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MYRIAPODA (CHILOPODA AND DIPLOPODA) AND ISOPODA FROM THE ISLE OF MULL AND ASSOCIATED ISLANDS, SCOTLAND

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INTRODUCTION

The purpose of this article is to give details of Myriapods and Isopods collected on the Scottish islands of Mull, Iona, Ulva, Staffa and Lunga during two weeks in July/August of 2001. The Atlases for these groups (Harding & Sutton, 1985; Barber & Keay, 1988; British Myriapod Group, 1988) show very few records from this area: Chilopoda – 3 species from two 10km squares, Diplopoda – 8 species from six 10km squares and Isopoda – more widely recorded but only 5 species from fifteen 10km squares. Enquiries directed to the National Recording Schemes showed that there was no change from the Atlas situation. Having written the first draft of this article, the author was informed that the Scottish Entomologists' Gathering (SEG), and Gordon Corbet in particular, had spent several days on Mull in June, 1997. Corbet's records (pers.comm..) have been incorporated into this report, as they have not been published elsewhere.

AREA OF STUDY

1. **MULL** is an island of the Inner Hebrides group, approximately 40 kilometres North to South by 50 kilometres East to West, with nowhere on the island more than 7 kilometres from the sea. The Scottish mainland is only two kilometres away from Mull in places although this relationship is not shown in the maps used for this article apart from Figure 1. The geology is varied, ranging from granite on the Ross of Mull, sandstones at Gribun and the "trap" landscape of the central hills of the island made up of volcanic lava flows and intrusions. The most recent shaping of the landscape took place during the last Ice Age, producing some of the characteristic "U" valleys and lochs. The highest point is Ben More at 966 metres. The climate is mild although rainfall is high at around 2000mm per year. The vegetation is naturally grassy with small areas of heather. There are small woods and thickets of native oak, birch, ash and hazel, sometimes mixed and sometimes single species, that

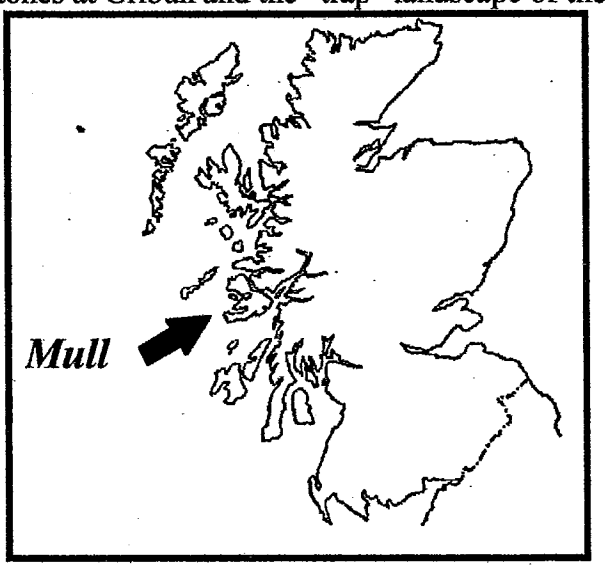


Figure 1. The Island of Mull in relation to the Scottish mainland.

cling to hillsides and old scree slopes beneath cliffs and in sheltered bays. Some of the glens and much of the eastern coastal plain have been planted with larch and sitka spruce by the Forestry Commission. The coastal areas provide a wide variety of habitats, ranging from beaches of sand, shingle and boulders, cliffs, raised beaches and river mouths with attendant marshy areas (Boyd & Boyd, 1990).

2. **IONA** lies one kilometre west of the Ross of Mull, and is 5.5 kilometres north to south and 2 kilometres east to west. Geologically, Iona is completely different from the rest of Mull: Lewisian gneisses and granites are overlain by Torridonian sandstones and the west and north coasts are studded with bays of white shell sand, which have given rise to 'machair' grassland in the dunes behind that are rich in wild flowers. Elsewhere in the interior there is lush grassland with *Calluna* on the more exposed rock outcrops. The highest point on the island is Dun I at 101 metres.

3. **ULVA** is separated from Mull by less than 500 metres of sea, and is similarly built up from successive lava flows, showing the trap landscape when viewed from across Loch na Keal. Vegetation is principally grassland although there is a certain amount of woodland – different types consisting of native oak and birch, a few small, mature conifer plantations, and "policy" woodlands of oak, beech, pine and larch planted in the 19th century. There is also some improved agricultural land around Ulva Ferry at the eastern end of the island. Ulva is 7.5 kilometres west to east and 2.5 kilometres north to south and the highest point is Beinn Chreagach at 313 metres.

