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A survey of the arachnids (spiders & harvestmen) of Morfa Harlech National Nature Reserve, 2017–2019

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1 Crynodeb gweithredol

Er mwyn gwella ein gwybodaeth am ffawna arachnid GNG Morfa Harlech cynhaliwyd pedwar ymweliad arolygu â'r warchodfa: 15^{fed} Medi 2017; 27^{ain} Awst 2018; 28^{ain} Mai 2019 a 15^{fed} Awst 2019. Arolygwyd yr arachnidau o 28 pwynt samplu gwahanol ar draws y safle i gael gwybodaeth eang am y ffawna. Gwnaed y gwaith samplu i raddau helaeth gan ddefnyddio samplwyr faciwm (peiriannau batri E-fac Lithiwm-ion a G-fac 2-strôc), gyda chwilio â llaw mewn ardaloedd gyda thywod mwy symudol.

Cofnodwyd cyfanswm o 78 o rywogaethau o bryfed cop a saith carw'r gwellt, gan ychwanegu 34 o bryfed cop ac un carw'r gwellt at restr rhywogaethau'r safle. Mae rhestr y safle'n cynnwys 120 o rywogaethau o bryfed cop yn awr, ac 11 carw'r gwellt. O blith y 120 o rywogaethau o bryfed cop sydd wedi'u cofnodi ar y safle nawr, mae *Rhysodromus fallax* yn Agored i Niwed/Cenedlaethol Brin ac *Agyneta mollis* yn Agos at Fygythiad/Cenedlaethol Brin, a'r ddau wedi'u hailddarganfod yn ystod yr arolwg presennol. Mae *A. mollis* eisoes yn nodwedd gymhwyso yn SoDdGA Morfa Harlech, gyda chofnodion diweddar Cymru wedi'u cyfyngu i Forfa Harlech a Morfa Dyffryn, ac mae *R. fallax* wedi'i ychwanegu fel nodwedd gyda'r cofnod cyfoes hwn. Mae 13 o rywogaethau pellach o blith y 120 o bryfed cop yn rhai Cenedlaethol Anfynych, gyda'r arolwg hwn yn ailgadarnhau presenoldeb pump ohonynt (*Cheiracanthium virescens*, *Argenna subnigra*, *Satlatlas britteni*, *Walckenaeria monoceros* ac *Xerolycosa miniata*) ac yn ychwanegu pedair rhywogaeth newydd (*Bathypantes setiger*, *Parapelecopsis nemoraloides*, *Silometopus ambiguus* a *Scotina gracilipes*). Ni chafodd pedwar pryf cop Cenedlaethol Anfynych (*Zelotes electus*, *Mecopisthes peusi*, *Alopecosa cuneata*, *Pardosa tenuipes* (=proxima)) eu hailddarganfod yn ystod yr arolwg hwn.

Cofnododd yr arolwg hwn bedwar allan o'r chwe phryf cop sy'n rhan o gasgliad y twyni (*Arctosa perita*, *Rhysodromus fallax*, *Troxochrus scabriculus* a *Xerolycosa miniata*) sy'n cael eu cydnabod gan CNC a darparodd gofnodion am bedair rhywogaeth y twyni ychwanegol (*Cheiracanthium virescens*, *Argenna subnigra*, *Parapelecopsis nemoraloides* ac *Xysticus kochi*) gyda *P. nemoraloides* yn newydd i Forfa Harlech. Yn gyffredinol, mae 11 o rywogaethau o bryfed cop sy'n cael eu cydnabod fel rhai â chyswllt â thwyni wedi cael eu cofnodi ym Morfa Harlech, ac maent i gyd yn debygol o fod yn elfennau o gasgliad o infertebrata twyni SoDdGA y safle.

Mae gwybodaeth gyd-destunol yn cael ei darparu sy'n rhoi sylw i gofnodion blaenorol y safle a dewisiadau ecolegol yr holl arachnidau Cenedlaethol Brin, Cenedlaethol Anfynych a chysylltiedig â'r twyni sy'n hysbys ym Morfa Harlech.

2 Executive summary

In order to improve our knowledge of the arachnid fauna of Morfa Harlech NNR four survey visits were made to the reserve: 15th September 2017; 27th August 2018; 28th May 2019 and 15th August 2019. Arachnids were surveyed from 28 different sample points across the site to gain a broad insight into the fauna. Sampling was largely undertaken using vacuum samplers (G-vac 2-stroke and E-vac Lithium-ion battery powered machines), with hand searching employed in areas with more mobile sand.

In total 78 spider species and seven harvestmen species were recorded, adding 34 spiders and one harvestman to the site's species list. The reserve list now stands at 120 spider species and 11 harvestmen species. Of the 120 spider species now recorded from the site, *Rhysodromus fallax* is Vulnerable/Nationally Rare and *Agyneta mollis* is Near Threatened/Nationally Rare, both being re-found during the current survey. *A. mollis* is already a qualifying feature of Morfa Harlech SSSI, with recent Welsh records restricted to Morfa Harlech and Morfa Dyffryn, and *R. fallax* has been added as a feature with this contemporary record. A further 13 species of the 120 spiders are Nationally Scarce, with this survey reconfirming the presence of five (*Cheiracanthium virescens*, *Argenna subnigra*, *Satilatlas britteni*, *Walckenaeria monoceros* and *Xerolycosa miniata*) and adding four new species (*Bathyphantes setiger*, *Parapelecopsis nemoraloides*, *Silometopus ambiguus* and *Scotina gracilipes*). Four Nationally Scarce spiders (*Zelotes electus*, *Mecopisthes peusi*, *Alopecosa cuneata*, *Pardosa tenuipes* (=proxima)) were not rediscovered during this survey.

This survey recorded four of the six dune assemblage spiders (*Arctosa perita*, *Rhysodromus fallax*, *Troxochrus scabriculus* and *Xerolycosa miniata*) recognised by NRW and provided records of four additional dune species (*Cheiracanthium virescens*, *Argenna subnigra*, *Parapelecopsis nemoraloides* and *Xysticus kochi*) with *P. nemoraloides* being new to Morfa Harlech. Overall, 11 spider species recognised as dune associates have now been recorded from Morfa Harlech, all of which are likely to be components of the SSSI dune invertebrate assemblage on the site.

Contextual information is provided covering previous site records and the ecological preferences of all Nationally Rare, Nationally Scarce and dune-associated arachnids known from Morfa Harlech.

3 Introduction

Morfa Harlech NNR is a large sand dune system on the west coast of North Wales. It has attracted the attention of several visiting arachnologists over the years, with early records dating back to 1963 by John Parker, but records of only 23 spider species and one harvestmen species could be gleaned from this period.

Dick Loxton (Loxton, 2018) undertook a pitfall trap survey at Morfa Harlech from 22nd April to 23rd July 2015. During his survey, he considerably increased our knowledge of the spider fauna on the NNR, recording 72 different spider species and 10 harvestmen species (Table 1). However, his survey was primarily focused on the dune slack communities rather than attempting to produce a more comprehensive species list for the NNR. Rhodri Dafydd added the spider *Araneus quadratus* to the reserve list on the 19th September 2017.

Reviewing the available arachnid records (NRW's Welsh Invertebrate Database and the National Spider Recording Scheme) revealed that by 2017 Morfa Harlech was known to support 86 spider species and 10 harvestmen species including the Near Threatened/Nationally Rare *Agyneta mollis* which is a qualifying feature of Morfa Harlech SSSI. The SSSI Dune Invertebrate Assemblage is comprised of 153 invertebrate species entirely or mostly restricted to dunes, including six spiders – *Alopecosa cuneata*, *Arctosa perita*, *Rhysodromus fallax*, *Troxochrus scabriculus*, *Xerolycosa miniata* and *Zelotes electus*.



