. Sphaeroceridae. Pp. 100-106. In: Basilewsky, P. (ed.) La faune terrestre de l'île de Sainte-Helene. Part 3. *Annales Musée Royal de l'Afrique Centrale, Sciences zoologiques*: 215.

Taxonomic section (alphabetically by family name)

(Based on text supplied by Dr Erica McAlister)

Overall, the flies of St Helena show surprisingly low endemism, possibly because immigration from Africa is more frequent for these mobile insects, resulting in gene flow from the continental to the island populations, inhibiting speciation. The family Dolichopodidae, for example, is represented by no less than 21 species, many of them occurring on the Peaks. None of the species is endemic and many also occur widely in Africa. We suspect that natural colonisation of St Helena may have been important in this group.

Based on the Belgians' work, there are two endemic monospecific genera and some sixteen endemic species of Diptera on St Helena (some of them not formally described or named), out of a total Diptera fauna of some 116 species. Just nine of the endemic Diptera have been recorded from the Peaks. During the Peaks Project 6,704 flies were collected; 26 families were represented. The Diptera of St Helena are still relatively poorly known.

CHLOROPIDAE

Only a single chloropid was recorded from the Peaks, a *Gampsocera* sp. (possibly a *Pseudogampsocera* sp.) from High Peak. This and other material of the family Chloropidae that we collected represent several species not previously recorded from St Helena, but need the attention of a specialist for accurate identification.

DROSOPHILIDAE (fruit flies)

All three of the endemic species of *Scaptomyza*, the only endemic species of Drosophilidae on St Helena, were found widely on the Peaks. *S. mimitantalia* was not previously represented in the Natural History Museum (BMNH, London) collections.

EPHYDRIDAE (shore flies)

The Belgians found two endemic species within the genus *Scatella* which have never been formally described. Both of them were collected during the Peaks Project.

LIMONIIDAE (crane flies)

Two of the three endemic species of *Dicranomyia* (*D. sanctahelenae* and *D. loveridgeana*) were recorded on the peaks during the Peaks project. Neither species was previously represented in the collections of the Natural History Museum (BMNH, London). The third endemic tipulid, *D. basilewskyana*, is still only known from the three specimens collected by the Belgians at Teutonic Hall. It is probably a species of the middle elevations rather than the Peaks.

MUSCIDAE (house flies and stable flies)

Limnophora helenae is probably the only true endemic muscid found on St Helena; during the Peaks Project it was recorded at various localities across the island.

SIMULIIDAE (black flies)

All three endemic species of Simuliidae were recorded on the Peaks (and all three from Mt Actaeon) during the Peaks Project. Their biologies and feeding behaviour remain a mystery.

SPHAEROCERIDAE (small dung flies)

During the Peaks Project, six of the eleven species of Sphaeroceridae known from St Helena were recorded on the Peaks, two of them also from other localities. However, the single St Helena endemic, *Aubertinia sanctaehelenae*, so distinctive that it has been placed in its own genus, was not collected, in spite of setting special traps, sieving litter and searching in wet litter. This extraordinary fly has lost all vestiges of wings and halteres (represent the second pair of wings and are characteristic of the order Diptera). Apart from a single example on Cabbage Tree Road, all of the several dozen specimens collected by the Belgians were from High Peak.

SYRPHIDAE (hoverflies)

The endemic hoverfly *Loeveridgeana beattiei* (placed in an endemic genus named in honour of Arthur Loveridge) was found to be widely distributed and relatively common on the Peaks. It is thought to be an important pollinator of some of the

endemic plants. The second endemic species, *Eumerus lugens*, was found at High Peak.

TACHINIDAE

Atlantomyia nitida, a distinctive endemic fly placed in its own endemic genus, was thought to occur only on Prosperous Bay Plain, where it was indeed recorded during the Peaks Project. However, it was also found at Cuckold's Point, the Depot and Signal House and is probably widespread on St Helena.

** Endemic genus * Endemic species + L also larva	1	2	3	4	5	Other 'Peaks' Sites	Other Sites
DIPTERA (Det. A. Whittington)							
ANISOPODIDAE							
<i>Sylvicola</i>							
<i>cinctus</i> (Fabricius)	✓	✓	✓	✓	✓	8, 9	
CALLIPHORIDAE							
<i>Lucilia</i>							
<i>sericata</i> (Meigen)							✓
<i>Calliphora</i>							
<i>croceipalpus</i> Jaenicke	✓	✓	✓				
CECIDOMYIIDAE							
Genus? sp.?	✓	✓					✓
CERATOPOGONIDAE							
Genus? sp.?	✓	✓	✓	✓			
CHIRONOMIDAE							
<i>Chironomus</i>							
sp. 1		✓	✓	✓	✓		
CHLOROPIDAE							
<i>Siphunculina</i>							
<i>striolata</i> (Wiedemann)							✓
<i>Gampsocera</i>					✓		
sp.							✓
? <i>Epimadiza</i>							
sp.							✓
Genus?							
sp. 1							✓
Genus?							
sp. 2	✓	✓			✓		
DOLICHOPODIDAE							
<i>Campsicnemus</i>							
<i>mirabilis</i> Frey	✓	✓	✓	✓	✓	7, 11	✓
? <i>armatus</i> (Zetterstedt)	✓	✓	✓	✓	✓	7	
DROSOPHILIDAE							
<i>Drosophila</i>							
<i>immigrans</i> Sturtevant			✓	✓	✓	9	
<i>simulans</i> Sturtevant	✓	✓	✓		✓	9	✓
<i>punctatonervosa</i> Frey	✓	✓	✓	✓	✓	7, 8, 9	✓
<i>repleta</i> Wollaston		✓	✓				✓
<i>Zaprionus</i>							
<i>vittiger</i> Coquillett	✓	✓	✓	✓	✓	11	
<i>Scaptomyza</i>							
<i>mimitantalia</i> Tsacas & Cogan	*	✓	✓	✓	✓	8, 9	
<i>pallida</i> Zetterstedt	✓	✓	✓	✓	✓		