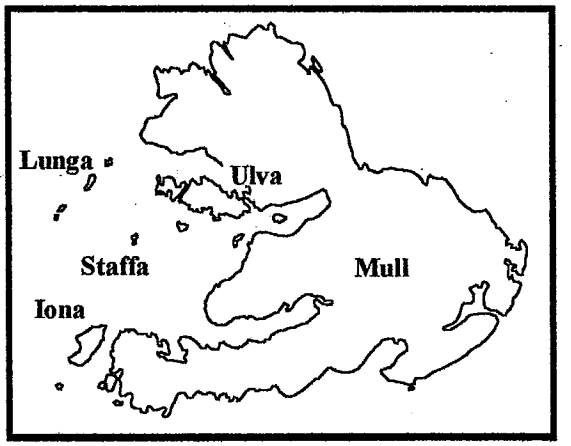


Figure 2. Map showing the islands of Mull that were visited in July 2001

4. **STAFFA**, best known as the site of Fingal's Cave, is made up entirely of Tertiary columnar basaltic lava flows with unstable volcanic tufa above and below. The vegetation is all grassland with very little loose rock material. The island is 1 kilometre north to south and 0.5 kilometre west to east and lies about 12 kilometres NNE of Iona.

5. **LUNGA** is the largest of the Treshnish Isles, a small linear group of islands running northeast to southwest and lying approximately 10 kilometres due west of Ulva. Lunga is 2 kilometres north to south by 0.5 kilometres west to east and, like the rest of the group, is now uninhabited and managed by the Hebridean Trust as a bird reserve and seal sanctuary. The vegetation is largely rich grassland with some areas of bracken. The highest point is Cruachan at 103 metres.

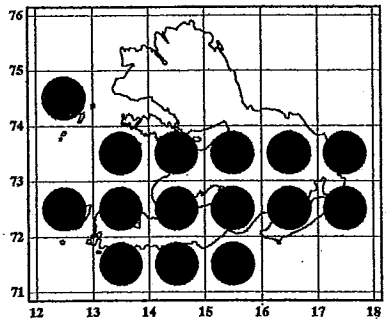


Figure 3. Map of Mull showing the 10km squares visited in July 2001.

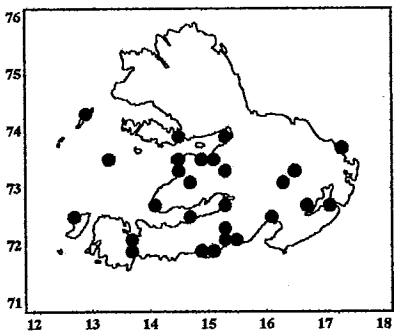


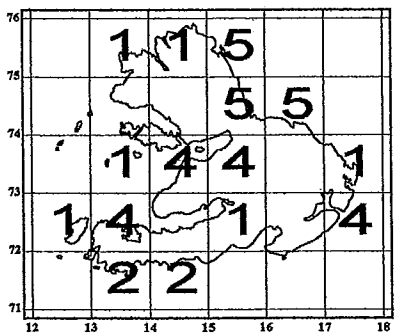
Figure 4. Map of Mull showing the location of sites visited in July 2001.

The island of Mull and its immediate neighbours, described above, make up the Watsonian vice-county no.103, and also fall completely within the 100 kilometre square NM(17). A total of thirty-two sites were visited in 15 ten-kilometre squares over the two weeks. The 10-kilometre squares visited were: NM22, NM24, NM31, NM32, NM33, NM41, NM42, NM43, NM51, NM52, NM53, NM62, NM63, NM72 and NM73 as shown in Figure 3. NM21, NM23 and NM61 were not visited because of remoteness, difficulty of access and/or lack of time. The following 10-kilometre squares in the northern part of Mull were not surveyed in 2001: NM34, NM35, NM44, NM45, NM54, NM55 and NM64. The sites (shown in Figure 4) varied from seashore, through machair dune, boulder grassland, forestry plantation, a variety of woodlands to high mountain (the summit cairn of Ben More at 966 metres). Not all of the sites produced Myriapods and Isopods but did yield Collembola and/or Opiliones which were also being collected.

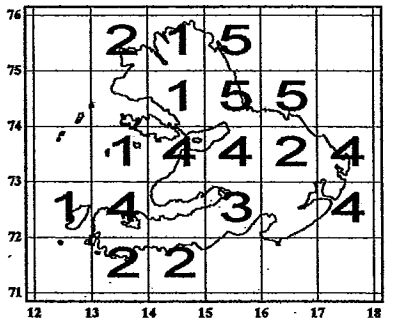
METHODS

Hand searching was the principal method used, turning over stones, boulders and logs, sorting through grass and other low vegetation and sieving litter. This was backed up by thirty-six pitfall traps distributed over five sites and also litter samples subjected to Tullgren extraction on return from Scotland.

