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SPIDERS (ARANEAE) OF IRISH RAISED BOGS: CLARA BOG, CO. OFFALY AND CARROWBEHY BOG, CO. ROSCOMMON

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Abstract

The spider (Araneae) fauna from wet and swampy areas of two Irish raised bogs, Carrowbehy Bog, Co. Roscommon and Clara Bog, Co. Offaly was inventoried over a seven month period in 2007 for their spider fauna. Similarities and differences between the sites are discussed. The pitfall samples were dominated in Clara by wetland species, in Carrowbehy by a range of web-building and wetland spiders. Sweep-net samples are found to differ less than pitfall samples. Much of the site differences can be explained through vegetation structure, preferred micro-habitat of species and latitude. Clara Bog was surveyed again in 2010 when a central, *Sphagnum* rich, very swampy area and a marginal area subject to drainage were sampled. Pitfall and sweep samples are compared and the latter again found to differ less than the former. Faunal differences between the two locations are discussed. The dominant species recorded in the swampy area in 2007 were largely dominant again in 2010. The fauna recorded in the drained area differed strongly from the swampy location and was dominated by a range of species, some of which are very common, some quite uncommon and none of which are wetland specialists. Species additional to the 2007 survey are noted. Clara Bog is found to play host to a wide range of rare and uncommon spider species. All tables follow after the text/references section. New county records are indicated in Appendices 1, 2 and 3 with an asterisk.

Key words: Araneae, spiders, Ireland, raised bogs

Study sites 2007

Carrowbehy Bog, Co. Roscommon (candidate SAC) (M564837)

Dominated by heather *Calluna vulgaris* and *Cladonia* lichen on hummocks and an extensive network of tear pools, frequently with relatively deep (>30cm) open water and a very soft 'muddy' bottom. Tear pools were elongate, sinuous and ran roughly parallel to the northern edge of the bog on an east/west axis. Pools were characterised by thick algal mats that had often sunk beneath the surface water and allowed subsequent development of floating *Sphagnum* moss.

Clara Bog, Co. Offaly (Nature Reserve) (N245305)

Dominated by inundated *Sphagnum* lawn with relatively little hummock development. Small plants of *Calluna* and a thin sward of cross-leaved heath *Erica tetralix* and white beak-sedge *Rhynchosporon alba* occurred throughout. Some traps were set at the edge of the swampy area where the sward was dominated by deergrass *Trichophorum caespitosum. Calluna* and *Erica* and swampy *Sphagnum* was missing. Small pools of open water occurred not far from the trap site, often hidden by overhanging vegetation.

Site vegetation at both sites

A range of typical bog species were noted and were relatively common at both sites:- bog asphodel *Narthecium ossifragum*, bogbean *Menynanthes trifoliata*, common sundew *Drosera rotundifolia*, oblong-leaved sundew *Drosera anglica*, white-beak sedge, bog cottons *Eriophorum* spps and deergrass. Smaller amounts of bog rosemary *Andromeda polifolia* and cranberry *Vaccinium oxycoccus* were also seen.

Methods 2007

Site visits are detailed in Table 1.

Pitfall-traps

20 pitfall traps were set at each site on 10 and 11 April 2007 using plastic catering cups and

Corriboard covers held in place by 4 inch nails. Pure ethylene glycol diluted 50:50 with water was used as a killing/preserving agent. The traps were emptied and replaced on each subsequent visit. Traps were removed from each site on 12 and 13 October. At Clara, traps were scattered rather randomly around the study area with no trap being less than one metre from an adjacent trap. At Carrowbehy, they were set in two rough lines with traps about one to two metres apart. Some traps were set in *Sphagnum* lawn and to prevent these being buoyed up by the high water level, a long nail was hooked over the cup rim and inserted sideways deep into local vegetation. This technique was quite effective. A number of traps at each site were flooded in July but this did not affect the catch too adversely. The water level was very high at Clara throughout August and at this time, all the traps were completely flushed of specimens that they might have caught.

Sweep-net

From 2 and 3 May onwards, three sweep-net samples were taken at each site on the dates given in Table 1. Each sample consisted of 3 transects of 20 sweeps with 3 strokes to each sweep – 180 strokes in all. The sweep transects extended at both sites beyond the area where the pitfall traps were set.