'dark' sp.	✓	✓	✓	✓	✓		
<i>sanctahelenica</i> Tsacas & Cogan *		✓	✓	✓			
<i>Scaptomyza</i> (Lauxanomyza)							
<i>horaeoptera</i> Tsacas & Cogan *	✓	✓	✓	✓	✓	6, 8, 9, 11	
EPHYDRIDAE							
? <i>Psilopa</i> sp.							✓
Genus? sp.	✓				✓	11	
<i>Scatella</i>							
nr. <i>septemfenestra</i> [but much smaller, more hyaline spots] ?*	✓	✓	✓		✓		✓
nr. <i>septemfenestra</i> [but much larger, fewer hyaline spots] ?*						11	
FANNIIDAE							
<i>Fannia</i>							
<i>canicularis</i> (Linnaeus)	✓	✓	✓	✓			✓
<i>perpulchra</i> Bezzi	✓		✓				
LONCHAEIDAE							
<i>Lamprolonchaea</i>							
? <i>smaragdi</i> Walker (= <i>aurea</i>)	✓	✓	✓		✓	10, 11	✓
LIMONIIDAE							
<i>Dicranomyia</i>							
<i>sanctahelenae</i> (Alexander) *	✓	✓	✓	✓	✓	7	
<i>loveridgeana</i> (Alexander) *						11	✓
MILICHIIDAE							
<i>Milichiella</i>							
<i>lacteipennis</i> (Loew)							✓
MUSCIDAE							
<i>Dasyphora</i>							
<i>cyanella</i> (Wiedemann)	✓	✓	✓		✓		✓
<i>Limnophora</i>							
<i>helenae</i> Pont *	✓		✓			8, 11	✓
? <i>Limnophora</i> sp. [black, dark wings]		✓	✓				
<i>Musca</i>							
<i>autumnalis</i> De Geer	✓	✓	✓				✓
<i>Muscina</i>							
<i>prolapsa</i> (Harris) (= <i>pabulorum</i>)		✓	✓				
MYCETOPHILIDAE							
Genus?							
sp.?	✓	✓	✓		✓		
PHORIDAE							
<i>Chonocephalus?</i> sp.?	✓	✓	✓		✓	12	
<i>Megaselia?</i> sp.?	✓	✓	✓	✓	✓		✓
PSYCHODIDAE							
<i>Psychoda</i>							
<i>surcoufi</i> Tonnoir	✓	✓	✓	✓		7, 8, 9, 12	
<i>alternata</i> Say		✓					
<i>penicillata</i> Satchell		✓					

SARCOPHAGIDAE							
<i>Sarcophaga (Liosarcophaga)</i>							
sp.?							✓
SCATHOPHAGIDAE							
<i>Scathophaga</i>							
<i>stercoraria soror</i> Wiedemann	✓	✓	✓	✓	✓	9, 12	✓
SCENOPINIDAE							
<i>Scenopinus</i>							
<i>fenestralis</i> (Linnaeus)					✓	8, 10, 11	✓
SCIARIDAE							
Genus?							
sp. 1 elongate legs, v. pale					✓		
sp. 2 'typical form' filiform antennae	✓	✓	✓	✓	✓	7, 12	✓
SIMULIIDAE							
<i>Simulium</i> (Eusimulium)							
<i>loveridgei</i> Crosskey *		✓	✓	✓		8, 9+L	
<i>politum</i> Crosskey *			✓				✓
<i>Simulium</i> (Dexomyia)							
<i>atlanticum</i> Crosskey *			✓				
SPHAEROCERIDAE							
<i>Leptocera</i>							
<i>nigra</i> Olivier	✓	✓	✓	✓		12	✓
<i>Elachisoma</i>							
<i>aterrimum</i> (Haliday)		✓			✓		
<i>Gonioneura</i>							
<i>spinipennis</i> (Haliday)	✓	✓	✓		✓		✓
<i>Pullimosina</i>							
? <i>heteroneura</i> (Haliday)		✓			✓		
? <i>moesta</i> (Villeneuve)	✓			✓	✓		
<i>Opacifrons</i>							
? <i>coxata</i> (Stenhammar)	✓	✓	✓		✓	9	
SYRPHIDAE							
<i>Loveridgeana</i> **							
<i>beattiei</i> van Doesburg & van Doesburg *	✓	✓	✓	✓	✓	9	✓
<i>Ischiodon</i>							
<i>aegyptius</i> (Wiedemann)	✓						✓
<i>Eristalis</i>							
<i>tenax</i> (Linnaeus)	✓	✓	✓		✓		
<i>Eristalinus</i>							
<i>aeneus</i> (Scopoli)							✓
<i>Syritta</i>							
<i>stigmatica</i> Loew	✓	✓	✓	✓	✓		✓
<i>Eumerus</i>							
<i>lugens</i> Wiedemann, 1830 *					✓		✓
TACHINIDAE							
<i>Atlantomyia</i> **							
<i>nitida</i> Crosskey *	✓					7	✓

TEPHRITIDAE							
<i>Ceratitis</i>							
<i>capitata</i> (Wiedemann)				✓			
<i>Dioxya</i>							
<i>sororcula</i> (Wiedemann)	✓						

Peak Dale Invertebrates

15°59.3'S 005°44.2'W, corrected UTM: 02/0661 82/3099, altitude c.572m

(See also Lower House Plain which was included in the Belgians' Site 68)

Mollusca: GASTROPODA (snails and slugs)

Gastrocopta sp.

Lauria cylindracea (da Costa)

Succinea sanctaehelenae (Lesson)

Arachnida: PSEUDOSCORPIONES (pseudoscorpions)

Withidae sp.

