

Water trapping to sample *Clubiona rosserae* and other invertebrates at Lakenheath Fen

Sept – Oct 2010.

Alan Thornhill, Oct 2010

Methods

On 3-5 Sept, 15 water traps supplied by the RSPB were placed in reed/sedge beds, on Botany Bay, 10 to the south of the central footpath, in the area where *Clubiona rosserae* was found previously, and five to the north. Though away from trees and bushes, they were distributed to sample the different types of vegetation in the area there e.g. mainly *Phragmites*, mainly sedge (*Carex riparia*)

Erecting the traps was laborious. For each, it involved *sawing off about 50cm *hammering the pole into the ground with a sledge hammer *nailing the platform into the top of the pole *attaching Velcro to the platform and water tray, to secure the tray. This took about 25-30 mins. Some trays were further secured with small elastic bungee cords because the Velcro didn't stick to the wooden platforms very securely. The cords could also be used to secure vegetation close to the traps. This could be useful - all traps when erected were adjacent to reeds and/or sedges, but heavy winds and rain, and trampling when changing the traps, tended to flatten the vegetation around some.

In addition, two farmers' water traps, normally used for monitoring pest activity in crops, were placed by the side of two of the RSPB traps to see if they could be used for this type of work. These were much quicker to erect (about 1 minute), lighter, wholly re-usable, and height adjustable. Also, they could easily be relocated. In fact, this was done, from an area where the catches were poor to a more fruitful area (when they went from being traps 1b and 3b to traps 9b and 10b). All Botany Bay traps were filled with soapy water on the 5th Sept.

On 24 Sept 5 more RSPB traps were placed on New Fen.

The height of the most trays was about 1.0-1.2m but in areas where *Carex* was predominant some traps were slightly lower, only 0.8-0.9m, to ensure they were surrounded by vegetation. The traps in the areas where *Phragmites* was predominant were 1, 9, 10, 15, 16, 18, 19, and 20 (see maps).

For all traps the first trapping interval was 5 days, but 7 days thereafter - apologies for the short first trapping period but it was unavoidable. All traps survived the fairly high winds experienced during the trapping period. No catches were lost due to this or any other reason.

Results

There was much variation in the size of the total catches of each trap. The height and density of the surrounding vegetation, and changes in the weather (the more exposed traps would catch more flying insects in hot sunny weather) may have been largely responsible for this.

The traps caught adult spiders of only 6 species – *Clubiona phragmitis*, *Araneus marmoreus* var *pyramidatus*, *Pachygnatha clercki*, *Hypomma bituberculatum*, *Donacochara speciosa*, *Lepthyphantes tenuis* – though there were at least two other species amongst the immatures. No *C. rosserae* were caught. (During the same period that the traps were out, adult spiders of about 22 species were obtained by beating and shaking vegetation in the same area of Botany Bay. This larger total was largely due to being able to sample at a lower level than the water traps, including the layer of dead vegetation on the reedbed floor).

Discussion

Spider ecology

Having caught no *C. rosserae* it is impossible to deduce anything about its ecology.

Above 1 metre *C. phragmitis* seems to be the dominant spider in the reedbeds. It is large, abundant and found both where *Phragmites* is prevalent and where it is absent. *P. clercki* was also quite widespread. Several *D. speciosa* were caught but the species seems limited to areas where *Phragmites* grows. These tend to be the wetter areas and so its distribution may be linked to the degree of 'wetness' rather than an affinity for *Phragmites*. All 3 species have managed to colonise New Fen, which was a carrot field 15 years ago. Possibly the banks of the drainage channels between the fields provided a nearby reservoir for them, though, according to reserve manager, they contained little *Phragmites*.

From beating / shaking vegetation (in a separate study) it is clear that spider diversity increases nearer to the ground, presumably due to the large numbers of small invertebrates, particularly springtails. If an investigation into the spider fauna is carried out on Botany Bay in future, it might be advisable to search there.

Trapping

It seems important to make two points

Water traps seem an ineffective way of sampling spiders in reedbeds, simply because they can't sample the lower layers of vegetation. Beating / shaking vegetation caught far more spiders and more species in less time. However, for all anyone knows, water traps may be highly effective at catching *C. rosserae* – they caught reasonable numbers of *C. phragmitis* and *D. speciosa* in this study. Although no *C. rosserae* were caught that may be due to their scarcity. Nevertheless, in investigating the species, it would seem unwise to rely solely on water traps.

The traps supplied by the RSPB were not ideal, principally because of the time taken to erect them, but also the difficulty of moving them if they proved to be ineffective in a particular area.

Conclusion

If a further search for *C. rosserae* is attempted, another trapping method should be tried, either instead of or in addition to water traps. Pitfall trapping might be difficult because of the high water table. Use of a beating tray is feasible. In fact, *Carex* lends itself to this method because it has a tendency to collapse in clumps to one side. However, another method is required to sample the layer of dead vegetation on the reedbed floor. In practice, shaking it is difficult because one tends to grab hold of vegetation that doesn't easily pull up. Creating mats of dead vegetation would overcome this problem.