Hand-collecting

Between 60 and 90 minutes of hand-collecting were carried out at each site during each visit. This included the direct examination of taller vegetation, grubbing through vegetation at ground surface and sieving of mosses and *Cladonia* lichens.

Results 2007

In total 3870 specimens were collected of which 1791 were adult and 2179 immature. About 200 immature specimens could not be identified to species. In all 91 species were recorded, 70 from Carrowbehy Bog and 62 from Clara Bog. At Carrowbehy Bog, 27 species were recorded that did not occur at Clara Bog while 19 occurred at Clara and not at Carrowbehy. A total 31 species are new county records for Co. Roscommon (Carrowbehy Bog) and fourteen for Co. Offaly (Clara Bog). A full list of species and numbers of adults (male/female) collected through

the period of the survey is given in Appendices 1 and 2 and new county records are indicated there with an asterisk*. County records were assessed by summarising data from Helsdingen (1996), Cawley (2009) and a small number of subsequently published papers.

Two species were at the time new to Ireland, *Minicia marginella* (Wider, 1834) and *Walckenaeria alticeps* (Denis, 1952) while a third had been only recently recorded from another bog in Ireland *Hypsosinga albovittata* (Westring, 1851). These finds have been published (Nolan, 2007a, 2009).

A number of species recorded are known from five or fewer Irish counties (including this survey): *Hahnia pusilla* C. L. Koch, 1841 (2 counties); *Gongylidiellum latebricola* (O. P.-Cambridge, 1871) (5 counties); *Jacksonella falconeri* (Jackson, 1908) (5 counties); *Meioneta beata* (O. P.-Cambridge, 1906) (3 counties); *M. marginella* (1 county); *M. mossica* Schikora, 1993 (2 counties); *Satilatlas britteni* (Jackson, 1913) (4 counties); *Pirata latitans* (Blackwall, 1841) (2 counties); *P. uliginosus* (Thorell, 1856) (5 counties); *Porrhomma montanum* Jackson, 1913 (3 counties).

Of these species, *M. marginella*, *S. britteni*, *J. falconeri* and *M. beata* are considered rare at an European level. Also recorded and considered rare or uncommon at European level were *Araeoncus crassiceps* (Westring, 1861) (16 counties) and *Bathyphantes setiger* F. O. P.-Cambridge, 1894 (8 counties).

Pitfall data 2007

The dominant species recorded at both sites are shown in Table 2. Only one species appeared in abundance at both sites, *Pirata uliginosus* (Thorell, 1856). This species has a preference for humid, not wet, areas of wetland and moist meadow. Harvey *et al*. (2002) suggest that the species prefers rank, grassy and drying bog, however, this really does not match with either Clara or Carrowbehy bogs despite their both being subject to management and cutting for some years. It is rather restricted in habitat in Ireland where it was first noted 40 years ago (Bailey, 1973) and is frequent on raised bogs. A recent survey showed it to be very widespread

(Oxbrough, 2008) and recorded it from some planted woodland sites, most of which were originally peatland. *G. latebricola* constituted over 2% of the Clara catch and over 5% at Carrowbehy; this species has a northern distribution across Europe where it occurs usually in moist woodlands. In Ireland, however, it seems to occur in greatest abundance on raised bog and other peat habitats. It is not uncommon across its European range and has now been recorded from nine Irish counties, six of which are recent (Johnston and Cameron, 2002; Cawley, 2008; Oxbrough, 2008). Most records are from peatlands and plantation forest sites on peat or wet grasslands.

Clara and Carrowbehy otherwise showed marked differences in the most abundant species trapped in pitfalls (Table 3). Clara Bog reveals its inundated nature in the prevalence of *Antistea elegans* (Blackwall, 1841) and *Pirata piscatorius* (Clerck, 1757), two explicit wetland species which constituted 38.52% of the pitfall catch there. The former is a common species but the latter has a distinctly local distribution in north western Europe where it occurs almost exclusively on very wet areas of bog and fen with small pools of open water. There are relatively few Irish records and it was most recently recorded by Nelson (2005) from three fen areas in Northern Ireland. Previously, Helsdingen (1998) collected it at Scragh Bog, Co. Westmeath. At Carrowbehy, *P. piscatorius* constituted a small proportion (1.67%) of the pitfall catch however its presence is still significant. *S. britteni* is a rare spider associated also with wetlands, however it may be under-recorded due to the early mating period (mid April/early May). A large number of specimens (n=27) were easily collected by hand on 11 April at Clara where they were running over *Sphagnum* lawn. A small number of specimens were collected by hand at Carrowbehy but none in pitfalls. Until recently it had been known from only two Irish counties, however, Oxbrough (2007) recorded it from three western counties on blanket bogs in association with wet *Sphagnum* and *Molinia*. Contrasting with other Irish records of the species, Cawley (2004) collected it from saltmarsh in Co. Waterford - a habitat in which it is known to occur elsewhere.