Arachnida: ARANEAE (spiders)

Achaearanea acoreensis (Berland)

Anyphops stauntoni (Pocock)

Clubiona dubia O.P.-Cambridge

Dysdera crocata C.L. Koch

Hogna ligata (O.P.-Cambridge)

Leucauge digna (O.P.-Cambridge)

Mimetus ? *fernandi* Lessert

Paraheliophanus sanctaehelenae Clark & Benoit

Paraheliophanus jeanae Clark & Benoit

Philodromus signatus O.P.-Cambridge

Tegenaria pagana C.L. Koch

ISOPODA (woodlice)

Atlantoscia floridana (Van Name)

Porcellio laevis Latreille

Porcellio scaber Latreille

Trichorhina tomentosa (Budde-Lund)

COLLEMBOLA (springtails)

Orchesella cincta (Linnaeus)

Insecta: HEMIPTERA (bugs, hoppers, aphids and scale insects)

Auchenorrhyncha

Atlantisia leleupi Synave & Dlabola

Neisopsallus ? *lutosus* (F.B. White)

Sanctahelenia decellei Dlabola

Sogatella kolophon (Kirkcaldy)

Heteroptera

Agrametra aethiops F.B. White

Lygus mutabilis F.B. White

Metacanthus concolor F.B. White

Nysius sanctaehelenae F.B. White

Tropiconabis capsiformis Kerzhner

Sternorrhyncha
 ? *Orthezia insignis* Browne
 Pseudococcus viburni (Signoret)

Insecta: PSOCOPTERA (barkflies)

Ectopsocidae
 Ectopsocus briggsi McLachlan
 Ectopsocus strauschi Enderlein

Myopsocidae
 Myopsocus eatoni McLachlan

Peripsocidae
 Peripsocus leleupi Badonnel

Psocidae
 Blaste (Euclismia) basilewskyi Badonnel

Trichopsocidae
 Trichopsocus clarus (Banks)

Trogiidae
 Cerobasis guestfalica (Kolbe)

Insecta: COLEOPTERA (beetles)

Anthribidae
 Homoeodera alutaceicollis Wollaston
 Homoeodera compositarum Wollaston
 Homoeodera rotundipennis Wollaston
 Valenfriesia janischi (Wollaston)
 Valenfriesia subfasciatus (Wollaston)

Coccinellidae
 Hyperaspis pantherina Fürsch
 Nephus binaevatus (Mulsant)
 Rodolia cardinalis (Mulsant)

Cossyphodidae
 Cossyphodes wollastoni Westwood

Curculionoidea
 Acanthinomerus angustus (Wollaston)
 Acanthinomerus debilis (Wollaston)
 Acanthinomerus similis (Wollaston)
 Microxylobius lucifugus Wollaston
 Microxylobius oculus Wollaston
 Pantomorus cervinus (Boheman)
 Phlyctinus callosus Schönherr
 Pseudostenoscelis compositarum Wollaston
 Pseudostenoscelis longitarsis Wollaston
 Pseudostenoscelis minima Wollaston

Rhyparanotus impar Voss
Xyleborus aemulus (Wollaston)
Mordellidae
Glipostenoda mellissiana (Wollaston)
Scarabaeidae
Aphodius heinekeni Wollaston
Mellissius sp.
Insecta: HYMENOPTERA (bees, wasps, ants and parasitic wasps)
Megaspilidae
Dendrocerus wallastoni (Dodd)
Braconidae
Doryctinae sp.
Ichneumonidae
Echthromorpha agrestoria atrata Holmgren
? *Habronyx* sp.
Crabronidae
Pison wollastoni Turner
Insecta: LEPIDOPTERA (moths)
Crambidae
Helenoscoparia helenensis (Wollaston)
Helenoscoparia nigritalis (Walker)
Tineidae
Opogona anticella (Walker)
Opogona divisa Wollaston
Opogona ? brunneomarmorata (Wollaston)
Opogona flavofimbriata Wollaston
Opogona sacchari Bojer
Opogona piperata Wollaston
Opogona sp. 1 (n. sp. 'a')
Opogona sp. 2 (n. sp. 'b')
Opogona sp. 3 (n. sp. 'c') nr. *brunneomarmorata* (Wollaston)
Opogona sp. 7 (n. sp. 'g')
Insecta: DIPTERA (flies)
Epimadiza? sp.
Gampsocera sp.
Gonioneura spinipennis (Haliday)
Lampronchaea smaragdi Walker
Limnophora helenae Pont
Loveridgeana beattiei van Doesburg & van Doesburg
Sarcophaga (*Liosarcophaga*) sp.
Scatella sp. nr. *septemfenestra?* but much smaller, more hyaline spots

Scathophaga stercoraria soror Wiedemann
Scenopinus fenestralis (Linnaeus)
Sciaridae sp. 2 'typical form' filliform antennae
Syricta stigmatica Loew

Invertebrates recorded at non-Peaks sites

(Sites arranged alphabetically, genera and species within order / suborder arranged alphabetically)

● **Blue Point** (Scrubwood site)

UTM: 02/0600E 82/2857N, altitude 575 m

Arachnida: ARANEAE (spiders)

Paraheliophanus napoleon Clark & Benoit

Pellenes inexcultus O.P.-Cambridge s.l.

Philodromus signatus O.P.-Cambridge

Insecta: HEMIPTERA (bugs, hoppers, aphids and scale insects)

Auchenorrhyncha

Atlantisia leleupi Synave & Dlabola

Heteroptera

Insulopus asteri Schmitz

Sweetocoris minutus (Scudder)

Insecta: PSOCOPTERA (barkflies)

Psocidae

Blaste (Euclismia) basilewskyi Badonnel

Insecta: COLEOPTERA (beetles)

Coccinellidae

Cryptolaemus montrouzieri Mulsant

Exochomus flavipes (Thunberg)

Nephus binaevatus (Mulsant)

Curculionoidea

Acanthinomerus conicollis (Wollaston)

Pantomorus cervinus (Boheman)

Insecta: LEPIDOPTERA (moths)

Opogona flavotincta Wollaston

Insecta: DIPTERA (flies)

Limnophora helenae Pont

Megaselia? sp.