Figure 1. *Rhysodromus fallax* subadult female from Morfa Harlech NNR displaying its cryptic colouration on sand. © Richard Gallon

Table 1. Arachnids recorded from Morfa Harlech. 35 species highlighted in orange are newly recorded to the reserve from this survey. * = presence

Type	Family	Scientific Name	Status	Earliest Year	Latest Year	SRS Records	Loxton 2015	Survey 2017–19
Harvestman	Leiobunidae	<i>Leiobunum blackwalli</i>	-	2015	2017	-	*	*
Harvestman	Leiobunidae	<i>Leiobunum rotundum</i>	-	2018	2019	-	-	*
Harvestman	Nemastomatidae	<i>Mitostoma chrysomelas</i>	-	2015	2015	-	*	-
Harvestman	Nemastomatidae	<i>Nemastoma bimaculatum</i>	-	2015	2019	-	*	*
Harvestman	Phalangidae	<i>Lacinius ephippiatus</i>	-	2015	2015	-	*	-
Harvestman	Phalangidae	<i>Mitopus morio</i>	-	2015	2015	-	*	-
Harvestman	Phalangidae	<i>Oligolophus tridens</i>	-	2015	2019	-	*	*
Harvestman	Phalangidae	<i>Opilio saxatilis</i>	-	2015	2019	-	*	*
Harvestman	Phalangidae	<i>Paroligolophus agrestis</i>	-	2015	2015	-	*	-
Harvestman	Phalangidae	<i>Phalangium opilio</i>	-	1984	2019	*	*	*
Harvestman	Phalangidae	<i>Platybunus triangularis</i>	-	2015	2019	-	*	*
Totals	-	-	-	-	-	1	10	7
Spider	Agelenidae	<i>Agelena labyrinthica</i>	-	2019	2019	-	-	*
Spider	Araneidae	<i>Agelenatea redii</i>	-	1991	2018	*	-	*
Spider	Araneidae	<i>Araneus diadematus</i>	-	1991	2017	*	-	*
Spider	Araneidae	<i>Araneus quadratus</i>	-	2017	2017	*	-	-
Spider	Araneidae	<i>Hypsosinga pygmaea</i>	-	2018	2019	-	-	*
Spider	Araneidae	<i>Larinioides cornutus</i>	-	2017	2017	-	-	*
Spider	Cheiracanthiidae	<i>Cheiracanthium virescens</i>	Nationally Scarce	2015	2017	-	*	*
Spider	Clubionidae	<i>Clubiona neglecta</i>	-	2015	2015	-	*	-
Spider	Clubionidae	<i>Clubiona reclusa</i>	-	2019	2019	-	-	*
Spider	Clubionidae	<i>Clubiona subtilis</i>	-	1997	2019	*	-	*
Spider	Dictynidae	<i>Argenna subnigra</i>	Nationally Scarce	2015	2019	-	*	*
Spider	Gnaphosidae	<i>Drassodes cupreus</i>	-	2015	2015	-	*	-
Spider	Gnaphosidae	<i>Drassyllus pusillus</i>	-	2015	2015	-	*	-
Spider	Gnaphosidae	<i>Haplodrassus signifer</i>	-	2000	2015	*	*	-
Spider	Gnaphosidae	<i>Zelotes electus</i>	Nationally Scarce	2015	2015	-	*	-
Spider	Gnaphosidae	<i>Zelotes latreillei</i>	-	2015	2015	-	*	-
Spider	Hahniidae	<i>Antistea elegans</i>	-	2015	2019	-	*	*
Spider	Hahniidae	<i>Hahnina nava</i>	-	1963	1963	*	-	-
Spider	Linyphiidae	<i>Agyneta decora</i>	-	2015	2015	-	*	-
Spider	Linyphiidae	<i>Agyneta mollis</i>	Near Threatened/ Nationally Rare	2015	2017	-	*	*
Spider	Linyphiidae	<i>Agyneta ramosa</i>	-	2015	2015	-	*	-
Spider	Linyphiidae	<i>Agyneta rurestris</i>	-	2019	2019	-	-	*
Spider	Linyphiidae	<i>Allomengea vidua</i>	-	2015	2015	-	*	-
Spider	Linyphiidae	<i>Araeoncus humilis</i>	-	2015	2019	-	*	*
Spider	Linyphiidae	<i>Bathypantes gracilis</i>	-	1963	2019	*	*	*
Spider	Linyphiidae	<i>Bathypantes parvulus</i>	-	1994	2015	*	*	-
Spider	Linyphiidae	<i>Bathypantes setiger</i>	Nationally Scarce	2019	2019	-	-	*
Spider	Linyphiidae	<i>Centromerita concinna</i>	-	1963	2015	*	*	-
Spider	Linyphiidae	<i>Ceratinella brevipes</i>	-	2015	2019	-	*	*
Spider	Linyphiidae	<i>Ceratinella brevis</i>	-	2015	2015	-	*	-
Spider	Linyphiidae	<i>Collinsia inerrans</i>	-	2015	2015	-	*	-
Spider	Linyphiidae	<i>Dicymbium brevisetosum</i>	-	2017	2017	-	-	*
Spider	Linyphiidae	<i>Dicymbium nigrum</i>	-	2015	2017	-	*	*
Spider	Linyphiidae	<i>Diplocephalus latifrons</i>	-	2015	2015	-	*	-
Spider	Linyphiidae	<i>Diplocephalus permixtus</i>	-	2019	2019	-	-	*
Spider	Linyphiidae	<i>Dismodicus bifrons</i>	-	2015	2015	-	*	-
Spider	Linyphiidae	<i>Erigone arctica</i>	-	2019	2019	-	-	*
Spider	Linyphiidae	<i>Erigone atra</i>	-	2015	2017	-	*	*
Spider	Linyphiidae	<i>Erigone dentipalpis</i>	-	2015	2019	-	*	*
Spider	Linyphiidae	<i>Erigone longipalpis</i>	-	2018	2019	-	-	*
Spider	Linyphiidae	<i>Erigone promiscua</i>	-	2015	2018	-	*	*
Spider	Linyphiidae	<i>Erigonella hiemalis</i>	-	2015	2019	-	*	*
Spider	Linyphiidae	<i>Gnathonarium dentatum</i>	-	2017	2019	-	-	*
Spider	Linyphiidae	<i>Gongyliidium vivum</i>	-	2015	2019	-	*	*
Spider	Linyphiidae	<i>Hypomma bituberculatum</i>	-	2019	2019	-	-	*
Spider	Linyphiidae	<i>Linyphia triangularis</i>	-	1991	2017	*	-	*
Spider	Linyphiidae	<i>Lophomma punctatum</i>	-	2017	2019	-	-	*
Spider	Linyphiidae	<i>Mecopisthes peusi</i>	Nationally Scarce	2015	2015	-	*	-
Spider	Linyphiidae	<i>Micrargus herbigradus</i>	-	2015	2015	-	*	-
Spider	Linyphiidae	<i>Micrargus subaequalis</i>	-	2015	2015	-	*	-
Spider	Linyphiidae	<i>Monocephalus fuscipes</i>	-	2015	2015	-	*	-
Spider	Linyphiidae	<i>Neriene clathrata</i>	-	2019	2019	-	-	*
Spider	Linyphiidae	<i>Oedothorax fuscus</i>	-	2015	2019	-	*	*
Spider	Linyphiidae	<i>Oedothorax retusus</i>	-	2015	2019	-	*	*
Spider	Linyphiidae	<i>Palliduphantes ericaeus</i>	-	2019	2019	-	-	*
Spider	Linyphiidae	<i>Parapelecopsis nemoraloides</i>	Nationally Scarce	2017	2017	-	-	*
Spider	Linyphiidae	<i>Pelecopsis mengei</i>	-	2019	2019	-	-	*