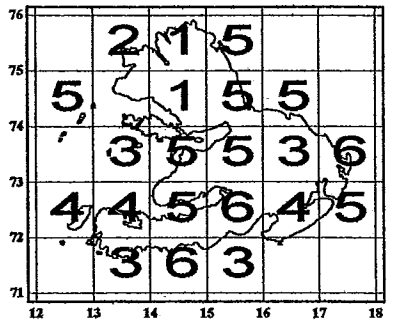
RESULTS – 1. ISOPODA: ONISCIDEA (TERRESTRIAL WOODLICE)



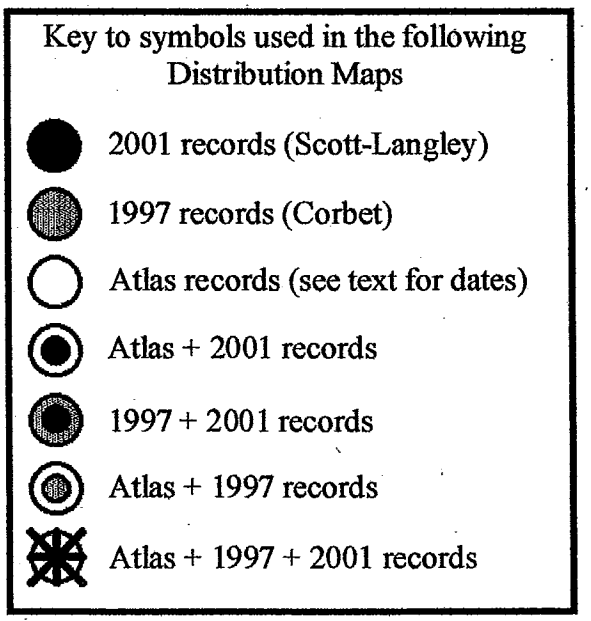
Number of Oniscid species recorded per 10km square up to 1985 (extracted from Harding & Sutton, 1985)



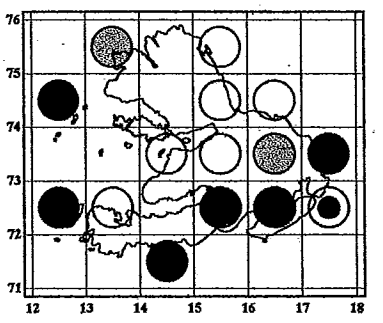
Number of Oniscid species recorded per 10km square up to 1997 (Harding & Sutton, 1985 and Corbet, pers. comm.)



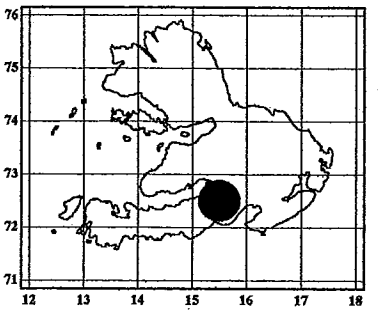
Number of Oniscid species recorded per 10km square as of August 2001



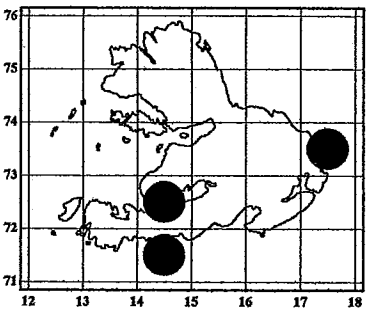
Ligia oceanica (Linn.) - Common round the British coast and likely to be recorded from the whole Mull coastline in due course. Atlas records for NM32, 43, 53, 54, 55, 64 and 72. Corbet records for NM35 and 63. Found at seven sites in 2001, in squares NM22, 24, 41, 52, 62, 72 and 73.



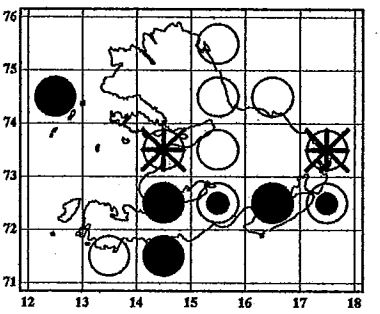
Androniscus dentiger Verhoeff – **New Vice County Record.** A predominantly English species with very few records north of Glasgow, although it has been more recently reported as common on parts of the mainland east of Mull. Recorded from two sites in 2001, in square NM52.



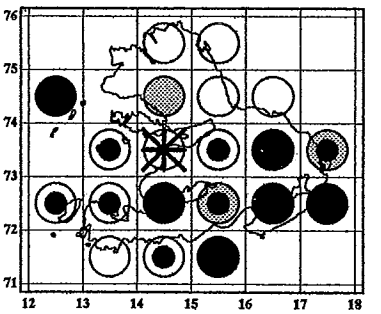
Trichoniscoides saeroeensis Lohmander – **New Vice County Record.** A coastal species, recorded from over seventy sites around Britain. Found at four sites in 2001, in squares NM41, 42 and 73.