● **Deep Valley** (Gumwood site)

UTM: 02/1188E 82/3178N, altitude c.470 m

Mollusca: GASTROPODA (snails and slugs)

Helenoconcha relictata Lesson

Arachnida: ARANEAE (spiders)

Leucauge digna (O.P.-Cambridge)

Paraheliophanus jeanae Clark & Benoit

Segestria florentina (Rossi)

ISOPODA (woodlice)

Porcellio scaber Latreille

Insecta: HEMIPTERA (bugs, hoppers, aphids and scale insects)

Auchenorrhyncha

Atlantisia leleupi Synave & Dlabola

Nehela vulturina F.B. White

Sanctahelenia decellei Dlabola

Heteroptera

Agrametra aethiops F.B. White

Orius thripoborus (Hesse)

Insecta: PSOCOPTERA (barkflies)

Ectopsocidae

Ectopsocus briggsi McLachlan

Ectopsocus strauschi Enderlein

Psocidae

Blaste (Euclismia) basilewskyi Badonnel

Trichopsocidae

Trichopsocus clarus (Banks)

Insecta: COLEOPTERA (beetles)

Coccinellidae

Cryptolaemus montrouzieri Mulsant

Exochomus flavipes (Thunberg)

Rodolia cardinalis (Mulsant)

Curculionoidea

Acanthinomerus obliteratedus (Wollaston)

Acanthinomerus similis (Wollaston)

Microxylobius oculatus Wollaston

Pantomorus cervinus (Boheman)

Phlyctinus callosus Schönherr

Pseudostenoscelis longitarsis Wollaston

Pseudostenoscelis minima Wollaston

Insecta: HYMENOPTERA (bees, wasps, ants and parasitic wasps)

Megaspilidae

Dendrocerus wallastoni (Dodd)

● **Egg Island**

Arachnida: ARANEAE (spiders)

Hasarius adansoni (Audouin)

Oecobius navus Blackwall

Xeropigo tridentiger (O.P.-Cambridge)

COLLEMBOLA (springtails)

Pseuaneurida sp. (also recorded in 2003)

Seira sp. (recorded in 2003)

Insecta: LEPIDOPTERA (moths)

Tinea sp. (pelionella gp.)

● **Flagstaff** (general) [see also: Flagstaff (Scrubwoods)]

15°55.5'S 005°40.7'W, corrected UTM: 02/12646E 82/38086N, altitude c.566m

Insecta: COLEOPTERA (beetles)

Anthribidae

Homoeodera alutaceicollis Wollaston

Carabidae

Laemostenus complanatus (Dejean)

Cryptophagidae

Cryptophagus gracilipes Wollaston

Curculionoidea

Acanthinomerus angustus (Wollaston)

Acanthinomerus armatus Boheman

Tenebrionidae

Gonocephalum simplex (Fabricius)

● **Flagstaff** (Scrubwoods) [see also: Flagstaff (general)]

UTM: 02/1242E 82/3874N, altitude c.590 m.

Arachnida: ARANEAE (spiders)

Anyphops stauntoni (Pocock)

Gasteracantha sanguinolenta C.L. Koch

Heteroonops spinimanus Simon

Pellenes inexcultus O.P.-Cambridge s.l.

Insecta: HEMIPTERA (bugs, hoppers, aphids and scale insects)

Auchenorrhyncha

Atlantisia leleupi Synave & Dlabola

Cicadellidae (Macrostelini) sp. n. (A&A p. 350)

Heteroptera

Creontiades pallidus (Rambur)

Insulopus asteri Schmitz

Metacanthus concolor F.B. White

Nezara viridula (Linnaeus)

Nysius ericae (Schilling)

Teleonemia scrupulosa Stål

Insecta: PSOCOPTERA (barkflies)

Trogiidae

Cerobasis annulata (Hagen)

Insecta: COLEOPTERA (beetles)

Curculionoidea

Microxylobius westwoodii Chevrolat

Pantomorus cervinus (Boheman)

Phlyctinus callosus Schönherr

Insecta: DIPTERA (flies)

Eumerus obliquus Wiedemann

Limnophora helenae Pont

● **Horse Point Plain**

15°56.4'S 005°39.6'W, corrected UTM 02/1500E 82/3645N, altitude c.403m

Arachnida: ARANEAE (spiders)

Hasarius adansoni (Audouin)

Loxosceles rufescens (Dufour)

Philodromus signatus O.P.-Cambridge

MYRIAPODA (centipedes and millipedes)

Chilopoda

Scolopendra mortisans Linnaeus

ISOPODA (woodlice)

Porcellio laevis Latreille

Insecta: COLEOPTERA (beetles)

Anthicidae

Anthicodes fragilis Wollaston

Anthribidae

Valenfriesia ferruginea (Wollaston)

Coccinellidae

Nephus binaevatus (Mulsant)

Curculionoidea

Phlyctinus callosus Schönherr

Elateridae

Anchastus sp. n.

Tenebrionidae

Gonocephalum simplex (Fabricius)

Insecta: DIPTERA (flies)

Eumerus lugens Wiedemann

● **Jamestown** (Cambrian House)

UTM: 02/0920 82/3681.

Arachnida: ARANEAE (spiders)

Argiope trifasciata (Forsk.)