Type	Family	Scientific Name	Status	Earliest Year	Latest Year	SRS Records	Loxton 2015	Survey 2017–19
Spider	Linyphiidae	<i>Pelecopsis parallela</i>	-	2015	2017	-	*	*
Spider	Linyphiidae	<i>Peponocranium ludicrum</i>	-	1963	1963	*	-	-
Spider	Linyphiidae	<i>Pocadicnemis pumila</i>	-	2015	2019	-	*	*
Spider	Linyphiidae	<i>Saarestoa abnormis</i>	-	2015	2015	-	*	-
Spider	Linyphiidae	<i>Satlatlas britteri</i>	Nationally Scarce	2015	2019	-	*	*
Spider	Linyphiidae	<i>Savignia frontata</i>	-	2015	2015	-	*	-
Spider	Linyphiidae	<i>Silometopus ambiguus</i>	Nationally Scarce	2019	2019	-	-	*
Spider	Linyphiidae	<i>Silometopus elegans</i>	-	2015	2019	-	*	*
Spider	Linyphiidae	<i>Stemonyphantes lineatus</i>	-	1963	2019	*	-	*
Spider	Linyphiidae	<i>Tapinocyba praecox</i>	-	2017	2017	-	-	*
Spider	Linyphiidae	<i>Tenuiphantes menzei</i>	-	2019	2019	-	-	*
Spider	Linyphiidae	<i>Tenuiphantes tenuis</i>	-	2000	2019	*	*	*
Spider	Linyphiidae	<i>Tenuiphantes zimmermanni</i>	-	2015	2015	-	*	-
Spider	Linyphiidae	<i>Tiso vagans</i>	-	2015	2017	-	*	*
Spider	Linyphiidae	<i>Trichopternoides thorelli</i>	-	2015	2015	-	*	-
Spider	Linyphiidae	<i>Troxochrus scabriculus</i>	-	1963	2019	*	*	*
Spider	Linyphiidae	<i>Typhochrestus digitatus</i>	-	2015	2015	-	*	-
Spider	Linyphiidae	<i>Walckenaeria acuminata</i>	-	2015	2015	-	*	-
Spider	Linyphiidae	<i>Walckenaeria atrotibialis</i>	-	2015	2015	-	*	-
Spider	Linyphiidae	<i>Walckenaeria monoceros</i>	Nationally Scarce	2015	2019	-	*	*
Spider	Liocranidae	<i>Agroeca proxima</i>	-	2015	2015	-	*	-
Spider	Liocranidae	<i>Scotina gracilipes</i>	Nationally Scarce	2017	2017	-	-	*
Spider	Lycosidae	<i>Alopecosa cuneata</i>	Nationally Scarce	1999	1999	*	-	-
Spider	Lycosidae	<i>Alopecosa pulverulenta</i>	-	2015	2015	-	*	-
Spider	Lycosidae	<i>Arctosa leopardus</i>	-	2015	2015	-	*	-
Spider	Lycosidae	<i>Arctosa perita</i>	-	1963	2019	*	*	*
Spider	Lycosidae	<i>Pardosa agricola</i>	-	2000	2000	*	-	-
Spider	Lycosidae	<i>Pardosa amentata</i>	-	2015	2015	-	*	-
Spider	Lycosidae	<i>Pardosa monticola</i>	-	2017	2019	-	*	*
Spider	Lycosidae	<i>Pardosa palustris</i>	-	2015	2015	-	*	-
Spider	Lycosidae	<i>Pardosa pullata</i>	-	2015	2019	-	*	*
Spider	Lycosidae	<i>Pardosa purbeckensis</i>	-	2019	2019	-	-	*
Spider	Lycosidae	<i>Pardosa tenuipes (=proxima)</i>	Nationally Scarce	2015	2015	-	*	-
Spider	Lycosidae	<i>Pirata piraticus</i>	-	2015	2019	-	*	*
Spider	Lycosidae	<i>Piratula latitans</i>	-	2015	2019	-	*	*
Spider	Lycosidae	<i>Trochosa ruricola</i>	-	2015	2017	-	*	*
Spider	Lycosidae	<i>Trochosa terricola</i>	-	2015	2015	-	*	-
Spider	Lycosidae	<i>Xerolycosa miniata</i>	Nationally Scarce	1995	2019	*	*	*
Spider	Mimetidae	<i>Ero cambridgei</i>	-	2017	2019	-	-	*
Spider	Mimetidae	<i>Ero furcata</i>	-	2019	2019	-	-	*
Spider	Philodromidae	<i>Rhysodromus fallax</i>	Vulnerable/ Nationally Rare	1991	2017	*	-	*
Spider	Philodromidae	<i>Tibellus maritimus</i>	-	2019	2019	-	-	*
Spider	Pisauridae	<i>Pisaura mirabilis</i>	-	2018	2019	-	-	*
Spider	Salticidae	<i>Euophrys frontalis</i>	-	2017	2019	-	-	*
Spider	Salticidae	<i>Heliophanus flavipes</i>	-	2015	2019	-	*	*
Spider	Tetragnathidae	<i>Metellina menzei</i>	-	2000	2000	*	-	-
Spider	Tetragnathidae	<i>Metellina segmentata</i>	-	2017	2019	-	-	*
Spider	Tetragnathidae	<i>Pachygnatha clercki</i>	-	2015	2018	-	*	*
Spider	Tetragnathidae	<i>Pachygnatha degeeri</i>	-	1997	2019	*	*	*
Spider	Tetragnathidae	<i>Tetragnatha extensa</i>	-	1991	2019	*	-	*
Spider	Theridiidae	<i>Enoplognatha latimana</i>	-	2018	2018	-	-	*
Spider	Theridiidae	<i>Enoplognatha ovata</i>	-	2018	2018	-	-	*
Spider	Theridiidae	<i>Episinus angulatus</i>	-	2019	2019	-	-	*
Spider	Theridiidae	<i>Neottiura bimaculata</i>	-	2017	2019	-	-	*
Spider	Theridiidae	<i>Phylloneta impressa</i>	-	2018	2018	-	-	*
Spider	Theridiidae	<i>Phylloneta sisyphia</i>	-	2000	2000	*	-	-
Spider	Thomisidae	<i>Ozyptila atomaria</i>	-	2017	2017	-	-	*
Spider	Thomisidae	<i>Ozyptila sanctuaria</i>	-	2015	2017	-	*	*
Spider	Thomisidae	<i>Ozyptila simplex</i>	-	2015	2015	-	*	-
Spider	Thomisidae	<i>Ozyptila trux</i>	-	2015	2015	-	*	-
Spider	Thomisidae	<i>Xysticus cristatus</i>	-	2015	2017	-	*	*
Spider	Thomisidae	<i>Xysticus erraticus</i>	-	2015	2017	-	*	*
Spider	Thomisidae	<i>Xysticus kochi</i>	-	1991	2019	*	*	*
Totals	-	-	-	-	-	24	72	78

4 Methods

Morfa Harlech NNR was surveyed on four dates – 15th September 2017, 27th August 2018, 28th May 2019 and 15th August 2019. A variety of survey methods were employed across the site, depending on the particular habitat being investigated. In areas of fixed dune grassland and dune slack it was possible to use vacuum samplers (G-vac & E-vac, Figure 2), but where sand was more mobile, hand sampling and grubbing were undertaken. The aim was to explore a representative range of habitats and locations across the NNR, since most previous arachnid records were concentrated in the southern, more accessible part of the site. Although sampling duration was not timed, effort was made to ensure that all the different arachnid species encountered were recorded. Samples were made at 28 different locations (Figure 4).



Figure 2. Vacuuming sampling the northern section of Morfa Harlech NNR. © Harriet Robinson



Figure 3. Selecting specimens from a vacuum sample at Morfa Harlech NNR. © Harriet Robinson



Figure 4. Arachnid survey site locations 1-27 at Morfa Harlech NNR

5 Results

5.1. Arachnid survey results

During this survey of Morfa Harlech NNR, 78 spider species and seven harvestmen species were recorded from 28 different sample site locations (Table 1), adding 34 spiders and one harvestman to the site list. The reserve list now stands at 120 spider species and 11 harvestmen species. No Pseudoscorpions appear to have been recorded from the NNR. Of the 120 spider species now recorded from the site, one is Vulnerable, one is Near Threatened (they are both Nationally Rare) and 13 are Nationally Scarce (Table 2) (Harvey *et al.*, 2017).

This survey confirms the continued presence of both *Agyneta mollis* and *Rhysodromus fallax* on Morfa Harlech, providing the first record of the latter since 1991. It also confirms the presence of five Nationally Scarce spiders known from the site (*Cheiracanthium virescens*, *Argenna subnigra*, *Satlatlas britteni*, *Walckenaeria monoceros*, *Xerolycosa miniata*) and adds four new Nationally Scarce spiders to the list; *Bathypantes setiger*, *Parapelecopsis nemoraloides*, *Silometopus ambiguus*, *Scotina gracilipes*. Four Nationally Scarce spiders were not rediscovered during this survey; *Zelotes electus*, *Mecopisthes peusi*, *Alopecosa cuneata*, *Pardosa tenuipes* (=proxima).

This survey recorded four of the six dune assemblage spiders (*Arctosa perita*, *Rhysodromus fallax*, *Troxochrus scabriculus*, *Xerolycosa miniata*) and provided records of four additional dune species (*Cheiracanthium virescens*, *Argenna subnigra*, *Parapelecopsis nemoraloides*, *Xysticus kochi*) with *P. nemoraloides* being new to Morfa Harlech. Overall, 11 spider species are recognised as dune associates (Table 31 in Discussion) and likely to be part of the SSSI dune invertebrate assemblage.