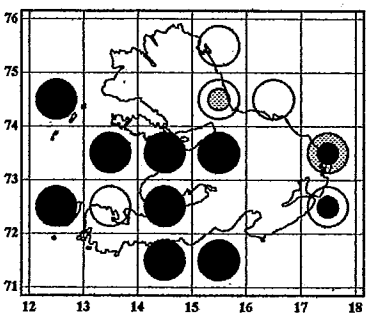
Trichoniscus pusillus **ff** Brandt – A ubiquitous British species found in most types of habitat. Atlas records for NM33, 42, 72 and 73. Corbet records for NM43 and 73. Found at thirteen sites in 2001, in squares NM24, 41, 42, 43, 52, 62, 72 and 73.



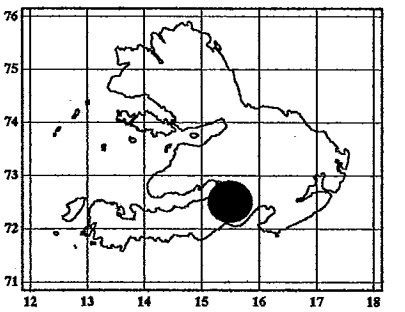
Oniscus asellus Linn. – The most widely distributed British woodlouse, both in terms of range and variety of habitats occupied. Atlas records for NM22, 31, 32, 33, 41, 43, 45, 53, 54, 55 and 64. Corbet records for NM43, 44, 52 and 73. Found at twenty-two sites in 2001, in squares NM22, 24, 32, 33, 41, 42, 43, 51, 52, 53, 62, 63, 72 and 73.



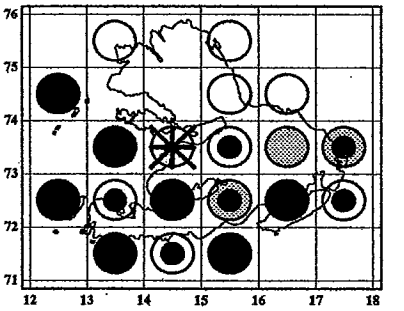
Philoscia muscorum (Scopoli) – Another widespread British species but commoner in the south than the north. Atlas records for NM32, 54, 55, 64 and 72. Corbet records for NM54 and 73. Found at ten new sites in 2001, in squares NM22, 24, 33, 41, 42, 43, 51, 53, 72 and 73.



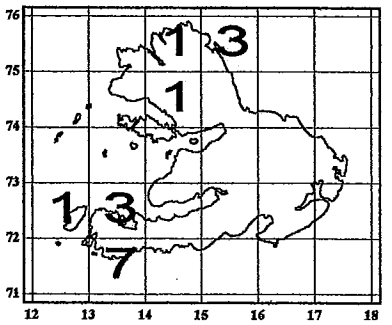
Cylisticus convexus (De Geer) - **New Vice County Record.** A widely scattered species, often coastal and often synanthropic, and in this case both. Found at one site in 2001, in square NM52.



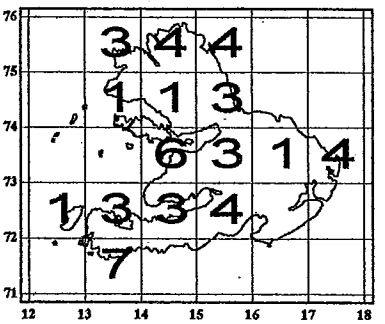
Porcellio scaber Latreille – The second most widely distributed woodlouse after *Oniscus*. Atlas records for NM32, 35, 41, 43, 53, 54, 55, 64 and 72. Corbet records for NM43, 52, 63 and 73. Found at twenty-one sites in 2001, in squares NM22, 24, 31, 32, 33, 41, 42, 43, 51, 52, 53, 62, 72 and 73.



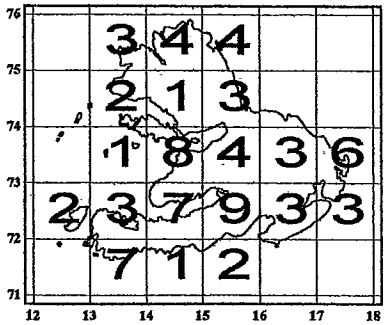
RESULTS – 2. DIPLOPODA (MILLIPEDES)



Number of Diplopod species recorded per 10km square up to 1988 (extracted from British Myriapod Group, 1988)

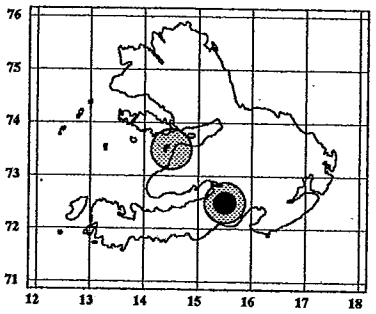


Number of Diplopod species recorded per 10km square up to 1997 (British Myriapod Group, 1988 and Corbet, pers. comm.)

