MILLIPEDES FROM NORTHUMBERLAND AND DURHAM: REPORTS ON THE 1999 AND 2005 FIELD MEETINGS

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INTRODUCTION

Little work had been done on the millipedes of Northumberland and Durham prior to that of Richard S.Bagnall in 1911. Bagnall himself noted that 'only one or two local species [of myriapod]' had been recorded before his studies (Bagnall, 1912a). Within two short years he had discovered over three quarters of the 27 species known from Durham (VC 66) and over half of the 26 species known from Northumberland South (VC 67) by 1988 (BMG, 1988). In 1913 he reported 20 taxa now regarded as valid species from the Derwent Valley and a further one from Darlington (Bagnall, 1913). Amongst these species was *Brachychaeteuma bagnalli,* described as new to science from a male specimen he collected at Gibside in 1911. In addition, three millipedes were first recognised as part of the British fauna on the basis of his specimens from the region, namely *Macrosternodesmus palicola, Nemasoma varicorne* and *Choneiulus palmatus* (Bagnall, 1912b). In 1917 he added *Boreoiulus tenuis* to the British list after collecting specimens at Gibside (Bagnall, 1918). In 1922 he collected a single, damaged female specimen of a small polydesmid from the same location (Bagnall, 1922). Although found in association with *Macrosternodesmus palicola,* Bagnall attributed his specimen to the species now called *Eumastigonodesmus boncii*. This was another first for the British fauna, thus raising the number of millipede species he collected from Durham and Northumberland to twenty three.

After Bagnall there was little attention paid to the millipede fauna of the area until R.Desmond Kime collected in the Durham area. Although submitted to the Millipede Recording Scheme, most of his work from this period went unpublished. The notable exception was his collection of large numbers of *Cylindroiulus londinensis* at Ryhope Dene, Sunderland in 1968 which was referred to by Blower (1985). Blower (1972) listed a total of 27 species of millipede (including *Eumastigonodesmus boncii*) from VC 66.

A decade later Noel Jackson (1982) produced a report based on his identifications of material from pitfall trap samples collected by David Sheppard in Castle Eden Dene. He included Val Standen's and his own observations on millipedes found at this location as well as some found elsewhere in Durham. Most significant was the addition of *Polydesmus coriaceus* (=*gallicus*) to the vice-county checklist.

Tony Barber spent two weeks in the late summer of 1981 collecting myriapods from the Cheviot (Barber, 1984). He collected sixteen species of millipede during this period, nine from Northumberland South (VC 67) and fifteen from Northumberland North (VC 68). Only one species, *Ophyiulus pilosus*, was added to the list of species recorded from VC 67. However, the millipede fauna of VC 68 had remained poorly known up until this time. Bagnall had reported just one species, *Boreoiulus tenuis*, from VC 68 (Bagnall, 1918). Blower (1972) lists nine species from VC 68 but appears to have overlooked Bagnall's record. Barber added a further six species bringing the number of species recorded from VC 68 to sixteen.

RECORDS FROM THE 1999 MEETING IN NORTHUMBERLAND

In April 1999, largely due to the relatively unknown myriapod fauna of the Cheviot, the BMG and BISG field weekend was based at Ford Castle, Northumberland. Over the weekend thirty seven different places were visited, the majority in VC 68 but four were just north of the River Tweed in the Coldstream area of Berwickshire (VC 81). These sites covered nineteen 10km grid squares from which 27 species of millipede were collected. Details of the sites visited and the species recorded from each site are given in Table 1.

