The Spiders of Bishop Monkton Nature Reserve, near Ripon, North Yorkshire

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Introduction

Bishop Monkton Railway Cutting (BMRC) is a nature reserve managed by the Yorkshire Wildlife Trust though not designated as a Site of Special Scientific Interest. It is located approximately 5 km north of Knaresborough, North Yorkshire (vice-county (VC) 64: mid-west Yorkshire), centred on national grid reference SE 313 660. As the site was a former railway, it is long and linear and forms a cutting within an otherwise arable landscape. The dominant habitats present on site are a band of dense hawthorn (*Crataegus monogyna*) scrub on the embankments of the cutting, with isolated patches of magnesian limestone grassland in areas that have yet to succumb to succession. The base of the embankment is predominantly short, rabbit-grazed limestone grassland (the former track).

The Reserve is located within a rural environment, largely surrounded by agricultural land. The northern boundary of the site is marked by Moor Road, connecting the A61 to the village of Bishop Monkton. The railway line was closed in the late 1960s and has been managed by the Trust since the late 1980s.

The national Spider Recording Scheme database for VC 64 holds no previous records for BMRC, or the tetrads SE 36C and SE 36D, within which the Reserve resides. The 2010 survey will provide a base-line for the Reserve, which can inform any future survey.

Methodology

Fieldwork focussed on locations within the Reserve where the terrestrial habitats were considered to be of primary nature conservation value, namely the fen meadow (wet grassland), scrub and woodland (see Table 1). A variety of different collecting methods were employed, mainly using pitfall traps but also sweep-netting and beating vegetation.

Table 1: Locations of pitfall traps (in 2010), with comments on habitats studied at Staveley.

Location	Grid Reference	Tetrad	Habitat
Embankment	SE 3129 6604	SE 36D	Magnesian limestone grassland with encroaching hawthorn (*Crataegus monogyna*) and gorse (*Ulex europaeus*) scrub. Grassland also being degraded by invading common nettle (*Urtica dioica*) and other ruderal vegetation, possibly due to disturbance caused by rabbits.
Former Track Base	SE 3129 6599	SE 36C	Magnesian limestone grassland grazed short by rabbits.

Whilst the focus was on pitfall trapping, collecting by other methods such as sweeping vegetation and beating the low branches of scrub/ trees was also undertaken. These were undertaken at locations within a few tens of metres from the pitfall traps.

To maximise the potential to collect different spider species, and reduce the total material collected during the season, surveys were limited to three separate periods covering the spring, summer and autumn (see Table 2 for details).

Table 2: Periods of Survey

Season	Dates
Spring	13th March – 24th April 2010
Summer	23rd May – 1st July 2010
Autumn	21st September – 24th October 2010

Aims

Given that there are no previous spider records associated with the Reserve, and a limited number of species recorded within the 10 km grid square SE 36, the principle aim was to complete a baseline survey for the Reserve and the Yorkshire Wildlife Trust. The intensive nature of the survey (11 visits over 8 months) would likely identify new species for SE 36 and thus increase our knowledge of the spider fauna within the hectad.

Results

A total of 47 species of spider were recorded on the Reserve in 2010 by all methods. Whilst the survey failed to add any additional species to VC 64, 16 species were added to the SE 36 hectad, which now stands at 108 species. Appendix 1 lists all the species recorded and their distribution within the Reserve.

The 47 species captured largely reflects that the survey effort employed during 2010 on this Reserve significantly relied on the use of pitfall traps, with a limited amount of time spent on more active survey methods such as beating vegetation, sweeping the field layer or grubbing at the base of tussocks or in leaf-litter. Additional species are therefore likely to be present, especially representatives from families not typically captured by pitfall traps (e.g. crab spiders (Thomididae and Philodromidae), big-jawed spiders (Tetragnathidae) and comb-footed spiders (Theridiidae)). However, the Reserve is isolated and surrounded by intensively managed landscapes, arable fields to the east, west and south and pasture to the north. The limited habitats present within the Reserve and the lack of a varied habitat structure combined, are also likely to restrict the spider diversity here.

Of the 47 species recorded, one is of particular interest and is described in more detail in Table 3. The remaining new species to the hectad are generally widespread species in Yorkshire, reflecting the low level of recording undertaken here.

Table 3: Uncommon species recorded at BMRC (2010)

Family	Species	Comments
Linyphiidae	*Entelecara congenera*	This nationally notable (Nb) species was recorded for only the second time in VC 64 by beating the few straggly gorse bushes present on the east embankment of the cutting. This is a scarce species nationally, generally restricted to central and southern England (Harvey, Nellist and Telfer, 2002). It is generally associated with heathland and associated evergreen shrubs such as gorse.