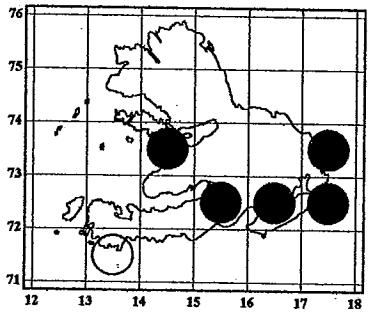


Number of Diplopod species recorded per 10km square as of August 2001.

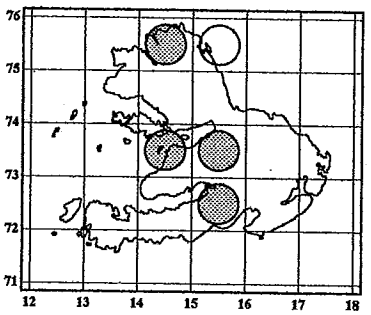
Nanogona polydesmoides (Leach) Widely recorded throughout the British Isles although few records from Scotland. Corbet records for NM43 and 52 (**New Vice County Record**). Found at one site in 2001, in square NM52.



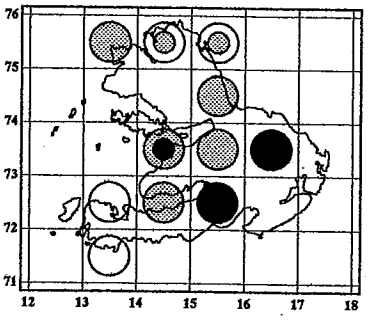
Proteroiulus fuscus (Am Stein) – A widespread species, often found in woodlands under bark of rotten logs. Atlas record for NM31. Found at six sites in 2001, in squares NM43, 52, 62, 72 and 73.



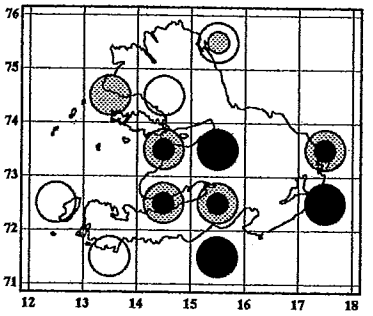
Ommatoiulus sabulosus (Linn.) – A widely-recorded species with a preference for sandy sites, often coastal. Atlas record for NM55. Corbet records for NM43, 45, 52 and 53. Not found in 2001.



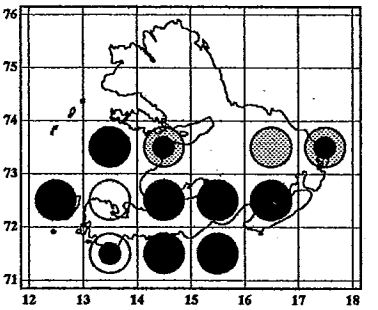
Tachypodoiulus niger (Leach) – The second most widely recorded species in the British Isles. Atlas records for NM31, 32, 45 and 55. Corbet records for NM35, 42, 43, 45, 53, 54 and 55. Found at five sites in 2001, in squares NM43, 52 and 63.



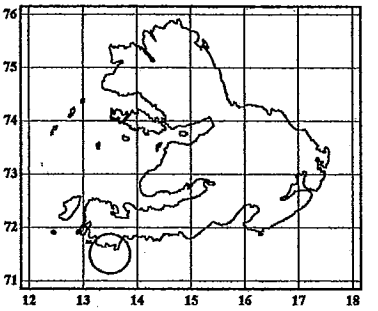
Cylindroiulus punctatus (Leach) – The most widely recorded species in the British Isles. Atlas records for NM22, 31, 44 and 55. Corbet records for NM34, 42, 43, 52, 55 and 73. Found at nine sites in 2001, in squares NM42, 43, 51, 52, 53, 72 and 73.



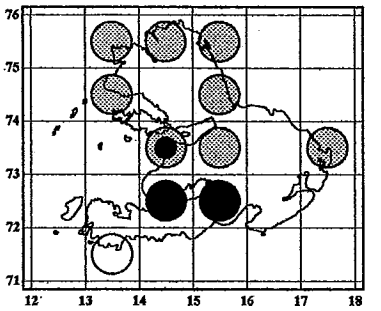
Cylindroiulus latestriatus (Curtis) – A generally coastal species and widely distributed around British shores but, also occasionally inland. Atlas records for NM31 and 32. Corbet records for NM43, 63 and 73. Found at ten sites in 2001 (males were found at most sites confirming identification), in squares NM22, 31, 33, 41, 42, 43, 51, 52, 62 and 73.



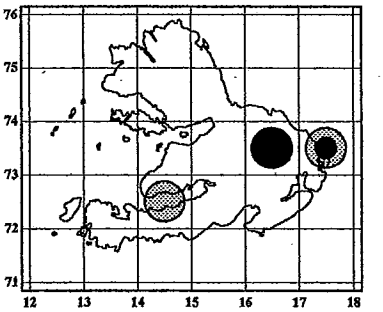
Julus scandinavius Latzel – Widespread records across the British Isles, a woodland and coastal species. Atlas record for NM31. Not found in 2001.