The locations with the most diverse millipede fauna were the village of Wooler and the grounds of Ford Castle. This may have been partly due to typical 'garden' species such as the blaniulids and the macrosternodesmids enhancing the

TABLE 1

Records of Millipedes from the 1999 BMG Field Meeting in Northumberland

Compiled from records submitted by: Wallace Arthur, Tony Barber, Gordon Corbet, Steve Gregory, John Harper and Paul Lee

Site number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Allajulus nitidus												x										x					x				
Archiboreoiulus pallidus	x												x	x												x	x				
Blaniulus guttulatus	x	x	x	x	x	x	x	x				x	x	x	x				x					x		x	x		x		
Boreoiulus tenuis			x		x		x	x				x	x	x	x																
Brachychaeteuma sp.												x																			
Brachydesmus superus				x					x		x		x	x		x		x	x					x				x			
Brachyiulus pusillus				x			x	x				x		x		x								x				x			
Choneiulus palmatus													x																		
Cylindroiulus britannicus			x	x	x		x	x					x	x	x	x	x		x										x		
Cylindroiulus caeruleocinctus			x					x																			x				
Cylindroiulus latestriatus												x												x						x	x
Cylindroiulus punctatus	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			x	x		x		x		x		x
Glomeris marginata	x	x							x		x	x				x	x		x	x	x				x				x		
Julus scandinavius	x	x					x		x	x						x	x				x	x			x		x	x	x	x	
Macrosternodesmus palicola				x									x	x	x												x				
Melogona scutellaris							x																			x					
Nanogona polydesmoides			x		x		x					x			x														x		
Nemasoma varicorne																x													x		
Nopoiulus kochii			x																												
Ommatoiulus sabulosus					x	x																									
Ophiodesmus albonanus				x				x				x	x		x												x				
Ophyiulus pilosus	x	x	x		x	x	x		x		x	x	x	x	x	x			x		x	x		x		x	x		x		x
Polydesmus angustus	x	x	x	x	x		x	x			x	x	x	x	x	x					x	x		x	x		x	x	x		
Polydesmus denticulatus							x							x																	
Polydesmus inconstans	x			x		x		x				x	x		x							x									
Proteroiulus fuscus	x		x	x		x	x		x		x		x	x		x													x		
Tachypodoiulus niger	x	x		x	x	x	x	x		x		x	x	x	x	x	x	x	x		x		x				x	x	x	x	
No. spp. (Total = 27)	10	7	10	11	9	7	13	10	6	3	6	14	14	13	11	11	5	3	7	1	5	6	2	6	4	4	11	3	13	3	3

TABLE 1 (continued): Records of Millipedes from the 1999 BMG Field Meeting in Northumberland

Site number	32	33	34	35	36	37
Allajulus nitidus						
Archiboreoiulus pallidus	x					
Blaniulus guttulatus			x			
Boreoiulus tenuis		x				
Brachychaeteuma sp.						
Brachydesmus superus	x					
Brachyiulus pusillus		x	x			
Choneiulus palmatus						
Cylindroiulus britannicus		x				
Cylindroiulus caeruleocinctus						
Cylindroiulus latestriatus		x		x	x	x
Cylindroiulus punctatus	x	x	x			
Glomeris marginata						
Julus scandinavius	x				x	
Macrosternodesmus palicola			x			
Melogona scutellaris						
Nanogona polydesmoides	x					x
Nemasoma varicorne						
Nopoiulus kochii						
Ommatoiulus sabulosus						
Ophiodesmus albonanus						
Ophyiulus pilosus	x	x			x	x
Polydesmus angustus	x					
Polydesmus denticulatus						
Polydesmus inconstans	x					
Proteroiulus fuscus			x			
Tachypodoiulus niger	x	x			x	
No. spp.(Total = 27)	9	7	5	1	4	3