Myrmarachne isolata Clark & Benoit

Runcinia grammica (C.L. Koch)

Insecta: HEMIPTERA (bugs, hoppers, aphids and scale insects)

Heteroptera

Nezara viridula (Linnaeus)

Insecta: COLEOPTERA (beetles)

Adoretus versutus Harold

Coptops aedificator (Fabricius)

Heteronychus arator (Fabricius)

Insecta: HYMENOPTERA (bees, wasps, ants and parasitic wasps)

Sphecidae

Sceliphron spirifex (Linnaeus)

● **Joan Hill**

UTM: 02/0258E 82/2956N and 02/0326E 82/2956N, altitude c.550-570 m.

Arachnida: ARANEAE (spiders)

Clubiona dubia O.P.-Cambridge

Dendryphantès purcelli Peckham & Peckham

Paraheliophanus jeanae Clark & Benoit

ISOPODA (woodlice)

Porcellio scaber Latreille

COLLEMBOLA (springtails)

Entomobrya multifasciata (Tullberg)

Insecta: HEMIPTERA (bugs, hoppers, aphids and scale insects)

Auchenorrhyncha

Atlantisia leleupi Synave & Dlabola

Helenolius insulicola Van Stalle

Heteroptera

Insulopus asteri Schmitz

Metacanthus concolor F.B. White

Nezara viridula (Linnaeus)

Nysius ericae (Schilling)

Nysius sanctaehelenae F.B. White

Orius thripoborus (Hesse)

Insecta: PSOCOPTERA (barkflies)

Ectopsocidae

Ectopsocus strauschi Enderlein

Trogiidae

Cerobasis guestfalica (Kolbe)

Insecta: COLEOPTERA (beetles)

Anthribidae

Homoeodera sp. n.

Coccinellidae

Cryptolaemus montrouzieri Mulsant

Exochomus flavipes (Thunberg)

Nephus binaevatus (Mulsant)

Rodolia cardinalis (Mulsant)

Cantharidae

Caccodes oceaniae (Bourgoin)

Curculionoidea

Acanthinomerus angustus (Wollaston)

Phlyctinus callosus Schönherr

Pseudostenoscelis longitarsis Wollaston

Mordellidae

Glipostenoda mellissiana (Wollaston)

Insecta: HYMENOPTERA (bees, wasps, ants and parasitic wasps)

Crabronidae

Pison wollastoni Turner

Ichneumonidae

Diadegma mollipla (Holmgren)

Scelionidae

Telenomus sp.

Insecta: LEPIDOPTERA (moths)

Opogona fasciculata Wollaston

Insecta: DIPTERA (flies)

Chloropidae sp.

Eumerus lugens Wiedemann
Scenopinus fenestralis (Linnaeus)
Syrirta stigmatica Loew

● **Lot** (summit)

UTM: 02/0824E 82/3091N, altitude 454 m.

Arachnida: ARANEAE (spiders)

Araneus sp. indet.

Argyroides argyroides (Walckenaer)

Segestria florentina (Rossi)

Insecta: HEMIPTERA (bugs, hoppers, aphids and scale insects)

Auchenorrhyncha

Helenolius insulicola Van Stalle

Heteroptera

Teleonemia scrupulosa Stål

Insecta: PSOCOPTERA (barkflies)

Trogiidae

Cerobasis annulata (Hagen)

Cerobasis guestfalica (Kolbe)

Psocidae

Blaste (Euclismia) helenae Lienhard, 2011

Insecta: COLEOPTERA (beetles)

Curculionoidea

Microxylobius westwoodii Chevrolat

Insecta: HYMENOPTERA (bees, wasps, ants and parasitic wasps)

Braconidae

Doryctinae sp.

● **Lot** (foot)

Insecta: COLEOPTERA (beetles)

Scarabaeidae

Melissius oryctoides Decelle

● **Lower House Plain**

15°59.5'S 005°44.1'W, corrected UTM: 02/0673E 82/3066N (also 02/0689E
82/3066N, altitude c.430 m)

Arachnida: ARANEAE (spiders)

Anyphops stauntoni (Pocock)
Dysdera crocata C.L. Koch
Hasarius adansoni (Audouin)
Meioneta prosectes Locket
Oecobius sp. indet.
Pellenes inexcultus O.P.-Cambridge s.l.
Philodromus signatus O.P.-Cambridge
Steatoda capensis Hann
Tegenaria pagana C.L. Koch
Zimirina relegata Cooke

ISOPODA (woodlice)

Atlantoscia floridana (Van Name)
Porcellio laevis Latreille

MYRIAPODA

Chilopoda

Scutigera coleoptrata (Linnaeus)

COLLEMBOLA (springtails)

Entomobrya multifasciata (Tullberg)
Orchesella cincta (Linnaeus)

Insecta: HEMIPTERA (bugs, hoppers, aphids and scale insects)

Heteroptera

Creontiades pallidus (Rambur)
Teleonemia scrupulosa Stål

Insecta: PSOCOPTERA (barkflies)

Myopsocidae

Myopsocus eatoni McLachlan

Insecta: COLEOPTERA (beetles)

Anthribidae

Valenfriesia alutacea (Wollaston)

Coccinellidae

Cryptolaemus montrouzieri Mulsant
Exochomus flavipes (Thunberg)
Nephus binaevatus (Mulsant)

Curculionoidea

Acanthinomerus armatus Boheman
Hypohypurus aequatorialis Hustache
Isotornus proximus Voss
Pantomorus cervinus (Boheman)
Pseudostenoscelis longitarsis Wollaston
Rhyparanotus impar Voss

Hydrophilidae

Dactylosternum abdominale (Fabricius)

Tenebrionidae

Gonocephalum simplex (Fabricius)

Insecta: HYMENOPTERA (bees, wasps, ants and parasitic wasps)

Ichneumonidae

Echthromorpha agrestoria atrata Holmgren

Insecta: LEPIDOPTERA (moths)

Danus chrysippus (Linnaeus)

Insecta: DIPTERA (flies)

Drosophila repleta Wollaston

Drosophila simulans Sturtevant

Fannia canicularis (Linnaeus)

Limnophora helenae Pont

Sarcophaga (Liosarcophaga) sp.