The most commonly trapped species at Carrowbehy strongly indicate for relatively dense

heathy vegetation. Three small linyphiid spiders, *Lepthyphantes ericaeus* (Blackwall, 1853), *Walckenaeria cuspidata* Blackwall, 1833 and *Lepthyphantes mengei* Kulczynski, 1887 together constituted 28.79% of the total pitfall catch. These species are web-builders who need well-structured vegetation to set their webs and occur in a wide range of habitats. Their abundance in the pitfall traps is probably due to activity related to reproductive behaviour. *L. mengei* is the less common of the three and has a significant association with less densely developed heathlands (McFerran *et al*., 1995). While the pitfall catch was dominated by these species, the presence of *P. piscatorius* and *A. elegans* even in relatively small numbers strongly indicate the wetland nature of the habitat.

Other noteworthy species include *J. falconeri*, a species considered endangered in Britain (Dawson *et al.*, 2008). Most Irish records are relatively recent and include records from drying raised bog (Cawley, 2004; Nolan, 2007b) and gravels and acid grassland in upland and montane situations (McCormack *et al.*, 2006). It occurs in other habitats across its range but is considered rare in Europe where it is largely confined to north-western Europe and Fennoscandia. *Trichopterna thorelli* (Westring, 1861) occurred in numbers on both sites, is relatively uncommon across its range and is considered Vulnerable in Britain (Dawson *et al.*, 2008). *M. beata* is almost certainly under-recorded in Ireland. It is widely distributed in Britain but rather scattered in north-western Europe where it is not recorded from quite a few countries. Irish records are from peat and heath habitats and it was quite numerous in a plantation on peatland in Co. Donegal (Oxbrough, 2008). *M. mossica* was recently added to the Irish list (Nolan and McCormack, 2004) from mountain habitats above 600m. It preferentially sets small sheet-webs very low down on the surface of wet vegetation. Seven specimens of the species were recorded from Carrowbehy Bog while none were taken at Clara. There are a small number of unpublished records of the species, all from the west of Ireland. It has a boreal distribution in north-western Europe (Schikora, 1993, 1995) and is essentially confined to the western half of Britain. Its non-occurrence at Clara Bog might be considered significant especially when one considers that it likes to set webs low on *Sphagnum* mosses. *P. montanum* was also recently

added to the Irish fauna (Nolan, 2002) and is widespread across Ireland occurring in upland and lowland situations. Also not occurring on Clara Bog were *Bathyphantes setiger* F. O. P.-Cambridge, 1894 (8 counties) and *Erigonella ignobilis* (10 counties). While both are widespread, *B. setiger* is uncommon across its limited European range and usually found in association with bog and fen habitat. Both are wetland species and have Vulnerable status in Britain (Dawson *et al.*, 2008).

Sweep-net data 2007

A total of 175 adults and 1021 immatures were collected. The most abundant from each site are detailed in Table 2. Three web-building species from three different families were the most abundant at each site: *Hypsosinga pygmaea* (Sundevall, 1832), *Tetragnatha extensa* (Linnaeus, 1758) and *Dictyna arundinacea* (Linnaeus, 1758). Including immature specimens, these three species composed 76.23% of specimens swept at Carrowbehy and 85.01% of those swept at Clara. *Neottiura bimaculatum* (Linnaeus, 1767) was collected at Clara in numbers equal to *H. pygmaea* but it is far more abundant in the southern half of Ireland and would not be expected at Carrowbehy in large numbers if at all.