Table 2. IUCN Threatened, Nationally Rare and Nationally Scarce Arachnids recorded from Morfa Harlech NNR. VU = Vulnerable, NT = Near Threatened. Y = presence.

Species	Family	Status	SRS	Loxton 2015	Survey 2017–19
<i>Agyneta mollis</i> NT	Linyphiidae	Nationally Rare	-	Y	Y
<i>Rhysodromus fallax</i> VU	Philodromidae	Nationally Rare	Y	-	Y
<i>Alopecosa cuneata</i>	Lycosidae	Nationally Scarce	Y	-	-
<i>Argenna subnigra</i>	Dictynidae	Nationally Scarce	-	Y	Y
<i>Bathypantes setiger</i>	Linyphiidae	Nationally Scarce	-	-	Y
<i>Cheiracanthium virescens</i>	Cheiracanthiidae	Nationally Scarce	-	Y	Y
<i>Mecopisthes peusi</i>	Linyphiidae	Nationally Scarce	-	Y	-
<i>Parapelecopsis nemoraloides</i>	Linyphiidae	Nationally Scarce	-	-	Y
<i>Pardosa tenuipes</i> (=proxima)	Lycosidae	Nationally Scarce	-	Y	-
<i>Satlatlas britteni</i>	Linyphiidae	Nationally Scarce	-	Y	Y
<i>Silometopus ambiguus</i>	Linyphiidae	Nationally Scarce	-	-	Y
<i>Scotina gracilipes</i>	Liocranidae	Nationally Scarce	-	-	Y
<i>Walckenaeria monoceros</i>	Linyphiidae	Nationally Scarce	-	Y	Y
<i>Xerolycosa miniata</i>	Lycosidae	Nationally Scarce	Y	Y	Y
<i>Zelotes electus</i>	Gnaphosidae	Nationally Scarce	-	Y	-
Totals	-	-	3	9	11

5.2. Arachnid sample site results

Sample 1 (Figure 5)

15/09/2017

SH56793188

Yellow dunes. Grubbing marram.

Table 3. Arachnids recorded at Sample Point 1.

Type	Family	Species	Sex	Notes
Spider	Araneidae	<i>Araneus diadematus</i>	1F	-
Spider	Araneidae	<i>Larinioides cornutus</i>	1F	-
Spider	Clubionidae	<i>Clubiona subtilis</i>	2F	-
Spider	Linyphiidae	<i>Linyphia triangularis</i>	1F	Collected by Rhodri Dafydd
Spider	Linyphiidae	<i>Parapelecopsis nemoraloides</i>	4M 5F	Nationally Scarce. 1F collected by Rhodri Dafydd
Spider	Linyphiidae	<i>Tenuiphantes tenuis</i>	3M 1F	-
Spider	Linyphiidae	<i>Troxochrus scabriculus</i>	1F	-
Spider	Mimetidae	<i>Ero cambridgei</i>	1F	-
Spider	Theridiidae	<i>Neottiura bimaculata</i>	1F	-
Harvestman	Leiobunidae	<i>Leiobunum blackwalli</i>	1M 1F	-
Harvestman	Phalangiidae	<i>Opilio saxatilis</i>	1M	-



Figure 5. Sample Point 1, Morfa Harlech, SH56793188. © Richard Gallon

Sample 2 (Figure 6)
15/09/2017
SH56793214
Dune slack. G-vac.

Table 4. Arachnids recorded at Sample Point 2.

Type	Family	Species	Sex	Notes
Spider	Araneidae	<i>Agalenatea redii</i>	1iF	-
Spider	Linyphiidae	<i>Dicymbium nigrum</i>	3F	-
Spider	Linyphiidae	<i>Lophomma punctatum</i>	1F	-
Spider	Linyphiidae	<i>Agyneta mollis</i>	2M 3F	Nationally Rare
Spider	Linyphiidae	<i>Oedothorax retusus</i>	1F	-
Spider	Linyphiidae	<i>Pocadicnemis pumila</i>	1F	-
Spider	Linyphiidae	<i>Tiso vagans</i>	1M	-
Spider	Lycosidae	<i>Trochosa ruricola</i>	1M	-
Spider	Tetragnathidae	<i>Pachygnatha degeeri</i>	1F	-
Spider	Thomisidae	<i>Ozyptila atomaria</i>	1F	-
Spider	Thomisidae	<i>Ozyptila sanctuaria</i>	2M 1F	-



Figure 6. Sample Point 2, Morfa Harlech, SH56793214. © Richard Gallon

Sample 3 (Figure 7)
 15/09/2017
 SH56673239
 Fixed dune grassland. G-vac.

Table 5. Arachnids recorded at Sample Point 3.

Type	Family	Species	Sex	Notes
Spider	Dictynidae	<i>Argenna subnigra</i>	1F	Nationally Scarce
Spider	Linyphiidae	<i>Pelecopsis parallela</i>	4M	-
Spider	Linyphiidae	<i>Tapinocyba praecox</i>	1F	-
Spider	Linyphiidae	<i>Walckenaeria monoceros</i>	1F	Nationally Scarce
Spider	Liocranidae	<i>Scotina gracilipes</i>	1F	Nationally Scarce
Spider	Lycosidae	<i>Pardosa monticola</i>	1F	With egg-sac
Spider	Lycosidae	<i>Xerolycosa miniata</i>	1F	Nationally Scarce
Spider	Salticidae	<i>Euophrys frontalis</i>	1F	-
Spider	Tetragnathidae	<i>Metellina segmentata</i>	1M	-
Spider	Thomisidae	<i>Xysticus erraticus</i>	1F	-
Harvestman	Phalangidae	<i>Phalangium opilio</i>	2F	-



Figure 7. Sample Point 3, Morfa Harlech, SH56673239. © Richard Gallon

Sample 4 (Figure 8)
 15/09/2017
 SH56353308
 Wet dune slack. G-vac.

Table 6. Arachnids recorded at Sample Point 4.

Type	Family	Species	Sex	Notes
Spider	Linyphiidae	<i>Oedothorax fuscus</i>	1M	-
Spider	Linyphiidae	<i>Tenuiphantes tenuis</i>	1M	-
Spider	Tetragnathidae	<i>Pachygnatha degeeri</i>	1F	-



Figure 8. Sample Point 4, Morfa Harlech, SH56353308. © Richard Gallon

Sample 5 – Site not photographed
 15/09/2017
 SH56463287
 Dune slack and sand. G-vac.

Table 7. Arachnids recorded at Sample Point 5.

Type	Family	Species	Sex	Notes
Spider	Araneidae	<i>Agalenatea redii</i>	1iM	-
Spider	Cheiracanthiidae	<i>Cheiracanthium virescens</i>	1iM	Nationally Scarce
Spider	Linyphiidae	<i>Bathyphantes gracilis</i>	1F	-
Spider	Linyphiidae	<i>Dicymbium brevisetosum</i>	1M	-
Spider	Linyphiidae	<i>Erigone atra</i>	1M	-
Spider	Linyphiidae	<i>Gnathonarium dentatum</i>	1F	-
Spider	Linyphiidae	<i>Oedothorax fuscus</i>	1M 2F	-
Spider	Lycosidae	<i>Arctosa perita</i>	1F	-
Spider	Lycosidae	<i>Pardosa monticola</i>	1F	With egg-sac
Spider	Lycosidae	<i>Pirata piraticus</i>	1F	With egg-sac
Spider	Thomisidae	<i>Ozyptila sanctuaria</i>	1M 1F	-
Spider	Thomisidae	<i>Xysticus cristatus</i>	1F	-

Sample 6 (Figures 9–10)
15/09/2017
SH56243288
Frontal dunes.

Table 8. Arachnids recorded at Sample Point 6.

Type	Family	Species	Sex	Notes
Spider	Philodromidae	<i>Rhysodromus fallax</i>	1iF	Nationally Rare



Figure 9. Sample Point 6, Morfa Harlech NNR, SH56243288. © Richard Gallon



Figure 10. Sample Point 6, Morfa Harlech NNR, SH56243288. Showing immature female *Rhysodromus fallax* inset. © Richard Gallon

Sample 7 (Figure 11)

27/08/2018

SH56093526

Upper saltmarsh (cattle grazed). G-vac.

Table 9. Arachnids recorded at Sample Point 7.