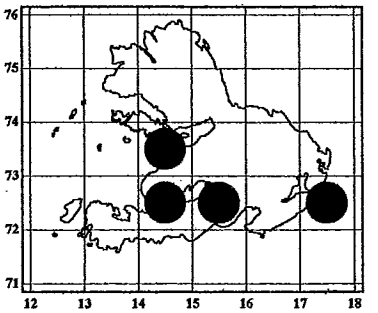
Ophyiulus pilosus (Newport) – Another widespread species, often found with the last species. Atlas record for NM31. Corbet records for NM34, 35, 43, 45, 53, 54, 55 and 73. Found at five sites in 2001, in squares NM42, 43 and 52.



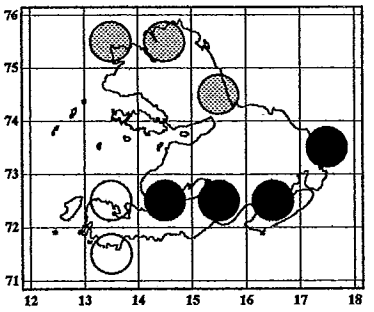
Polydesmus angustus Latzel - The third most commonly recorded millipede in Britain. Corbet records for NM42 and 73 (**New Vice County Record**). Found at two sites in 2001, in squares NM63 and 73.



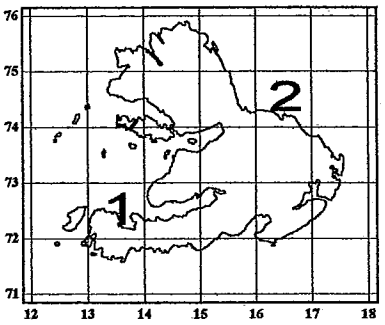
Polydesmus inconstans Latzel – **New Vice County Record.** Scattered records from across Britain with very few from Scotland and these are mostly coastal. Found at four sites in 2001, in squares NM42, 43, 52 and 72.



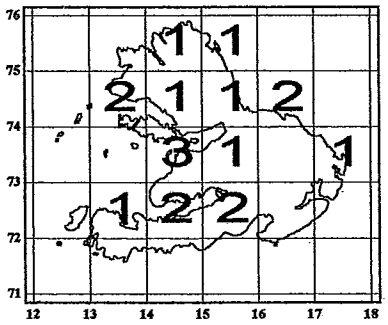
Brachydesmus superus Latzel – A fairly widely distributed species although there are very few records north of the Scottish border. Atlas records for NM31 and 32. Corbet records for NM35, 45 and 54. Found at four sites in 2001, in squares NM42, 52, 62 and 73.



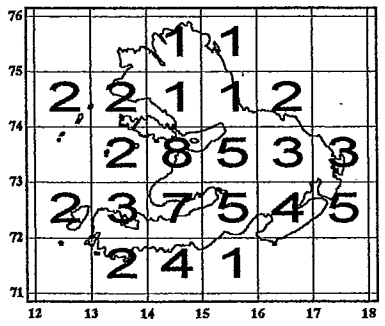
RESULTS – 3. CHILOPODA (CENTIPEDES)



Number of Chilopod species recorded per 10km square up to 1988 (extracted from Barber & Keay, 1988)

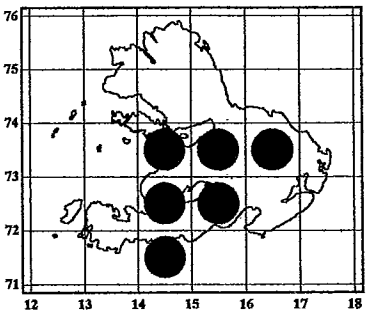


Number of Chilopod species recorded per 10km square up to 1997 (Barber & Keay, 1988 and Corbet, pers. comm.)

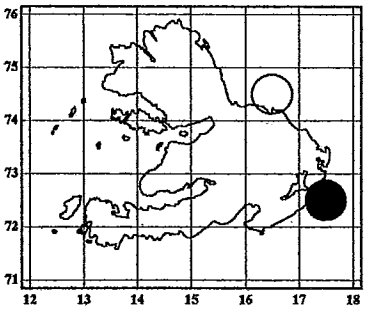


Number of Chilopod species recorded per 10km square as of August 2001

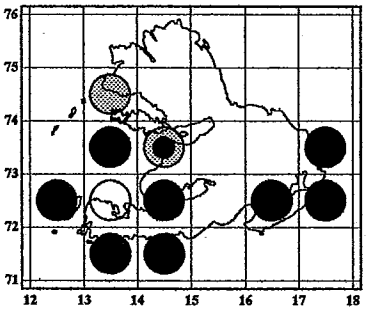
Schendyla nemorensis (C.L.Koch) – **New Vice County Record**. A small widespread species, more abundant in the south with very few records north of the Scottish border. Found at eight sites in 2001, in squares NM41, 42, 43, 52, 53 and 63.