If water traps are to be used, it would be advisable to invest in some up-to-date ones.

A list of spiders caught in the water traps:

	<i>Clubiona phragmitis</i>		<i>Donocochara speciosa</i>		Immatures	Opiliones	Other adult spiders
	Male	Female	Male	Female			
3-8/9/2010							
1	3				1	1	
2							
3	1						
4					2	4	
5						4	
6	1				1	5	
7						3	
8	1				1	3	
9							
10					2		
11	1				6		Araneus marmoreus pyramidatus male
12	1				2		
13	1				1		Pachygnatha clercki female
14					2		
15	1				1		
1b					5	2	
3b					2		
8-15/9/2010							
1					1		
2					1		
3						2	
4						1	
5						1	
6	1						
7	1				1	1	
8	2						
9					1		
10							
11					2		
12							
13							
14					1	1	

	<i>Clubiona phragmitis</i>		<i>Donocochara speciosa</i>		Immatures	Opiliones	Other adult spiders
	Male	Female	Male	Female			
15							
1b	1					1	
3b	1				1	3	<i>Hypomma bituberculatum</i> female
15-22/9/2010							
1							
2							
3						2	
4						2	
5							
6					2		
7						1	
8							
9	5		1		2		
10			2		2		
11	3	1			1	4	<i>Araneus marmoreus pyramidatus</i> male
12						1	
13							
14							
15					1	7	
1b					1	1	
3b							
22-29/9/2010							
1							<i>Pachygnatha clercki</i> female
2							
3					3		
4							
5					2		
6							
7							
8							
9			2				
10							
11							
12							
13							
14					2	2	
15						3	
1b						2	
3b							
(below started 24/9)							
16							
17							
18	1						<i>Lepthyphantes tenuis</i> male
19						1	
20			2				
29/9 – 6/10/2010							
1	1				1	1	
2							
3						1	<i>Pachygnatha clercki</i> female
4					2		
5					3		

	<i>Clubiona phragmitis</i>		<i>Donocochara speciosa</i>		Immatures	Opiliones	Other adult spiders
	Male	Female	Male	Female			
6							
7							
8					1		
9							
10							
11						1	
12						3	
13					1		
14						1	
15						1	
9b							
10b		1	1		5		Pachygnatha clercki female
16							
17				1		2	
18							
19			2				
20						1	Pachygnatha clercki female
6-13/10/2010							
9				1	1		
10							
9b	1				1		
10b		1	1		2		Lepthyphantes tenuis female
18							
19							
Total	27	3	11	2	67	69	10

A list of other invertebrates caught in the water traps:

	Coleoptera	Hymenoptera	Hemiptera	Lepidoptera	Notes
3-8/9/2010					
1	*	*		*	Dragonfly
2	*	*			
3	*	*	*	*	
4	*	*	*		Larva
5	*	*	*		
6	*	*	*		Scorpion fly, caddis flies
7		*		*	Caddis fly
8	*	*		*	
9	*	*			
10	*	*	*		
11		*		*	Caddis fly
12	*	*	*	*	
13	*	*			
14	*	*	*		
15	*	*			

	Coleoptera	Hymenoptera	Hemiptera	Lepidoptera	Notes
1b		*		*	
3b	*	*			
8-15/9/2010					
1		*	*		
2		*	*		
3		*			
4		*			
5		*	*		
6	*	*	*	*	Dragonfly, Psoccid?
7	*	*	*		
8	*	*	*	*	Caddis fly
9		*			
10	*	*			Thrips
11	*	*			
12		*			
13		*			Larva
14					Larva
15		*			
1b		*			Larva
3b		*			
15-22/9/2010					
1		*			
2					
3	*	*			
4					Larva
5		*			
6	*	*	*	*	
7					
8		*			
9	*	*	*		Lacewing
10		*	*		Caddis fly, larva
11	*	*	*		Dragonfly
12			*		Psoccids?
13		*			
14					
15		*			Grasshopper
1b					
3b		*			
22-29/9/2010					
1					
2		*			Psoccid?, fly with huge head
3		*	*		Larvae
4	*	*	*		Psoccid?
5		*	*		
6					
7					Lacewing
8	*	*			Larva
9	*				
10		*			

	Coleoptera	Hymenoptera	Hemiptera	Lepidoptera	Notes
11					
12		*	*		Snails
13					
14	*	*	*		Larva
15	*		*		Larva
1b					
3b					Larva
16					
17	*				
18	*	*	*		
19		*			Psocid?
20	*	*	*		
29/9-6/10/2010					
1		*			Snails, larva
2		*			
3		*	*		Snail
4		*	*		Snail
5	*	*	*		
6		*			Psocid?
7	*	*	*		
8		*			
9		*			
10			*		Snail
11		*	*		Larva
12	*	*	*		Dragonfly
13	*	*	*		
14	*				
15		*			
9b		*			Larva, snail
10b	*	*	*		Larva, snails
16		*			
17	*	*	*		
18	*	*	*		
19	*	*			
20		*			
6-13/10/2010					
9		*			Snail
10		*			
9b		*			
10b	*	*	*		Larvae, snails
18		*			
19		*			