Type	Family	Species	Sex	Notes
Spider	Linyphiidae	<i>Araeoncus humilis</i>	3F	-
Spider	Linyphiidae	<i>Erigone longipalpis</i>	1M 2F	-
Spider	Linyphiidae	<i>Oedothorax fuscus</i>	11M 8F	-
Spider	Pisauridae	<i>Pisaura mirabilis</i>	1i	-
Harvestman	Phalangidae	<i>Phalangium opilio</i>	1F	-



Figure 11. Sample Point 7, Morfa Harlech NNR, SH56093526. © Richard Gallon

Sample 8 (Figure 12)

27/08/2018

SH56193526

Marram next to strandline. Grubbing.

Table 10. Arachnids at Sample Point 8.

Type	Family	Species	Sex	Notes
Spider	Linyphiidae	<i>Araeoncus humilis</i>	1F	-
Spider	Linyphiidae	<i>Tenuiphantes tenuis</i>	1F	-
Spider	Theridiidae	<i>Enoplognatha ovata</i>	1F	-
Harvestman	Phalangidae	<i>Opilio saxatilis</i>	1	-



Figure 12. Sample Point 8, Morfa Harlech NNR, SH56093526. © Richard Gallon

Sample 9 (Figure 13)

27/08/2018

SH55923494

Juncus/Silverweed slack. G-vac.

Table 11. Arachnids at Sample Point 9.

Type	Family	Species	Sex	Notes
Spider	Araneidae	<i>Agalenatea redii</i>	2i	-
Spider	Araneidae	<i>Hypsosinga pygmaea</i>	2iM 1iF	-
Spider	Linyphiidae	<i>Bathyphantes gracilis</i>	7F	-
Spider	Linyphiidae	<i>Erigone promiscua</i>	1M	-
Spider	Linyphiidae	<i>Lophomma punctatum</i>	1F	-
Spider	Linyphiidae	<i>Oedothorax fuscus</i>	6M 3F	-
Spider	Linyphiidae	<i>Oedothorax retusus</i>	3M 3F	-
Spider	Linyphiidae	<i>Tenuiphantes tenuis</i>	2F	-
Spider	Salticidae	<i>Heliophanus</i> sp.	2i	-
Spider	Tetragnathidae	<i>Pachygnatha clercki</i>	1F	-
Spider	Tetragnathidae	<i>Pachygnatha degeeri</i>	1M	-



Figure 13. Sample Point 9, Morfa Harlech NNR, SH55923494. © Richard Gallon

Sample 10 (Figure 14)

27/08/2018

SH55753461

Short dune grassland. G-vac.

Table 12. Arachnids at Sample Point 10.

Type	Family	Species	Sex	Notes
Spider	Salticidae	<i>Heliophanus</i> sp.	1i	-



Figure 14. Sample Point 10, Morfa Harlech NNR, SH55753461. © Richard Gallon

Sample 11 (Figure 15)

27/08/2018

SH55643454

Marram on frontal dunes. Grubbing

Table 13. Arachnids at Sample Point 11.

Type	Family	Species	Sex	Notes
Spider	LINYPHIIDAE	<i>Tenuiphantes tenuis</i>	2M 2F	-
Spider	LYCOSIDAE	<i>Arctosa perita</i>	1i	-
Spider	PISAUROIDAE	<i>Pisaura mirabilis</i>	1i	-
Spider	TETRAGNATHIDAE	<i>Metellina segmentata</i>	1F	-
Spider	THERIDIIDAE	<i>Neottiura bimaculata</i>	3F	-
Spider	THERIDIIDAE	<i>Phylloneta impressa</i>	1F	-
Harvestman	LEIOBUNIDAE	<i>Leiobunum rotundum</i>	1M	-
Harvestman	PHALANGIIDAE	<i>Opilio saxatilis</i>	1	-
Harvestman	PHALANGIIDAE	<i>Phalangium opilio</i>	1M	-



Figure 15. Sample Point 11, Morfa Harlech NNR, SH55643454. © Richard Gallon

Sample 12 (Figure 16)

27/08/2018

SH56093324

Marram and Dewberry. Grubbing.

Table 14. Arachnids at Sample Point 12.

Type	Family	Species	Sex	Notes
Spider	Linyphiidae	<i>Tenuiphantes tenuis</i>	1F	-
Spider	Linyphiidae	<i>Troxochrus scabriculus</i>	1F	-
Spider	Lycosidae	<i>Arctosa perita</i>	1M	-
Spider	Pisauridae	<i>Pisaura mirabilis</i>	1i	-
Spider	Theridiidae	<i>Enoplognatha latimana</i>	1F	-
Spider	Theridiidae	<i>Enoplognatha ovata</i>	2F	-
Spider	Theridiidae	<i>Neottiura bimaculata</i>	2F	With egg-sac
Harvestman	Leiobunidae	<i>Leiobunum rotundum</i>	1M	-
Harvestman	Phalangiidae	<i>Opilio saxatilis</i>	1	-



Figure 16. Sample Point 12, Morfa Harlech NNR, SH56093324. © Richard Gallon

Sample 13 (Figure 17)

27/08/2018

SH56493241

Frontal dunes.

Table 15. Arachnids at Sample Point 13.

Type	Family	Species	Sex	Notes
Spider	Lycosidae	<i>Arctosa perita</i>	1iF	-
Spider	Tetragnathidae	<i>Metellina segmentata</i>	1F	-



Figure 17. Sample Point 13, Morfa Harlech NNR, SH56493241. © Richard Gallon

Sample 14 (Figure 18)

28/05/2019

SH55733504

Sandy upper saltmarsh. G-vac.

Table 16. Arachnids at Sample Point 14.

Type	Family	Species	Sex	Notes
Spider	Linyphiidae	<i>Araeoncus humilis</i>	2F	-
Spider	Linyphiidae	<i>Erigone arctica</i>	7M 4F	-
Spider	Linyphiidae	<i>Erigone dentipalpis</i>	1F	-
Spider	Linyphiidae	<i>Oedothorax fuscus</i>	4M 1F	-
Spider	Linyphiidae	<i>Tenuiphantes tenuis</i>	2F	-
Spider	Lycosidae	<i>Pardosa purbeckensis</i>	1M 1F	With egg-sac
Harvestman	Phalangidae	<i>Phalangium opilio</i>	1i	-



Figure 18. Sample Point 14, Morfa Harlech NNR, SH55733504. © Harriet Robinson

Sample 15 (Figure 19)

28/05/2019

SH55823492

Juncus/Silverweed slack. G-vac.

Table 17. Arachnids at Sample Point 15.

Type	Family	Species	Sex	Notes
Spider	Araneidae	<i>Hypsosinga pygmaea</i>	2f	-
Spider	Clubionidae	<i>Clubiona subtilis</i>	1m	-
Spider	Dictynidae	<i>Argenna subnigra</i>	1f	Nationally Scarce
Spider	Hahniidae	<i>Antistea elegans</i>	2f	-
Spider	Linyphiidae	<i>Bathypantes gracilis</i>	2m 4f	-
Spider	Linyphiidae	<i>Ceratinella brevipes</i>	1m 1f	-
Spider	Linyphiidae	<i>Diplocephalus permixtus</i>	3f	-
Spider	Linyphiidae	<i>Gnathonarium dentatum</i>	1f	-
Spider	Linyphiidae	<i>Hypomma bituberculatum</i>	2f	-
Spider	Linyphiidae	<i>Lophomma punctatum</i>	1f	-
Spider	Linyphiidae	<i>Oedothorax fuscus</i>	1f	-
Spider	Linyphiidae	<i>Oedothorax retusus</i>	3f	-
Spider	Linyphiidae	<i>Palliduphantes ericaeus</i>	1f	-
Spider	Linyphiidae	<i>Pelecopsis mengei</i>	1f	-
Spider	Linyphiidae	<i>Silometopus ambiguus</i>	1f	Nationally Scarce
Spider	Linyphiidae	<i>Tenuiphantes tenuis</i>	1m 1f	-
Spider	Lycosidae	<i>Pardosa pullata</i>	2m 2f	-
Spider	Lycosidae	<i>Piratula latitans</i>	5m	-
Spider	Lycosidae	<i>Pirata piraticus</i>	3m	-
Spider	Salticidae	<i>Heliophanus flavipes</i>	1m 1f	-
Spider	Tetragnathidae	<i>Tetragnatha extensa</i>	1m 1f	-

Spider	Theridiidae	<i>Episinus angulatus</i>	1m	-
Spider	Theridiidae	<i>Neottiura bimaculata</i>	1m 2f	-



Figure 19. Sample Point 15, Morfa Harlech NNR, SH55823492. © Richard Gallon

Sample 16 – site not photographed

28/05/2019

SH56263283

Frontal dunes. Grubbing.