Site Details

No.	Site name	NGR	VC	No.	Site name	NGR	VC
1	Hethpool	NT89 28	68	20	Thrunton Wood	NU084103	68
2	Hethpool	NT89 29	68	21	Roseden	NU037215	68
3	The Hirsel, Coldstream	NT835395	81	22	Chillingham Church	NU062259	68
4	Cornhill-on-Tweed (viaduct)	NT855380	68	23	Chillingham, woodland	NU063261	68
5	The Hirsel, Coldstream	NT825401	81	24	Berwick, cliffs	NU008528	68
6	Dunglass Wood, Coldstream	NT833414	81	25	Mere Burn	NU197030	68
7	River Till, Twizel	NT884434	68	26	Alnwick	NU18 13	68
8	Norham Church	NT897475	68	27	Alnwick	NU19 13	68
9	Hethpool	NT90 28	68	28	Bamburgh	NU19 34	68
10	Harthorpe Valley, moor	NT951223	68	29	Brainshaugh	NU20 02	68
11	Harthorpe Valley, scrub	NT960231	68	30	Alnmouth	NU2 0	68
12	Wooler	NT99 28	68	31	Alnmouth	NU24 10	68
13	Ford Castle	NT94 37	68	32	Howick	NU24 17	68
14	Whiteadder Water	NT922546	81	33	Boulmer Steel	NU26 14	68
15	Berwick, churchyard	NT996523	68	34	Nacker Hole	NU23 28	68
16	Duke's Bank Wood SSSI	NZ175998	68	35	Beadnell Church	NU23 29	68
17	Kyloe, Lowick	NU041406	68	36	Bamburgh	NU20 33	68
18	Coe Burn, Thrunton Wood	NU087086	68	37	Greenhill Rocks, Bamburgh	NU201340	68
19	Powburn	NU065163	68				

TABLE 2

Records of Millipedes from the 2005 BMG Field Meeting in Durham

Compiled from records submitted by: Tony Barber, Mark Frater, Des Kime, Paul Lee, Eric Philp, Helen Read, Paul Richards and Shona Turnbull

Site number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
Allajulus nitidus																			x							
Archiboreoiulus pallidus			x								x															
Blaniulus guttulatus	x	x		x	x	x	x				x								x				x	x		
Boreoiulus tenuis					x					x													x	x	x	
Brachychaeteuma bagnalli																			x					x		
Brachychaeteuma sp.		x	x																							
Brachydesmus superus			x		x		x			x	x							x	x				x			
Brachyiulus pusillus								x								x										
Cylindroiulus britannicus						x	x				x											x	x	x	x	x
Cylindroiulus caeruleocinctus																								x		
Cylindroiulus latestriatus											x	x	x									x				
Cylindroiulus londinensis				x							x		x													
Cylindroiulus punctatus	x	x	x	x	x	x	x	x	x	x	x			x		x	x	x	x		x		x	x	x	x
Geoglomeris subterranea		x	x	x																						
Glomeris marginata						x	x	x		x	x			x	x	x	x	x	x		x		x			
Julus scandinavius			x														x		x						x	
Macrosternodesmus palicola	x	x	x			x				x														x	x	
Melogona scutellaris																			x				x			
Nanogona polydesmoides	x		x	x	x												x	x	x				x			
Nemasoma varicorne		x				x	x				x															
Ommatoiulus sabulosus	x																									
Ophiodesmus albonanus																							x	x		
Ophyiulus pilosus	x		x	x	x	x	x				x	x	x			x	x		x				x			
Oxidus gracilis																						x				
Polydesmus angustus				x			x	x			x					x	x	x	x							
Polydesmus coriaceus	x			x						x	x													x		
Polydesmus denticulatus																	x									
Polydesmus inconstans		x																						x		
Poratia digitata																						x				
Proteroiulus fuscus		x	x			x	x				x					x	x	x	x	x	x	x	x	x		
Tachypodoiulus niger	x		x	x	x		x	x	x	x	x		x	x	x		x	x	x		x				x	

Site details

No.	Site name	NGR	VC
	On Magnesian limestone		
1	Bishop Middleham	NZ33 32	66
2	Raisby (Coxhoe) Quarry	NZ332353	66
3	Raisby Hill	NZ337355	66
4	Trimdon Grange Quarry	NZ36 35	66
5	Wingate Quarry	NZ37 37	66
6	Castle Eden	NZ42 38	66
7	Hesleden Dene	NZ44 37	66
8	Warren House Gill	NZ44 42	66
9	Blackhall	NZ45 40	66
10	Blackhall Rocks	NZ469393	66
11	Crimdon Dene	NZ48 36	66
12	Crimdon Dunes	NZ48 37	66
13	Hart Warren	NZ49 36	66
	On Carboniferous lime and shale		
14	Hamsterley Forest	NZ07 30	66
15	Bollihope Common	NY98 35	66
16	Harehope Quarry	NZ03 36	66
17	Derwent Gorge	NZ06 48	66
18	Derwent Gorge	NZ06 49	66
19	Gibside	NZ17 58	66
20	Gibside	NZ17 59	66
21	Snipes Dene, Gibside	NZ18 59	66
22	Botanic Garden, Durham (hothouse)	NZ27 40	66
23	Botanic Garden, Durham (grounds)	NZ27 40	66
24	Collingwood College (grounds)	NZ27 40	66
25	Great Chilton Farm	NZ29 30	66
	Other geology		
26	Tweed Estuary	NT993533	68