Of the most abundant species caught using the sweep-net, only *T. extensa* is a strong wetland associate. *D. arundinacea* occurs abundantly on heaths and has a strong preference for the dry, dead, or non-flowering twiggy heads of woody or rigid vegetation. The spider's abundance at Clara may be related to the very high water level checking the ability of *Calluna* to flower and thus in turn provide a greater abundance of potential nesting sites. The species was far less abundant at Carrowbehy Bog where *Calluna* grew more extensively, however the plant was in general higher and drier on the well-developed hummock system and flowering may have been easier. *H. pygmaea* occurs in a variety of generally open, heath and grassland habitats, and occurred in abundance at both sites. While fairly widespread through Ireland, it is not common and there are only two recent records (Oxbrough, 2007; Cawley, 2009). The abundance in which it appeared at Carrowbehy is certainly noteworthy. It occurs also on calcareous

grasslands and seems to be more abundant in the northern half of the country. Some of the less common and rare species swept were *Agalenatea redii* (Scopoli, 1763), *H. albovittata* and *M. marginella*. These represent a small suite of species that are generally thermophilous throughout their range. *M. marginella* throughout central and southern continental Europe tends to associate more commonly with open grasslands, however in Atlantic, Scandinavian and Baltic countries it occurs most commonly in mire systems. The species seems not to be resident in Britain. The fact that all specimens were swept at Clara shows that it has a strong preference for the upper areas of vegetation. This species is now known to have breeding populations on a number of other midlands raised bogs in Ireland (unpublished information).

Species absence/presence 2007

Of those species occurring only at Clara, three have a southern distribution in Ireland and Britain and thus would not be expected at Carrowbehy: *Agelena labyrinthica* (Clerck, 1757), *N. bimaculatum* and *Hahnia pusilla* C. L. Koch, 1841. Of these *H. pusilla* is generally uncommon, the other two common.

Two species were recorded at Carrowbehy and not at Clara probably through under-sampling: *Dolomedes fimbriatus* (Clerck, 1757) (Pisauridae) and *Argyroneta aquatica* (Clerck, 1757) (Cybaeidae). The former is strongly - the latter explicitly - associated with bodies of open water on bogs. *D. fimbriatus* ambushes aquatic prey from the edges of open pools while *A. aquatica* lives almost its entire life history under-water, constructing a chamber under submerged vegetation in which it resides.

The single greatest difference in the faunas recorded from the two locations was in the number of recorded species of Linyphiidae, 29 from Clara and 40 from Carrowbehy. Examination of Appendices 1 and 2 reveals a great similarity in the numbers and composition of species in other families recorded at both sites. The abundance of linyphiid species at Carrowbehy is undoubtedly related to the tall and well-developed vegetation there. Species from the genus *Agyneta*, *Gonatium rubens* (Blackwall, 1833), *Lepthyphantes obscurus* (Blackwall,

1841), *M. prominulus*, *Micrargus herbigradus* (Blackwall, 1854), *Saaristoa abnormis* (Blackwall, 1841) and *Taranucnus setosus* (O. P.-Cambridge, 1863) all build sheet webs and prefer to set them under or among well-developed vegetation that provides good shade; between them, they added substantially to the numbers of linyphiid specimens recorded. *T. setosus* in particular has a strong preference for very well-shaded and moist situations and is considered uncommon/rare across its European range. Some of the specimens obtained were found when lids covering pitfall traps were removed and the species was seen to have set a web over the cup below.

Thus the presence/absence of many species recorded from only one of either sites can be explained. Many of the others are essentially common species and occurred at either site only in very small numbers. No particular reason as to why they should not occur at both sites can be put forward but some of them certainly can be considered visitor species i.e. they would not preferentially breed on raised bog habitat. Species such as *Erigone atra* Blackwall, 1833 (both sites), *Erigone dentipalpis* (Wider, 1834) (Clara only) and *Pachygnatha degeeri* Sundevall, 1830 (Clara only) are all very common grassland species that disperse vigorously by ballooning and thus may occur in a very wide number of habitats but should not be considered resident.

Clara Bog 2010

This bog was sampled again in 2010 as part of a study of six raised bogs in Co. Offaly which took a novel, predictive approach to surveying and which will be reported on separately.

Sampling methods

Pitfall traps (as described above) were set in two locations; in a 'central' *Sphagnum* rich, swampy area (N242303) and a 'marginal' area (N240298) 500m from the 'central' site and about 20m away from the cutaway margin. The marginal location was chosen randomly with the sole condition that it was a distance of 500m from the central location and near to cutaway bog. It was also proximate to a parking area. The terms 'central' and 'marginal' will be used in the discussion of the 2010 results to refer to these two locations. At each location, 20 traps were set

in two lines of ten traps with traps two metres apart. The marginal traps were set broadly parallel to the cutaway edge of the high bog. Traps were set for two periods; 30 April - 27 May 2010 and 27 May - 25 June 2010. Sweep-net samples, consisting of two transects of twenty sweeps (three strokes to a 'sweep' - 120 strokes in all), were taken at each location on 30 April and 27 May 2010. Specimens were occasionally collected by hand but no other systematic sampling was carried out.