Table 18. Arachnids at Sample Point 16.

Type	Family	Species	Sex	Notes
Spider	Lycosidae	<i>Arctosa perita</i>	1m	-
Spider	Philodromidae	<i>Tibellus maritimus</i>	1m	-
Spider	Tetragnathidae	<i>Tetragnatha extensa</i>	1m 1f	-
Spider	Theridiidae	<i>Neottiura bimaculata</i>	1m	-
Spider	Thomisidae	<i>Xysticus kochi</i>	1f	-

Sample 17 (Figure 20)

28/05/2019

SH55743430

Fixed dunes. G-vac.

Table 19. Arachnids at Sample Point 17.

Type	Family	Species	Sex	Notes
Spider	Agelenidae	<i>Agelena labyrinthica</i>	2i	-
Spider	Linyphiidae	<i>Tenuiphantes tenuis</i>	1m 1f	-
Spider	Linyphiidae	<i>Walckenaeria monoceros</i>	1f	Nationally Scarce
Spider	Lycosidae	<i>Pardosa monticola</i>	1m 1f	-
Spider	Lycosidae	<i>Xerolycosa miniata</i>	1m 1f	Nationally Scarce
Spider	Tetragnathidae	<i>Pachygnatha degeeri</i>	1f	-



Figure 20. Sample Point 17, Morfa Harlech NNR, SH55743430. © Richard Gallon
Sample 18 (Figure 21)

28/05/2019

SH55803391

Fixed yellow dunes. Marram grubbing.

Table 20. Arachnids at Sample Point 18.

Type	Family	Species	Sex	Notes
Spider	Clubionidae	<i>Clubiona subtilis</i>	2f	-
Spider	Linyphiidae	<i>Neriere clathrata</i>	1f	-
Spider	Linyphiidae	<i>Palliduphantes ericaeus</i>	3m	-
Spider	Linyphiidae	<i>Stemonyphantes lineatus</i>	2m	-
Spider	Linyphiidae	<i>Tenuiphantes tenuis</i>	2m 2f	-
Spider	Linyphiidae	<i>Tenuiphantes tenuis</i>	1f	-
Spider	Linyphiidae	<i>Troxochrus scabriculus</i>	1f	-
Spider	Mimetidae	<i>Ero cambridgei</i>	2f	-
Spider	Mimetidae	<i>Ero furcata</i>	1f	-
Spider	Philodromidae	<i>Tibellus maritimus</i>	2f	-
Spider	Theridiidae	<i>Neottiura bimaculata</i>	1m	-
Centipede	Lithobiidae	<i>Lithobius melanops</i>	1m	-
Harvestman	Phalangiidae	<i>Platybunus triangularis</i>	1m	-



Figure 21. Sample Point 18, Morfa Harlech NNR, SH55803391. © Richard Gallon

Sample 19 (Figure 22)

28/05/2019

SH56523244

Thick dewberry and marram. G-vac.

Table 21. Arachnids at Sample Point 19.

Type	Family	Species	Sex	Notes
Spider	Clubionidae	<i>Clubiona reclusa</i>	1m	-
Spider	Clubionidae	<i>Clubiona subtilis</i>	1f	-
Spider	Linyphiidae	<i>Pocadicnemis pumila</i>	1m	-
Spider	Linyphiidae	<i>Tenuiphantes tenuis</i>	2f	-
Spider	Mimetidae	<i>Ero furcata</i>	1m	-
Spider	Pisauridae	<i>Pisaura mirabilis</i>	1i	-
Spider	Theridiidae	<i>Neottiura bimaculata</i>	1f	-



Figure 22. Sample Point 19, Morfa Harlech NNR, SH56523244. © Harriett Robinson

Sample 20 (Figure 23)

28/05/2019

SH56063319

Frontal dunes.

Table 22. Arachnids at Sample Point 20.

Type	Family	Species	Sex	Notes
Spider	Thomisidae	<i>Xysticus kochi</i>	1m	-



Figure 23. Sample Point 20, Morfa Harlech NNR, SH56063319. © Richard Gallon

Sample 21 (Figure 24)

15/08/2019

SH56543530

Saltmarsh (cattle grazed). E-vac.

Table 23. Arachnids at Sample Point 21.

Type	Family	Species	Sex	Notes
Spider	Dictynidae	<i>Argenna</i> sp.	1i	Nationally Scarce
Spider	Linyphiidae	<i>Erigone longipalpis</i>	17f	-
Spider	Linyphiidae	<i>Meioneta rurestris</i>	1m	-
Spider	Linyphiidae	<i>Satlatlas britteni</i>	3im 5if	Nationally Scarce



Figure 24. Sample Point 21, Morfa Harlech NNR, SH56543530. © Richard Gallon

Sample 22 (Figure 25)

15/08/2019

SH56333495

Marshy grassland. E-vac.

Table 24. Arachnids at Sample Point 22.

Type	Family	Species	Sex	Notes
Spider	Linyphiidae	<i>Araeoncus humilis</i>	1f	-
Spider	Linyphiidae	<i>Bathyphantes gracilis</i>	3m 5f	-
Spider	Linyphiidae	<i>Erigone atra</i>	3m 5f	-
Spider	Linyphiidae	<i>Erigone dentipalpis</i>	1m 1f	-
Spider	Linyphiidae	<i>Gnathonarium dentatum</i>	1f	-
Spider	Linyphiidae	<i>Hypomma bituberculatum</i>	1f	-
Spider	Linyphiidae	<i>Tenuiphantes tenuis</i>	1f	-
Spider	Lycosidae	<i>Pardosa purbeckensis</i>	1f	-
Spider	Lycosidae	<i>Pirata piraticus</i>	3f	-
Spider	Tetragnathidae	<i>Pachygnatha clercki</i>	1f	-



Figure 25. Sample Point 22, Morfa Harlech NNR, SH56333495. © Richard Gallon

Sample 23 (Figure 26)

15/08/2019

SH56043459

Succisa marsh. E-vac.

Table 25. Arachnids at Sample Point 23.

Type	Family	Species	Sex	Notes
Spider	Araneidae	<i>Hypsosinga pygmaea</i>	1i	-
Spider	Clubionidae	<i>Clubiona reclusa</i>	1f	-
Spider	Linyphiidae	<i>Bathypantes gracilis</i>	2f	-
Spider	Linyphiidae	<i>Bathypantes setiger</i>	1f	Nationally Scarce
Spider	Linyphiidae	<i>Lophomma punctatum</i>	2f	-
Spider	Linyphiidae	<i>Palliduphantes ericaeus</i>	1f	-
Spider	Linyphiidae	<i>Silometopus elegans</i>	1f	-
Spider	Linyphiidae	<i>Tenuiphantes mengei</i>	1m	-
Spider	Linyphiidae	<i>Tenuiphantes tenuis</i>	1f	-
Spider	Lycosidae	<i>Pirata piraticus</i>	1f	With egg-sac
Spider	Pisauridae	<i>Pisaura mirabilis</i>	1i	-
Spider	Salticidae	<i>Euophrys frontalis</i>	1f	-
Spider	Tetragnathidae	<i>Pachygnatha degeeri</i>	1m 1f	-
Mollusca	Vertiginidae	<i>Vertigo antvertigo</i>	3	-
Harvestman	Phalangidae	<i>Oligolophus tridens</i>	2	-



Figure 26. Sample Point 23, Morfa Harlech NNR, SH56043459. © Richard Gallon

Sample 24 (Figure 27)

15/08/2019

SH56213475

European gorse.

Table 26. Arachnids at Sample Point 24.

Type	Family	Species	Sex	Notes
Spider	Agelenidae	<i>Agelena labyrinthica</i>	5f	Webs mostly abandoned
Spider	Araneidae	<i>Agalenatea redii</i>	1i	-
Spider	Araneidae	<i>Araneus diadematus</i>	1f	-



Figure 27. Sample Point 24, Morfa Harlech NNR, SH56213475. © Richard Gallon

Sample 25 (Figure 28)

15/08/2019

SH55903451

Short fixed dune grassland. E-vac.

Table 27. Arachnids at Sample Point 25.