TABLE 3

Summary of millipede species recorded from Berwickshire, Durham and Northumberland

	Bagnall 1911-22				Blower 1972				Jackson 1982				Barber 1984				BMG 1988				BMG 1999				BMIG 2005			
Allajulus nitidus																			68				68		66			
Archiboreoiulus pallidus					66										68		66	67	68				68	81	66			
Blaniulus guttulatus	66	67			66	67	68		66						68		66	67	68	81			68	81	66			
Boreoiulus tenuis	66	67	68		66	67											66	67	68				68	81	66			
Brachychaeteuma bagnalli	66				66												66								66			
Brachydesmus superus	66	67			66	67	68								68		66	67	68				68	81	66			
Brachyiulus pusillus					66	67											66	67	68				68	81	66			
Choneiulus palmatus	66	67			66	67											66	67					68					
Craspedosoma rawlinsi	66				66												66			81								
Cylindroiulus britannicus	66				66				66								66	67					68	81	66			68
Cylindroiulus caeruleocinctus																			68				68	81	66			
Cylindroiulus latestriatus					66	67											66	67	68				68		66			
Cylindroiulus londinensis					66				66								66	67							66			
Cylindroiulus parisiorum																			68									
Cylindroiulus punctatus	66	67			66	67	68		66					67	68		66	67	68	81			68	81	66			68
Geoglomeris subterranea																									66			
Glomeris marginata	66	67			66	67	68		66					67	68		66	67	68	81			68		66			
Julus scandinavius	66	67			66	67	68		66					67	68		66	67	68	81			68		66			
Macrosternodesmus palicola	66	67			66	67											66	67					68	81	66			
Melogona scutellare	66				66										68		66	67	68				68		66			
Nanogona polydesmoides	66	67			66	67			66					67	68		66	67	68				68	81	66			
Nemasoma varicorne	66	67			66	67								67			66	67					68		66			
Nopoiulus kochi																		67						81				
Ommatoiulus sabulosus	66	67			66	67	68		66						68		66	67	68	81				81	66			
Ophiodesmus albonanus						67												67					68		66			
Ophyiulus pilosus	66				66				66					67	68		66	67	68				68	81	66			
Oxidus gracilis	66	67			66	67											66	67							66			
Polydesmus angustus	66	67			66	67	68		66					67	68		66	67	68	81			68	81	66			
Polydesmus coriaceus									66																66			
Polydesmus denticulatus	66				66										68		66	67	68				68		66			
Polydesmus inconstans	66				66										68		66	67	68				68	81	66			
Polyxenus lagurus																			68									
Poratia digitata																									66			

fauna recorded from these places but the intensity of recorder effort, especially at Ford Castle, probably accounted for much of the difference. The relatively high diversities found at Twizel, Whiteadder Water and Brainshaugh were probably more significant as there was less recorder effort at these sites and fewer synanthropic species were found.

Notable finds included a male and two female *Nopoiulus kochii* from Coldstream collected by John Harper and constituting a first record for VC 81. The record of *Choneiulus palmatus* from Ford Castle was also a first for VC 68. Harper also collected an adult female *Brachychaeteuma* from Wooler. Whether the species was *bagnalli* or *bradeae* it also would have been new to VC 68 had its identity been confirmed with a male specimen.

RECORDS FROM THE 2005 MEETING IN DURHAM

The BMIG field weekend in April 2005 was based at Collingwood College, Durham. The millipede faunas of twenty five different sites covering ten 10km grid squares in VC 66 and one site in VC 68 were sampled over the weekend. Twenty nine species of millipede were collected in total. Details of the sites visited and the species recorded from each site are given in Table 2.