Sampling locations

The central location was characterised by an extensive area of very wet *Sphagnum* lawn with little hummock development. Patches of *Calluna* were present and a thin sward of bell-heather, cross-leaved heath and white beak-sedge occurred throughout. Small pools of open water also occurred throughout. The range of plant species noted from 2007 were recorded again and species such as *Menynanthes* were more abundant. The marginal site was significantly drier and was dominated by medium to tall *Calluna* and substantial amounts of bog myrtle *Myrica gale*, especially on the more elevated areas. Tall grasses and deergrass were also present. The substrate was densely carpeted with grasses and mosses. A large pool, largely in-filled with mosses was present about ten metres from the trap site, and seems to have been created by a now in-filled drainage ditch carrying water from a more central area of the bog.

Results 2010

Altogether, 1500 specimens were collected and a full tabulation of species and numbers collected is given in Appendix 3. Of these, 1380 were adult, 1156 from pitfall traps and 224 swept. Of the pitfall catch, 438 specimens, representing 33 species, were caught at the central sampling location and 718 specimens, representing 58 species were caught at the marginal location; nineteen species were common to both locations. Of the swept catch, 114 were caught at the centre, representing 12 species and 110 at the margin, representing 18 species; nine species were common to both locations. 81 species were recorded in total, 50 of which had been recorded in 2007. Of the additional 31 species recorded in 2010, five were taken only at the

central location, twenty only at the marginal areas and six at both; 21 were collected solely in pitfall traps, four solely by sweeping and six by both methods. Immatures in the swept catch were also assessed and this added a further 120 specimens to the collection. Eleven species are new county records.

As was stated above, a full analysis of data collected during the 2010 survey will be presented elsewhere. Comments here will therefore briefly address the major differences between the catch at the two locations on Clara Bog, differences between the pitfall and swept catch and then detail those species that were not collected at Clara in 2007.

Noteworthy species 2010

Many of the rare/uncommon species recorded in 2007 were collected again in 2010; *H. albovitatta*, *J. falconeri, M. marginella*, *S. britteni*, *W. alticeps* and *P. piscatorius*. Some of these were collected in smaller numbers than in 2007 but this is certainly related to the later trapping season and absence of hand-collecting in the case of *S. britteni* and the lesser sweep effort in the case of *H. albovittata* and *M. marginella*.

In addition to these, especially noteworthy from the 2010 survey, is the second Irish record of the rare linyphiid spider *Centromerus levitarsis* (Simon, 1884). This spider has been only recorded once previously in Ireland, from Pollardstown Fen (Helsdingen, 1997). It is considered endangered in Britain (Dawson *et al.*, 2008) and rare across Europe where it occurs also in humid mosses in forest. Also noteworthy is *Simitidion simile* (C. L. Koch, 1836), a spider whose presence in Ireland was confirmed only recently (Cawley, 2004) and has been recorded in Ireland only from heath on bogs. The jumping spider *Sitticus caricis* (Westring, 1861) has been previously noted in Ireland from only two counties although there are a few unpublished records. It is usually found in wetland habitats, especially *Carex* fen (Helsdingen, 1998) but occurs with some regularity on raised bog across its range. *Walckenaeria dysderoides* (Wider, 1834) was quite recently recorded for the first time in Ireland from forest habitat (Fahy and Gormally, 2003) but is now known from similar habitat in eleven counties (Cawley, 2004;

Oxbrough, 2008).

Pitfall and sweep-net data 2010

A comparison of Tables 2 and 4 shows that those species that dominated the pitfall catch in 2007 also dominated the similarly swampy central location in 2010 with *P. piscatorius*, *A. elegans* and *P. uliginosus* constituting the most abundant species. The differing proportions can be to some extent explained by the appearance in late summer 2007 of large numbers of males of *A. elegans*. The abundance of the hygrophilous *Diplocephalus permixtus* (O. P.-Cambridge, 1871), and the greater numbers of *P. piscatorius*, reflect the more heavily inundated nature of the trap location in 2010 compared with 2007. The dominant species swept at centre in 2010 were equally similar to those collected in 2007 with *D. arundinacea*, *T. extensa*, *H. pygmaea* and *N. bimaculatum* again constituting by far the greater proportion of the catch (Tables 3 and 5).