Type	Family	Species	Sex	Notes
Spider	Linyphiidae	<i>Pelecopsis parallela</i>	4m 2f	-
Spider	Linyphiidae	<i>Tenuiphantes tenuis</i>	1f	-
Spider	Lycosidae	<i>Pardosa monticola</i>	1f	With egg-sac
Spider	Lycosidae	<i>Pardosa pullata</i>	1f	-
Spider	Mimetidae	<i>Ero furcata</i>	1m	-
Spider	Tetragnathidae	<i>Pachygnatha degeeri</i>	2m	-
Harvestman	Phalangiidae	<i>Oligolophus tridens</i>	1	-
Harvestman	Phalangiidae	<i>Opilio saxatilis</i>	1m	-



Figure 28. Sample Point 25, Morfa Harlech NNR, SH55903451. © Richard Gallon

Sample 26 (Figure 29)

15/08/2019

SH55653444

Dense wet marram litter buried under sand. Grubbing.

Table 28. Arachnids at Sample Point 26.

Type	Family	Species	Sex	Notes
Spider	Linyphiidae	<i>Bathyphantes gracilis</i>	1f	-
Spider	Linyphiidae	<i>Gongylidiellum vivum</i>	6m 4f	-
Spider	Linyphiidae	<i>Neriene clathrata</i>	1f	-
Centipede	Lithobiidae	<i>Lithobius melanops</i>	1m	-
Harvestman	Leiobunidae	<i>Leiobunum rotundum</i>	1m	-



Figure 29. Sample Point 26, Morfa Harlech NNR, SH55653444. © Richard Gallon

Sample 27 (Figure 30)

15/08/2019

SH55883366

Yellow dunes with dense marram. Grubbing.

Table 29. Arachnids at Sample Point 27.

Type	Family	Species	Sex	Notes
Spider	Clubionidae	<i>Clubiona subtilis</i>	1F	-
Spider	Linyphiidae	<i>Tenuiphantes tenuis</i>	2F	-
Spider	Linyphiidae	<i>Troxochrus scabriculus</i>	1F	-
Spider	Mimetidae	<i>Ero cambridgei</i>	1M	-
Spider	Tetragnathidae	<i>Metellina segmentata</i>	1F	-
Spider	Theridiidae	<i>Neottiura bimaculata</i>	1F	With egg-sac
Spider	Thomisidae	<i>Xysticus erraticus</i>	1F	-
Harvestman	Phalangidae	<i>Oligolophus tridens</i>	1	-
Harvestman	Phalangidae	<i>Opilio saxatilis</i>	1M	-



Figure 30. Sample Point 27, Morfa Harlech NNR, SH55883366. © Richard Gallon

Sample 28 (Figure 31)

15/08/2019

SH56563257

Small dune slack with *Salix repens*. E-vac.

Table 30. Arachnids at Sample Point 28.

Type	Family	Species	Sex	Notes
Spider	Clubionidae	<i>Clubiona reclusa</i>	1F	-
Spider	Linyphiidae	<i>Bathypantes gracilis</i>	2M 3F	-
Spider	Linyphiidae	<i>Erigonella hiemalis</i>	2M	-
Spider	Linyphiidae	<i>Palliduphantes ericaeus</i>	8F	-
Spider	Linyphiidae	<i>Pocadicnemis pumila</i>	2F	-
Spider	Linyphiidae	<i>Tenuiphantes menzei</i>	1M	-
Spider	Linyphiidae	<i>Tenuiphantes tenuis</i>	3M 4F	-
Spider	Pisauridae	<i>Pisaura mirabilis</i>	1i	-
Spider	Tetragnathidae	<i>Pachygnatha degeeri</i>	2F	-
Spider	Theridiidae	<i>Neottiura bimaculata</i>	1F	With egg-sac
Harvestman	Leiobunidae	<i>Leiobunum rotundum</i>	1F	-
Harvestman	Nemastomatidae	<i>Nemastoma bimaculatum</i>	1F	-
Harvestman	Phalangidae	<i>Oligolophus tridens</i>	1	-
Harvestman	Phalangidae	<i>Phalangium opilio</i>	1M 1F	-



Figure 31. Sample Point 28, Morfa Harlech, SH56563257. © Richard Gallon

6 Discussion

Morfa Harlech NNR supports a rich arachnid fauna with 120 spiders and seven harvestmen now known from the site, the current survey adding 34 spiders and one harvestman. Of the 120 spiders, eleven are considered by NRW to be dune associates (Table 31), with this survey adding *Parapelecopsis nemoralioides* to the site list and providing a contemporary record of the Vulnerable/Nationally Rare *Rhysodromus fallax* which has been elevated to a SSSI Qualifying feature of Morfa Harlech SSSI in its own right (Mike Howe, pers. comm.). The current survey also found the Near Threatened/Nationally Rare *Agyneta mollis* which, although not a strong dune associate in the UK, is a feature of Morfa Harlech SSSI.

The fauna also includes 13 Nationally Scarce species, nine of which were recorded during the current survey including four new to Morfa Harlech (*Bathypantes setiger*, *Parapelecopsis nemoralioides*, *Silometopus ambiguus*, *Scotina gracilipes*). A fuller account of these species is provided below.

Table 31. Dune-associated spider species considered to be part of Welsh SSSI dune invertebrate assemblages found on Morfa Harlech (Y). Species in red do not occur in Wales.

Species	Family	NRW assemblage	Loxton, 2015	Gallon, 2019	2019 assemblage
<i>Mangora acalypha</i>	Araneidae	-	-	-	-
<i>Cheiracanthium virescens</i>	Cheiracanthiidae	-	Y	Y	Y
<i>Clubiona frisia</i>	Clubionidae	-	-	-	-
<i>Clubiona pseudoneglecta</i>	Clubionidae	-	-	-	-
<i>Argenna patula</i>	Dictynidae	-	-	-	-

Species	Family	NRW assemblage	Loxton, 2015	Gallon, 2019	2019 assemblage
<i>Argenna subnigra</i>	Dictynidae	-	Y	Y	Y
<i>Haplodrassus dalmatensis</i>	Gnaphosidae	-	-	-	-
<i>Haplodrassus minor</i>	Gnaphosidae	-	-	-	-
<i>Zelotes electus</i>	Gnaphosidae	Y	Y	-	Y
<i>Baryphma maritimum</i>	Linyphiidae	-	-	-	-
<i>Styloctetor romanus</i>	Linyphiidae	-	-	-	-
<i>Mecopisthes peusi</i>	Linyphiidae	-	Y	-	Y
<i>Parapelecopsis nemoraloides</i>	Linyphiidae	-	-	Y	Y
<i>Silometopus incurvatus</i>	Linyphiidae	-	-	-	-
<i>Troxochrus scabriculus</i>	Linyphiidae	Y	Y	Y	Y
<i>Agroeca dentigera</i>	Liocranidae	-	-	-	-
<i>Agroeca lusatica</i>	Liocranidae	-	-	-	-
<i>Alopecosa cuneata</i>	Lycosidae	-	-	-	Y
<i>Arctosa perita</i>	Lycosidae	Y	Y	Y	Y
<i>Xerolycosa miniata</i>	Lycosidae	Y	Y	Y	Y
<i>Rhysodromus fallax</i>	Philodromidae	Y	-	Y	Y
<i>Thanatus striatus</i>	Philodromidae	-	-	-	-
<i>Marpissa nivoyi</i>	Salticidae	-	-	-	-
<i>Phlegra fasciata</i>	Salticidae	-	-	-	-
<i>Attulus saltator</i>	Salticidae	-	-	-	-
<i>Synageles venator</i>	Salticidae	-	-	-	-
<i>Cryptachaea riparia</i>	Theridiidae	-	-	-	-
<i>Steatoda albomaculata</i>	Theridiidae	-	-	-	-
<i>Xysticus acerbus</i>	Thomisidae	-	-	-	-
<i>Xysticus kochi</i>	Thomisidae	-	Y	Y	Y
Totals	-	6	8	8	11

6.1. Nationally Rare Spiders recorded during current survey

Agyneta mollis (O. P. -Cambridge, 1871)



Agyneta mollis was found at one sample location (#2) during this survey (SH56793214) on the 15th September 2017. Here 2 males and 3 females were vacuumed from a dune slack.

The only other site record was made by Loxton (2018) who recorded 5 adults in 2015 (SH558348) at the northern end of the NNR from pitfall material.