This study focussed on two locations, both grassland habitats but in different tetrads (see Table 1). However, given the close proximity of arable land (disturbed habitats) and linear dense scrub (over-mature hedgerow), species associated with these habitats (e.g. *Oedothorax* spp. (disturbed habitats) and *Monocephalus fuscipes* (leaf-litter)) have also been recorded.

Habitat Management Recommendations

The Reserve is managed primarily for its botanical interest. The grassland along the former track base is grazed by rabbits and is largely preventing the encroachment of the dense linear scrub that now pervades much of the former railway's embankments. To avoid the complete loss of grassland on the embankment, scrub should be cut back, especially where there are remnants of grassland remaining. However, the gorse bushes should be retained as they currently provide the habitat for the Reserve's only known notable spider.

References

Harvey, P.R., Nellist, D.R. and Telfer, M.G. (2002) *Provisional Atlas of British spiders (Arachnida, Araneae), Volumes 1 and 2*. Biological Record Centre: Huntingdon. 406pp

Appendix 1: Spiders recorded at Bishop Monkton Railway Cutting in 2010

Family	Species	Status	Embankment	Base
Theridiidae	*Theridion sisyphium* (Clerck, 1757)	*	X	
	Theridion tinctum (Walckenaer, 1802)	*	X	
	Enoplognatha ovata sens. str. (Clerck, 1757)		X	
	Robertus lividus (Blackwall, 1836)	*	X	X
Linyphiidae	*Walckenaeria antica* (Wider, 1834)	*		X
	Walckenaeria nudipalpis (Westring, 1851)	*		X
	Dicymbium nigrum (Blackwall, 1834)	*	X	X
	Entelecara congenera (O.P.-Cambridge, 1879)	*, Nb	X	
	Hylyphantes graminicola (Sundevall, 1830)	*	X	
	Gongylidium rufipes (Linnaeus, 1758)		X	X
	Dismodicus bifrons (Blackwall, 1841)		X	
	Baryphyma trifrons (O.P.-Cambridge, 1863)		X	
	Pocadicnemis pumila sens. str. (Blackwall, 1841)		X	
	Pocadicnemis juncea Locket & Millidge, 1953	*	X	X
	Oedothorax fuscus (Blackwall, 1834)			X
	Oedothorax agrestis (Blackwall, 1853)			X
	Oedothorax retusus (Westring, 1851)			X
	Oedothorax apicatus (Blackwall, 1850)	*		X
	Tiso vagans (Blackwall, 1834)	*	X	X
	Tapinocyba praecox (O.P.-Cambridge, 1873)	*	X	
	Monocephalus fuscipes (Blackwall, 1836)		X	X
	Gongylidiellum vivum (O.P.-Cambridge, 1875)	*	X	
	Diplocephalus latifrons (O.P.-Cambridge, 1863)	*		X
	Erigone dentipalpis (Wider, 1834)	*		X
	Erigone atra Blackwall, 1833		X	X
	Centromerus sylvaticus (Blackwall, 1841)	*	X	X
	Centromerita bicolor (Blackwall, 1833)	*	X	X
	Bathyphantes gracilis (Blackwall, 1841)		X	X
	Diplostyla concolor (Wider, 1834)			X
	Stemonyphantes lineatus (Linnaeus, 1758)		X	X
	Lepthyphantes tenuis (Blackwall, 1852)		X	
	Lepthyphantes flavipes (Blackwall, 1854)	*		X
Tetragnathidae	*Tetragnatha extensa* (Linnaeus, 1785)		X	
	Pachygnatha clercki Sundevall, 1823		X	X
	*Pachygnatha degeer*i Sundevall, 1830		X	X
	Metellina mengei (Blackwall, 1869)		X	
Lycosidae	*Pardosa palustris* (Linnaeus, 1758)	*	X	X
	Pardosa pullata (Clerck, 1757)		X	X
	Pardosa amentata (Clerck, 1757)		X	X
	Alopecosa pulverulenta (Clerck, 1757)	*	X	X
	Trochosa terricola Thorell, 1856		X	X
	Pirata piraticus (Clerck, 1757)	*		X

Family	Species	Status	Embankment	Base
Hahnidae	*Hahnia nava* (Blackwall, 1841)	*	X	X
Dictynidae	*Dictyna uncinata* Thorell, 1856		X	
Clubionidae	*Clubiona reclusa* O.P.-Cambridge, 1863			X
Thomisidae	*Xysticus cristatus* (Clerck, 1757)		X	X
	Ozyptila trux (Blackwall, 1846)	*	X	X
Total	**47**		**35**	**33**

* New to VC 64