A very substantial difference is seen between the fauna collected in pitfall traps at the two locations. Two of the dominant species are very common wolf-spiders from the genus *Pardosa*. These species occur in a wide range of dry, open habitats and it will be noted that they were practically absent from the central area. At the margin, seventeen species were recorded that were not collected at the centre by any means, nor at the margin by sweeping. The most significant aspect influencing the species present is certainly the structure and shade offered by the heathy *Calluna* and *Myrica*. The abundant presence of *L. mengei* and *Episinus angulatus* Blackwall, 1836 is a good indicator of well-developed heath. The presence of *J. falconeri* in very large numbers (n=229) at the margin is unusual to say the least - I am not aware of its occurrence in such abundance elsewhere. It is probably indicative of the well-developed humid mosses that carpeted the area and given that the species is rather uncommon, is very noteworthy. The fact that no females were recorded suggests they are essentially sedentary through the adult period. It should be noted also that if this abundance is anomalous, and were not sustained, then the relative proportions of the very common species that also dominated marginally rises significantly. It is somewhat odd that *Silometopus elegans* (O. P.-Cambridge, 1872) occurred

only at the margin of the bog. It was relatively abundant at Clara in 2007 and it is occurs in both wet and very humid habitats. Its presence too would seem to confirm the high humidity at ground level at the margin. Also of interest, is the presence at the margin of *Walckenaeria antica* (Wider, 1834), a species very closely related to *W. alticeps*. The species are very similar and great care is needed in distinguishing between them. The presence of both species on the bog but at very distinct locations tells us something of their preferences. *W. antica* is found in a range of moist and humid habitats in Ireland while *W. alticeps* has only been recorded from very wet areas of raised bogs. *C. arcanus*, *Ceratinella brevis* (Wider, 1834) and *W. dysderoides* are generally woodland species - their occurrence may be due to the location's proximity to the patch of birch *Betula* woodland on the bog. It is of interest that *M. marginella* was found to occur also at the marginal area of the bog. It is thus more widespread on the bog than the 2007 records indicate and its presence raises the question as to whether it is there due to the wetland component close by, as with *inter alia P. piscatorius* or, because it is essentially a thermophile species since it can make use of non-swampy areas of the bog. If the latter is the case, it raises the question as to whether it occurs on other, dryer habitats in Ireland.

The most interesting additions from a conservation perspective did come from the central area of the bog despite the fact that this area produced only five species not recorded in 2007 or at the marginal location in 2010. It says something about the significance of Clara Bog that species of such rarity continue to appear.

Twelve species were recorded in 2010 that were recorded at Carrowbehy in 2007 but not at Clara. This reduces the number of species recorded at Carrowbehy but not Clara from 27 to fifteen. Of these twelve, two were from the central area, and one of these, *Lophomma punctatum* (Blackwall, 1841), is a strong wetland associate. Two other species were found at both locations and eight occurred only at the marginal location. Of these eight, seven were Linyphiidae and this points to the effect the taller, shading and well-structured vegetation at the marginal area has in creating resemblances to Carrowbehy.

Conclusions

The 2007 and 2010 surveys produced between them 93 species from Clara Bog, a little over 22% of the known Irish spider fauna. Should the birch woodland on the bog be sampled, the number would certainly rise to over 100 and probably above one-quarter of the Irish fauna could be recorded.

The survey in 2010 largely reinforces the picture of the varied and interesting spider fauna that is attached to Clara Bog. Quite apart from recording again a number of rare species it added records of more rare species e.g. *C. levitarsis* and others considered quite uncommon such as *S. caricis* and *S. simile.*

The picture that one receives of the marginal area is not by any means entirely negative in spite of the abundant presence of some very common species of wolf-spider and linyphiid. While the central area had a greater number of rare species both in proportion to the number of specimens recorded centrally and in proportion to the number of species recorded from the margin, the examined marginal area clearly also harbours rare and significant species. A number of factors may explain this, principally, the fact that despite the proximity of the location to the edge of the cutaway bog, it manages to retain a very high degree of humidity - in part perhaps a consequence of water-flow into the area through the now in-filled drains. The high humidity, and thus the carpeting mosses, is probably maintained to some extent by the tall heath vegetation in the area. The presence of a single specimen of *P. piscatorius* and four specimens of *A. elegans* in the marginal pitfalls is considered significant here as is the abundant population of *J. falconeri.*