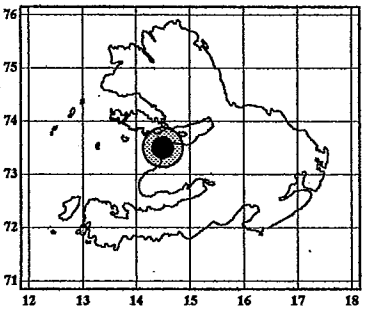
Strigamia maritima (Leach) – A species of the seashore, sometimes found in large numbers under boulders around high tide mark. Atlas record for NM64. Found at one site in 2001, in square NM72.



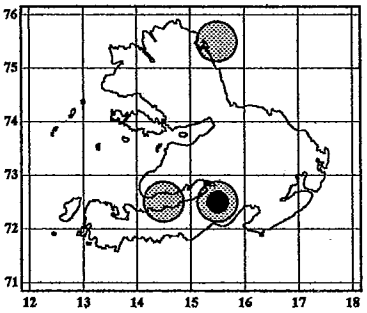
Geophilus carpophagus Leach – A larger species, widespread and found in a wide variety of habitats. Twenty-four mature specimens were collected from various sites in 2001 and all were of the short form of this species (Lewis). Atlas record for NM32. Corbet records for NM34 and 43. Found at eleven sites in 2001, in squares NM22, 31, 33, 41, 42, 43, 62, 72 and 73.



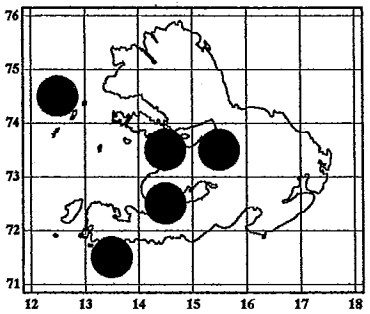
Geophilus insculptus Attems A widespread species with northerly and easterly tendencies in England, though few records from Scotland. Corbet record for NM43 (**New ViceCounty Record**). Found at two sites in 2001, in square NM43.



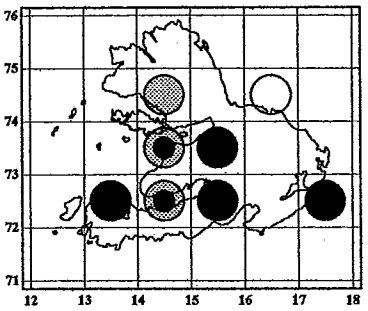
Necrophloeophagus flavus (De Geer) A widespread and common species. Corbet records for NM42, 52 and 55 (**New Vice County Record**). Found at one site in 2001, in square NM52.



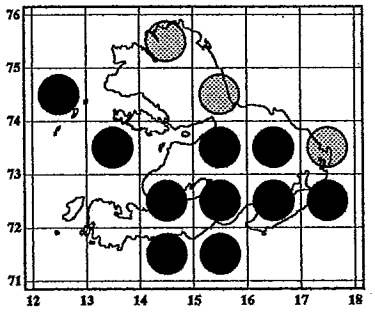
Brachygeophilus truncorum (Bergsoë & Meinert) – **New Vice County Record**. A small species, widespread and common, often found in woodland, but also moorland and bracken. Found at six sites in 2001, in squares NM24, 31, 42, 43 and 53.



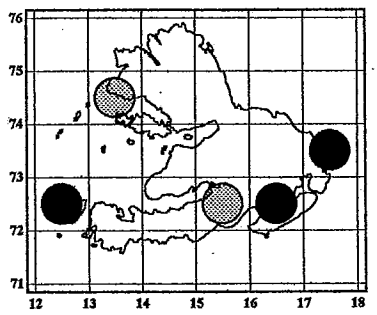
Lithobius variegatus Leach – A widespread and common species with a southern and western tendency. Atlas record for NM64. Corbet records for NM42, 43 and 44. Found at six sites in 2001, in squares NM32, 42, 43, 52, 53 and 72.



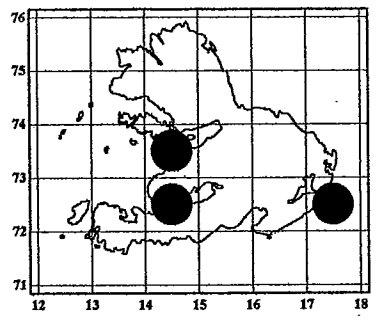
Lithobius forficatus (Linn.) A very common species over most of the British Isles. Corbet records for NM45, 54 and 73 (**New Vice County Record**). Found at eleven sites in 2001, in squares NM24, 33, 41, 42, 51, 52, 53, 62, 63 and 72.