- Millennium Forest

UTM: 02/1450E 82/3592N, altitude 422 m.

Arachnida: ARANEAE (spiders)

Theridion ? purcelli O.P-Cambridge

Insecta: HEMIPTERA (bugs, hoppers, aphids and scale insects)

Auchenorrhyncha

Atlantisia leleupi Synave & Dlabola

Heteroptera

Orius thripoborus (Hesse)

Insecta: COLEOPTERA (beetles)

Exochomus flavipes (Thunberg)

Glipostenoda mellissiana (Wollaston)

- Mount Pleasant

Insecta: COLEOPTERA (beetles)

Curculionoidea

Pseudostenoscelis compositarum Wollaston

- Oak Bank [from Michael Thorpe]

Insecta: HEMIPTERA (bugs, hoppers, aphids and scale insects)

Heteroptera

Empicoris rubromaculatus Wolff

● **Peaked Island**

Insecta: DIPTERA (flies)

Siphunculina striolata (Wiedemann)

● **Piccolo Hill** (Longwood gumwoods)

UTM: 02/1260E 82/3539N, altitude 515 m.

Mollusca: GASTROPODA (snails and slugs)

Succinea sanctaehelenae (Lesson)

Arachnida: ARANEAE (spiders)

Clubiona dubia O.P.-Cambridge

Dendryphantès purcelli Peckham & Peckham

Segestria florentina (Rossi)

Theridion solium Benoit

Insecta: HEMIPTERA (bugs, hoppers, aphids and scale insects)

Auchenorrhyncha

Atlantisia leleupi Synave & Dlabola

Sanctahelenia decellei Dlabola

Heteroptera

Orius thripoborus (Hesse)

Insecta: PSOCOPTERA (barkflies)

Ectopsocidae

Ectopsocus strauschi Enderlein

Psocidae

Blaste (Euclismia) basilewskyi Badonnel

Trichopsocidae

Trichopsocus clarus (Banks)

Trogiidae

Cerobasis guestfalica (Kolbe)

Insecta: COLEOPTERA (beetles)

Anthribidae

Homoeodera alutaceicollis Wollaston

Cerambycidae

Curtomerus flavus (Fabricius)

Coccinellidae

Cryptolaemus montrouzieri Mulsant

Exochomus flavipes (Thunberg)

Scymnus nubilus Mulsant

Curculionoidea

Phlyctinus callosus Schönherr

Insecta: LEPIDOPTERA (moths)

Tineidae

Opogona compositarum Wollaston

Opogona atlantica Wollaston

Opogona ? aureomarmorata Wollaston

Insecta: DIPTERA (flies)

Leptocera nigra Olivier

● **Pipe path** (Scrubwood site)

UTM: 02/1064E 82/3854N, altitude c.370 m.

Arachnida: ARANEAE (spiders)

Clubiona dubia O. P.-Cambridge

Pellenes inexcultus O. P.-Cambridge s.l.

Insecta: HEMIPTERA (bugs, hoppers, aphids and scale insects)

Auchenorrhyncha

Atlantisia leleupi Synave & Dlabola

Heteroptera

Metacanthus concolor F.B. White

Insulopus asteri Schmitz

Insecta: PSOCOPTERA (barkflies)

Trogiidae

Cerobasis annulata (Hagen)

● **Powell's Valley** (Scrubwood site)

UTM: 02/1179E 82/3040N, altitude c. 410 m.

Arachnida: ARANEAE (spiders)

Clubiona dubia O.P.-Cambridge

Dendryphantes purcelli Peckham & Peckham

Insecta: HEMIPTERA (bugs, hoppers, aphids and scale insects)

Auchenorrhyncha

Atlantisia leleupi Synave & Dlabola

Heteroptera

Insulopus asteri Schmitz

Metacanthus concolor F.B. White

Insecta: PSOCOPTERA (barkflies)

Ectopsocidae

Ectopsocus strauschi Enderlein

Trogiidae

Cerobasis annulata (Hagen)

Insecta: DIPTERA (flies)

Limnophora helenae Pont

● **Prosperous Bay Plain** (various sites)

Includes: 'Bencoolen View' (east end) UTM: 02/1531E 82/3412N, altitude c.330 m.

Includes: 'Bone Gully' (PBP5) UTM: 02/1511E 82/3422N, altitude c.345 m.

Includes: 'Samphire Plain' (SP8) UTM: 02/1554E 82/3444N, altitude c.305 m.

Includes: 'South Basin Samphire' (SBS22) UTM: 02/1578E 82/3426N, altitude c.305 m.

Includes: 'Stony Outwash' (SOW15) UTM: 02/1526E 82/3438N, altitude c.315 m.

Arachnida: ARANEAE (spiders)

Archaeodictyna condocta (O.P.-Cambridge)

? *Brevilabus* sp. indet.

Gamasomorpha insularis Simon

Hasarius adansoni (Audouin)

Heteroonops spinimanus Simon

Hogna nefasta Tongiorgi

Latrodectus geometricus C.L. Koch

Loxosceles rufescens (Dufour)

? *Lycorma* sp. indet.

Oecobius navus Blackwall

Oecobius similis Kulczinski

Pellenes inexcultus O.P.-Cambridge s.l.

Philodromus signatus O.P.-Cambridge

Theridiidae sp. indet. A

? *Trochosippa Roewer* sp. indet.