Both Morfa Harlech sites are damp areas of grassland associated with slacks. This species appears to have declined in the UK, and in the recent Status Review was listed as Near Threatened. It is a Qualifying feature of Morfa Harlech SSSI.

The Morfa Harlech and Morfa Dyffryn populations are the only recent Welsh records (previous Welsh records are all pre-1987 from other sites).

Figure 32. *Agyneta mollis* record locations at Morfa Harlech.

Rhysodromus fallax (Sundevall, 1833)



A single sub-adult female *Rhysodromus fallax* was found on 15th September 2017 (SH56243288). It was discovered on the frontal dunes nearest the sea, sitting on bare, loose sand amongst sparse tufts of marram. This species is restricted to this frontal dune habitat. This species has been recorded from Morfa Harlech only twice before: 27th April 1991 (Adrian Fowles); 3rd June 2009 (Andrew Graham, Helen & Tristan Bantock).

In the recent spider Status Review (Harvey *et al.*, 2017) it is listed as Vulnerable. With this contemporary record, it has been recognised as a Qualifying feature of Morfa Harlech SSSI (Mike Howe, pers. comm.)

Figure 33. *Rhysodromus fallax* record locations at Morfa Harlech.

6.2. Nationally Scarce Spiders recorded during current survey

Cheiracanthium virescens (Sundevall, 1833)



A single immature male *Cheiracanthium virescens* was vacuumed from a sandy dune slack at SH56463287 on the 15th September 2017.

The only other site record was made by Loxton (2018) who pitfalled two adult males at SH558348 in 2015.

In Wales this species is almost exclusively coastal, inhabiting sand dune systems and coastal heath, where it favours drier areas.

Figure 34. *Cheiracanthium virescens* record locations at Morfa Harlech.

Argenna subnigra (O. P. -Cambridge, 1861)



During this survey *Argenna subnigra* was recorded from two locations: one female at SH56673239 on 15th September 2017 in fixed dune grassland; one female at SH55823492 on the 28th May 2019 in a Silverweed/*Juncus* slack.

Loxton (2018) recorded 35 adults in pitfall traps at SH558348 in 2015.

These are currently the only site records for this species. In Wales, this species is essentially restricted to sand dune systems where it favours drier habitats.

Figure 35. *Argenna subnigra* record locations at Morfa Harlech.

Bathyphantes setiger F. O. P. -Cambridge, 1894



A single female *Bathyphantes setiger* was found at SH56043459 on the 15th August 2019 in marshland.

This is the only site record for this species. It is a species associated with good quality marshes and bogs.

Figure 36. *Bathyphantes setiger* record locations at Morfa Harlech.

Parapelecopsis nemoralioides (O. P. -Cambridge, 1884)



Four male and five female *Parapelecopsis nemoralioides* were found at SH56793188 on the 15th August 2019 amongst marram on yellow dunes.

This is the only site record for this species. It is a species strongly associated with sand dunes.

record locations at Morfa Harlech.

Figure 37. *Parapelecopsis nemoralioides*

Satlatlas britteni (Jackson, 1913)



Three immature male and five immature female *Satlatlas britteni* were vacuumed from saltmarsh at SH56543530 on the 15th August 2019.

Loxton (2018) recorded a single adult at SH558348 in 2015, in the north of the NNR.

This species has a western distribution in Britain and occurs in saltmarsh and acidic bogs. However, it is rarely recorded, perhaps in part due to its early maturity season.

Figure 38. *Satlatlas britteni* record locations at Morfa Harlech.

Silometopus ambiguus (O. P. -Cambridge, 1905)



A single female *Silometopus ambiguus* was vacuumed from a Silverweed/*Juncus* slack at SH55823492 on the 28th May 2019. This being the only site record.

This species is strongly associated with coastal situations at or near the hightide mark.

Figure 39. *Silometopus ambiguus* record locations at Morfa Harlech.

Walckenaeria monoceros (Wider, 1834)



Two female *Walckenaeria monoceros* were discovered during this survey: SH56673239 (15th September 2017); SH55743430 (28th May 2019). In both cases the species was vacuumed from dry fixed dunes.

The only other site record was made by Loxton (2018) where he pitfalled 39 adults from SH558348 in 2015.

The species is characteristic of dry open habitats including short calcareous grassland, heathland and sand dunes.

Figure 40. *Walckenaeria monoceros* record locations at Morfa Harlech.

Scotina gracilipes (Blackwall, 1859)



The single female *Scotina gracilipes* found on the 15th September 2017 (SH56673239) in fixed dune grassland represents the first site record.

The species is more typically associated with heathery sites, although it is known from other large dune systems in North Wales.

Figure 41. *Scotina gracilipes* record locations at Morfa Harlech.

Xerolycosa miniata (C. L. Koch, 1834)



Xerolycosa miniata was found at two fixed dune sample points during the survey: SH56673239 (15th September 2017); SH55743430 (28th May 2019).

Loxton (2018) collected numerous specimens at SH558348 in 2015 using pitfall traps.

The species has been recorded several times since its first site record in 1995. It is almost exclusively a sand dune specialist in Britain.

Figure 42. *Xerolycosa miniata* record locations at Morfa Harlech.

6.3. Nationally Scarce Spiders not recorded during current survey

Zelotes electus (C. L. Koch, 1839)

This species was discovered at Morfa Harlech by Loxton (2018) at SH558348 and SH569323 in 2015. It was not encountered during the current survey, but *Zelotes* spp. are more easily found using pitfall traps, which were not deployed here. It is a species which is essentially restricted to sand dunes, although it is also known from the Brecklands.

Mecopisthes peusi Wunderlich, 1972

This small linyphiid was recorded by Loxton (2018) at SH558348 in 2015. In Wales it is only known from the larger sand dune systems in the north (Ynyslas, Morfa Dyffryn, Morfa Abererch, Newborough Warren, Aberffraw and Talacre). Its main maturity period is October–April, which would explain why it was not encountered during this current survey. It tends to occupy areas of thick marram and fixed dune grassland.

Alopecosa cuneata (Clerck, 1757)

A single female recorded by John Bratton at SH564331 on the 3rd May 1999 remains the only site record for this lycosid species.

Pardosa tenuipes (=proxima) C. L. Koch, 1847

The only site record for this species was made by Loxton (2018) in 2015 at SH558348 when 9 adults were pitfalled. The species is rarely recorded in North Wales but is more widespread in southern Britain.

6.4 Other Dune Spiders recorded during the current survey

Arctosa perita (Latreille, 1799)



Arctosa perita was found at five locations during this survey.

Loxton (2018) collected numerous specimens at SH558348 in 2015 using pitfall traps. The species has been recorded from the site on several occasions since its first record in 1963 by John Parker.

This cryptic species inhabits open sparsely vegetated areas like sand dunes, mineral spoil heaps and heaths.

Figure 43. *Arctosa perita* record locations at Morfa Harlech.

Troxochrus scabriculus (Westring, 1851)



Troxochrus scabriculus was found at four locations during this survey, with a single female at each location.

Loxton (2018) pitfalled a single adult at SH566323 in 2015 using pitfall traps. The only other site record for this species was made by John Parker in 1963.

This money spider inhabits open, dry habitats like sand dunes, calcareous grassland, quarries and gravel.

Figure 44. *Troxochrus scabriculus* record locations at Morfa Harlech.

7 Acknowledgements

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The British Arachnological Society's Spider Recording Scheme provided useful historical records, allowing the current survey results to be placed in context.

8 References

- Harvey, P., Davidson, M., Dawson, I., Fowles, A., Hitchcock, G., Lee, P., Merrett, P., Russell-Smith, T. & Smith, H. 2017. A review of the scarce and threatened spiders (Araneae) of Great Britain: Species Status No. **22**. NRW Evidence Report No: **11**, 101pp, Natural Resources Wales, Bangor.
- Loxton, R.G. 2018. A comparison of the dune slack invertebrate faunas of Newborough Warren, Morfa Dyffryn and Morfa Harlech in 2015. NRW Evidence Report No: **264**, 112pp, Natural Resources Wales, Bangor.

9 Data Archive Appendix

The data archive contains:

[A] The final report in Microsoft Word and Adobe PDF formats.

[B] Species records, which are held on the NRW Recorder 6 database.

Metadata for this project is publicly accessible through Natural Resources Wales' Library Catalogue <http://libcat.naturalresources.wales> or <http://catllyfr.cyfoethnaturiol.cymru> by searching 'Dataset Titles'. The metadata is held as record no 124625.