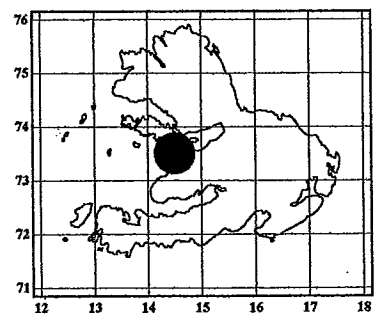
Lithobius melanops Newport A widespread species often associated with seashores. Corbet records for NM34 and 52 (**New Vice County Record**). Found at three sites in 2001, in squares NM22, 62 and 73.



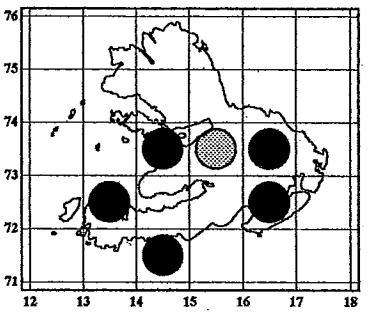
Lithobius borealis Meinert – **New Vice County Record**. A widespread species although with fewer records between southwest England and northern Scotland. Found at three sites in 2001, in squares NM42, 43 and 72.



Lithobius crassipes L.Koch – **New Vice County Record**. A widespread species with a northerly and easterly distribution. Found at one site in 2001, in square NM43.



Lamyctes fulvicornis Meinert. An extremely wide ranging species, introduced to other parts of the world. Corbet record for NM53 (**New Vice County Record**). Found at six sites in 2001, in squares NM32, 41, 43, 62 and 63.



DISCUSSION

1. General – With the exception of Corbet and SEG, the Mull group of islands would appear not to have been worked for these three groups in the past, judging by the distribution of previous records as extracted from the distribution atlases that, admittedly, are now some thirteen or more years old. Correspondence with scheme organisers suggests that this situation has hardly changed.

2. Isopoda – This group was previously the most widely recorded of the three on these islands, with a list of five common and very widely distributed species. Corbet did not add any new species to the list in 1997. Searches in 2001 added three further species to the Vice County list. *Trichoniscoides saeroeensis*, not previously seen by the author, was found at four sites that were no more than ten metres from the high tide line, three of which were grassland with embedded rocks. There is a reasonable distribution of this habitat over the island so it would not be surprising to see further records of this species in due course. Harding & Sutton (1985) show only two records for this species along the entire west coast of Scotland, one near Dumfries and one on Harris in the Outer Hebrides. *Androniscus dentiger* and *Cylisticus convexus* were not totally unexpected, and were found at remote synanthropic sites.

3. Diplopoda – The millipedes were previously represented by eight species although most of the 10km squares appear to be random finds with the possible exception of NM31 which had seven species. Information was not available at the time of writing but there is a Site of Special Scientific Interest at Ardalanish and an invertebrate survey may have been done there. Corbet added two species to the list in 1997, and one further species was added to the Vice County list in 2001, *Nanogona polydesmoides, Polydesmus angustus* and *Polydesmus inconstans* respectively, none of them entirely unexpected although *Nanogona* and *P. inconstans* records are very sparse in Scotland and the latter almost entirely coastal. The two species of *Cylindroiulus* were the most widely distributed and frequent species in 2001, followed by *Proteroiulus*. There were two species previously recorded but not seen in 2001, *Julus scandinavius* and *Ommatoiulus sabulosus*. The only 10km square in this survey that did not produce millipedes was NM24, the island of Lunga, but this was most likely a combination of lack of time (only two hours on the island) and pouring rain.

4. Chilopoda – Previously, the most poorly represented group on these islands with only three species, each with a single record, so it was not difficult to add to the Vice County list. Corbet (pers. comm..) added five new county records in 1997, and then four more species were added to the Vice County list in 2001. *Geophilus carpophagus* and *Lithobius forficatus* were the most frequently seen, at eleven sites each. *Lamyctes fulvicornis*, predictably, turned up at a number of grassland sites. *Lithobius variegatus*

and *L. forficatus* were found together at a number of sites but more usually, either one species or the other was present. *G. carpophagus, Schendyla nemorensis* and *Brachygeophilus truncorum* were often found with eggs or young. The woodlands on the east end of Ulva, having the widest variety of tree species encountered during this survey, also produced the most species of centipedes for any 10km square in the Vice County. All the species recorded for the area are those that might be expected.

5. Voucher specimens have been retained by the author for all the sites.

ACKNOWLEDGEMENTS

I am particularly grateful to Gordon Corbet for allowing me to incorporate his unpublished records into this report.

I would like to thank my son Tom, who acted as cook, co-driver and part-time field assistant and whose presence allowed me more time in the field. I also wish to thank Nick Price of Bibury Landscape Contractors who made a vehicle available for the duration of the trip. Distribution maps were produced using Alan Morton's DMAP system.

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