The most diverse millipede fauna was found around the Collingwood Campus of the University. Twenty different species were collected from this site but the intensity of recorder effort was far greater here than at any other location. The presence of the University Botanic Gardens on the campus was also a significant factor in increasing the synanthropic component of the fauna. Other sites with relatively high diversities of millipedes were Crimdon Dene where fourteen different species were collected and Gibside where thirteen species were found.

Two species were recorded for the first time from VC66 during the weekend. The hothouse alien, *Poratia digitata,* was collected from glasshouses in the University Botanic Gardens by Paul Richards. The only records of this species in Britain previously were from Kew Gardens and Leicester Museum Botanic Gardens. The tiny pill millipede *Geoglomeris subterranea* was collected by several people from the limestone quarry complexes at Trimdon and Raisby.

DISCUSSION

In addition to the new vice-county records noted above, both field meetings were successful in their aims of improving the coverage of the region. The presence of most of the millipedes previously recorded from the region was confirmed and a large number of new 10km grid square records were generated. Table 3 summarises the millipede records for VC 66, 67, 68, 81 generated by Bagnall (1911 to 1922), by Jackson (1982), by Barber (1984) and by the Millipede Recording Scheme (Blower, 1972; BMG, 1988) and compares these records with those generated by the two field meetings. The number of species recorded from each of VC 66, 68 and 81 was increased by five, five and eleven respectively.

Gibside proved to be a rich site for millipedes, just as in Bagnall's day. *Allajulus nitidus* was added to the species known from the site and *Brachychaeteuma bagnalli* was still present at its type location. However, there was no sign of his other significant record from the site, *Eumastigonodesmus boncii.* Several previous visits have failed to re-discover this millipede and as a result it has now been removed from the checklist of British species (Lee, 2006).

There was no return visit to Ryhope Dene to find *Cylindroiulus londinensis*. Jackson (1982) had stated that the species was not present in Castle Eden Dene and this was confirmed during the meeting. However, Des Kime did find *Cylindroiulus londinensis* at two locations further south on the coast near Hartlepool and several people also saw a large population of the species further inland in Trimdon Grange Quarry. The fragmented distribution of this millipede in the area is not easily explained. Although generally considered an animal of woodland on calcareous soils, it appears to be absent from many sites meeting this description yet occurs in apparently unsuitable sites such as coastal dunes at Hart Warren.

Blower (1958) lists *Nopoiulus minutus* (=*kochii*) from Durham and Northumberland on the basis of records published by Bagnall (1912b) from Gibside and Fencehouses in Durham and from Harbottle, Northumberland. However, this species is not listed for either county in Blower (1985) or BMG (1988) as Bagnall later (1917) re-deter-

mined his specimens as *Choneiulus palmatus*. This millipede was re-found in Northumberland and found for the first time in VC 68 through a specimen collected at Ford Castle during the 1999 meeting. The collection of *Nopoiulus kochii* just over the border at Coldstream in Berwickshire suggests both species may well be present in Durham and Northumberland as well.

The confirmation of *Polydesmus coriaceus* as a member of the millipede fauna of Durham provides evidence for a possible northward expansion of the range of this species, something which appears to have gone unnoticed previously. Blower (1985) shows no Scottish records for the millipede and its English distribution reaches no further north than the modern county of South Yorkshire despite the fact that Jackson (1982) had reported collecting a specimen from Wheatley Hill, Durham. The preliminary millipede atlas (BMG 1988) shows the species occurring a little further north in North Humberside with single, outlying records for the Cumbrian coast and West Lothian. Subsequently the millipede has been recorded from a number of locations in North Yorkshire and at a second site in Cumbria. The collection of the millipede from five separate sites in Durham during the 2005 meeting suggests the species is established here although it was not collected further north during the 1999 meeting. BMIG members monitoring sites in northern England and southern Scotland over the next decade could provide valuable information on whether *Polydesmus coriaceus* is truly spreading northwards or whether increased recording effort is creating a false picture of range expansion.

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