Xeropigo tridentiger (O.P.-Cambridge)

Zimirina relegata Cooke

MYRIAPODA

Chilopoda

Cryptops basilewskyi Matic & Darabantu

COLLEMBOLA (springtails)

Brachystomella parvula (Schäffer) (recorded in 2003)

Deuterostminthurus pallipes (Bourlet)

Entomobrya multifasciata (Tullberg) (recorded in 2003)

Lepidocyrtus lanuginosus (Gmelin) (also recorded in 2003)

Shoettella ununguiculata (Tullberg) (also recorded in 2003)

Insecta: HEMIPTERA (bugs, hoppers, aphids and scale insects)

Heteroptera
 Nysius ericae (Schilling)

Insecta: PSOCOPTERA (barkflies)

 Liposcelididae
 Liposcelis bostrychophila Badonnel
 Liposcelis sp. 1 (species group 'A')

 Trogiiidae
 Cerobasis annulata (Hagen)
 Cerobasis guestfalica (Kolbe)

Insecta: COLEOPTERA (beetles)

 Anobiidae
 Xyletomerus insulanus Español

 Anthicidae
 Anthicodes fragilis Wollaston

 Anthribidae
 Homoeodera alutaceicollis Wollaston

 Coccinellidae
 Nephus binaevatus (Mulsant)

 Curculionoidea
 Acanthinomerus armatus Boheman
 Isotornus proximus Voss
 Microxylobius westwoodii Chevrolat
 Phlyctinus callosus Schönherr

 Elateridae
 Anchastus sp. n.

 Scarabaeidae
 Mellissius oryctoides Decelle
 Mellissius sp.

 Tenebrionidae
 Gonocephalum simplex (Fabricius)
 Hemasodes batesi Waterhouse
 Pseudoleichenum benoiti Ardoin

Insecta: HYMENOPTERA (bees, wasps, ants and parasitic wasps)

 Ichneumonidae
 Netelia insulicola Morley

Insecta: LEPIDOPTERA (moths)

 Tineidae
 Opogona sp. 4 (n. sp. 'd')
 Opogona sp. 5 (n. sp. 'e')

Insecta: DIPTERA (flies)

Atlantomyia nitida Crosskey

Drosophila repleta Wollaston
Drosophila simulans Sturtevant
Limnophora helenae Pont
Lucilia sericata (Meigen)
Milichiella lacteipennis (Loew)
Psilopa? sp.
Sarcophaga (Liosarcophaga) sp.

● **Ruperts Battery cave**

UTM: 02/0887E 82/3863N, altitude c.50 m.

Arachnida: ARANEAE (spiders)

Pholcidae sp. indet.

COLLEMBOLA (springtails)

Lepidocyrtus lanuginosus [Coll. E.A. Thorpe]

Insecta: PSOCOPTERA (barkflies)

Liposcelididae

Liposcelis entomophila (Enderlein)

Sphaeropsocidae

Sphaeropsocopsis insularum Lienhard

● **Sandy Bay, Banyan Cottage**

UTM: 02/0882 82/3055

Insecta: DIPTERA (flies)

Scenopinus fenestralis (Linnaeus)

● **Sandy Bay (Redwood plantation)**

UTM: 02/09409E 82/32683.

Mollusca: GASTROPODA (snails and slugs)

Succinea sanctaehelenae (Lesson)

Arachnida: ARANEAE (spiders)

Clubiona dubia O.P.-Cambridge

Theridion solium Benoit

Insecta: HEMIPTERA (bugs, hoppers, aphids and scale insects)

Heteroptera

Nysius ericae (Schilling)

Insecta: PSOCOPTERA (barkflies)

Ectopsocidae

Ectopsocus strauschi Enderlein

Insecta: COLEOPTERA (beetles)

Phlyctinus callosus Schönherr

Insecta: HYMENOPTERA (bees, wasps, ants and parasitic wasps)

Vespidae

Vespula vulgaris (Linnaeus)

● **Signal House** (cliff-top scrubwood site)

UTM: 02/1712E 82/3509N, altitude c.70 m.

Arachnida: ARANEAE (spiders)

Paraheliophanus napoleon Clark & Benoit

Prodidomus rufus Hentz

Insecta: HEMIPTERA (bugs, hoppers, aphids and scale insects)

Heteroptera

Nysius ericae (Schilling)

Nysius sanctaehelenae F.B. White

Insecta: COLEOPTERA (beetles)

Coccinellidae

Exochomus flavipes (Thunberg)

Curculionoidea

Isotornus proximus Voss

Microxylobius westwoodii Chevrolat

Acanthinomerus angustus (Wollaston)

Ptinidae

Sphaericus gibboides Boieldieu

Insecta: HYMENOPTERA (bees, wasps, ants and parasitic wasps)

Crabronidae

Pison wollastoni Turner

Insecta: DIPTERA (flies)

Atlantomyia nitida Crosskey

Ischiodon aegyptius Wiedemann

● **Teutonic Hall**

UTM: 02/114E 82/3344N, altitude c.605m.

Arachnida: ARANEAE (spiders)

Anyphops stauntoni (Pocock)

Clubiona dubia O.P.-Cambridge

Paraheliophanus jeanae Clark & Benoit

Runcinia grammica (C.L. Koch)

Tecution sp. indet.

Theridion solium Benoit

Uloborus sp. indet.

ISOPODA (woodlice)

Porcellio scaber Latreille

Insecta: HEMIPTERA (bugs, hoppers, aphids and scale insects)

Heteroptera

Nezara viridula (Linnaeus)

Orius thripoborus (Hesse)

Tropiconabis capsiformis Kerzhner

Sternorrhyncha

? *Orthezia insignis* Browne

Insecta: PSOCOPTERA (barkflies)

Ectopsocidae

Ectopsocus briggsi McLachlan

Ectopsocus strauschi Enderlein

Trichopsocidae

Trichopsocus clarus (Banks)

Insecta: COLEOPTERA (beetles)

Anthribidae

Homoeodera alutaceicollis Wollaston

Homoeodera compositarum Wollaston

Homoeodera pumilio Wollaston

Curculionoidea

Acanthinomerus obliteratus (Wollaston)

Acanthinomerus terebrans (Wollaston)

Microxylobius vestitus Wollaston

Pantomorus cervinus (Boheman)

Phlyctinus callosus Schönherr

Sciobius tottus Sparrmann

Lathridiidae

Cartodere nodifer (Westwood)

Insecta: DIPTERA (flies)

Drosophila punctatonervosa Frey

Musca autumnalis De Geer

● Turks Cap

UTM: 02/1540E 82/3748N, altitude c.175 m.

Includes Turks Cap ridge ('Old Father' site), altitude c.210 m.

Arachnida: ARANEAE (spiders)
Oecobius sp. indet.
Paraheliophanus napoleon Clark & Benoit
Pellenes inexcultus O.P.-Cambridge s.l.

Insecta: HEMIPTERA (bugs, hoppers, aphids and scale insects)
Auchenorrhyncha
Atlantisia leleupi Synave & Dlabola

Heteroptera
Hirtopsallus suedae Schmitz
Insulopus asteri Schmitz
Metacanthus concolor F.B. White

Insecta: PSOCOPTERA (barkflies)
Trogidae
Cerobasis annulata (Hagen)

Insecta: COLEOPTERA (beetles)
Coccinellidae
Exochomus flavipes (Thunberg)

Curculionoidea
Microxylobius westwoodii Chevrolat

Insecta: LEPIDOPTERA (moths)
Glyphipterix semilunaris Wollaston

Insecta: DIPTERA (flies)
Eristalinus aeneus (Scopoli)
Limnophora helenae Pont

● Woodcot

15°57.2'S 005°42.7'W, corrected UTM: 02/09186E 82/34816N, altitude c.489m.

Insecta: HEMIPTERA (bugs, hoppers, aphids and scale insects)
Heteroptera
Lygus mutabilis F.B. White
Macrorhaphis wollastoni F.B. White
Nezara viridula (Linnaeus)

Insecta: PSOCOPTERA (barkflies)
Ectopsocidae
Ectopsocus briggsi McLachlan
Ectopsocus trauchi Enderlein

Psocidae
Blaste (Euclismia) basilewskyi Badonnel

Trichopsocidae
Trichopsocus clarus (Banks)

Trogiidae
Lepinotus inquilinus Heyden

Insecta: COLEOPTERA (beetles)

Cerambycidae
Curtomerus flavus (Fabricius)

Curculionoidea
Sciobius tottus Sparrmann
Xyleborus aemulus (Wollaston)

Mordellidae
Glipostenoda mellissiana (Wollaston)

Nitidulidae
Lasiodites maculatus (Palisot de Beauvois)

Scarabaeidae
Adoretus versutus Harold
Aphodius pseudolividus Balthasar

Insecta: HYMENOPTERA (bees, wasps, ants and parasitic wasps)

Ichneumonidae
Netelia insulicola Morley

Insecta: LEPIDOPTERA (moths)

Crambidae
Cnaphalocrosis poeyalis (Boisduval)
Helenoscoparia nigritalis (Walker)
Helenoscoparia transversalis (Walker)
Herpetogramma licarsisalis (Walker)
Spoladea recurvalis (Fabricius)
Uresphita gilvata (Fabricius)

Noctuidae
Agrapha limbirena (Guenée)
Agrotis ipsilon (Hufnagel)
Agrotis segetum (Denis and Schiffermüller)
Aletia ptyonophora (Hampson)
Anomis flava (Fabricius)
Cardepias subvelata (Walker, 1875)
Chrysodeixis dalei (Wollaston)
Condica pauperata (Walker)
Helicoverpa helenae (Hardwick)
Hypena helenae (Berio)
Hypocala rostrata (Fabricius)
Ophiusa tirhaca (Cramer)
Pandesma robusta (Walker)
Spodoptera littoralis (Boisduval)

Thysanoplusia orichalcea (Fabricius)

Trichoplusia ni (Hübner)

Trichoplusia vittata (Wallengren)

Pterophoridae

Agdistis sanctaehelenae (Wollaston)

Stenodacma wahlbergi (Zeller)

Pyralidae

Hyparagyria metalliferella Ragonot

Sphingidae

Acherontia atropos (Linnaeus)

Tineidae

Monopis crocicapitella (Clemens)

Opogona ? congenera Wollaston

Opogona flavofimbriata (Wollaston)

Opogona niveopicta Wollaston

Opogona subaeneella (Walker in Melliss)

Opogona sp. 1 (n. sp. 'a')

Insecta: DIPTERA (flies)

Dicranomyia loveridgeana (Alexander, 1962)

Musca autumnalis De Geer

Scathophaga stercoraria soror Wiedemann

- Woodlands

Insecta: COLEOPTERA (beetles)

Aglenus brunneus (Gyllenhal)

- Other sites (St. Helena but no specific locality)

Insecta: COLEOPTERA (beetles)

Anthribidae

Homoeodera alutaceicollis Wollaston

Homoeodera compositarum Wollaston

Homoeodera major Wollaston

Homoeodera pumilio Wollaston

Valenfriesia dalei (Wollaston)

Coccinellidae

Exochomus flavipes (Thunberg)

Corylophidae

Sericoderus ? lateralis (Gyllenhal)

Curculionoidea

Acanthinomerus robertsi Decelle

Acanthinomerus similis (Wollaston)

Acanthinomerus terebrans (Wollaston)

Microxylobius lacertosus Wollaston

Microxylobius vestitus Wollaston

Pseudostenoscelis longitarsis Wollaston

Mordellidae

Glipostenoda mellissiana (Wollaston)

Tenebrionidae

Hemasodes batesi Waterhouse