A number of species might be considered indicators for wet, peat-forming areas of midlands raised bog: *W. alticeps, S. britteni* and *P. piscatorius*. The former, at present, is known to occur in Ireland only in association with this habitat while the latter two also occur in acid fen (*P. piscatorius*) and a very restricted range of other flushed habitats (*S. britteni*). A range of other species are known in Ireland at present only from raised bog habitat but, due to their association with low to tall herbaceous field-layer vegetation may prove to be more elastic in their habitat

associations: *M. marginella, H. albovittata* and *S. simile*. It is undoubtedly the case that, regardless of whether all of the above species are found to occur in other habitats, Clara Bog has maintained substantial reproducing populations in spite of the severity of peat extraction practises.

Carrowbehy Bog has also maintained an interesting suite of rare wetland species including some of those noted as potential indicators above. Species such as *B. setiger, E. ignobilis, J. falconeri, M. mossica* and *P. montanum* are all relatively uncommon on a European scale. The large population of *H. pygmaea* is also of significant interest given that the grassland habitats which it frequents have been so heavily managed in Ireland. Raised bogs in the more northern parts of the Republic of Ireland have been very little studied for their spider fauna and it is not possible to know how representative Carrowbehy may be of them as a whole.

The major differences between the wettest areas of Clara and Carrowbehy bogs can be largely explained by the taller and denser vegetative structure and more northern latitude of the latter. The major differences between the central area and the marginal area of Clara can be explained by dehydration at the margin and its well-structured vegetation. The swampy parts of Clara Bog especially maintain a spider fauna of significant interest and a randomly selected marginal area on the high bog, despite its proximity to cutaway margin, also maintains a number of uncommon species. Viewed negatively, the marginal area sampled at Clara Bog can be seen to have essentially lost its strictly wetland component through the near total loss of species such as *Pirata* spp., *S. britteni* and *A. elegans*. Giving the most positive reading, it might be suggested that even small, wet areas can maintain small numbers of some wetland, epigeal species and also, populations of rare or uncommon species that favour more elevated situations. It would be of interest to see if this holds true for other marginal locations on Clara Bog and whether in 2010, the presence of local ditches and pools (on the high bog) and the *Myrica/Calluna* vegetation created results that might be anomalous in comparsion. Cutaway bog is hugely variable in nature, and very difficult to define (Fossitt, 2000), and high bog proximate to cutaway margin will be, inevitably, highly variable also, depending on the history of peat-

extraction and management practises locally.

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TABLE 1. Dates that pitfall traps were set and catch collected in 2007. Hand-collecting and sweep-netting was carried out at each site on the date the pitfalls were emptied.

Dates used in appendices.	**Mid April**	**Early May**	**Late May**	**Late June**	**Late July**	**Early Sept**	**Mid Oct**
Clara	11 April	3 May	25 May	28 June	31 July	7 Sept	12 Oct
Carrowbehy	10 April	2 May	26 May	27 June	30 July	8 Sept	13 Oct

TABLE 2. Dominant species in pitfall traps at Clara Bog and Carrowbehy Bog, 2007 (>3% of total catch from each site) showing total numbers and percentage of pitfall catch.

	CLARA		**CARROWBEHY**	
Species	Adults	% total	Adults	% total
Antistea elegans	188	34.49	25	4.13
Pirata uliginosus	102	18.71	77	12.74
Lepthyphantes ericaeus	3	<2%	94	15.56
Pardosa pullata	11	2.01	40	6.62
Walckenaeria cuspidata	1	<2%	49	8.11
Gongylidiellum latebricola	14	2.56	28	4.63
Pirata piraticus	8	<2%	30	5.96
Pirata piscatorius	22	4.03	10	<2%
Pardosa nigriceps	15	2.75	16	2.64
Ozyptila trux	8	<2%	21	3.47
Lepthyphantes mengei			29	4.8
Trochosa terricola	12	2.2	12	<2%
Euryopis flavomaculata	18	3.30	4	<2%
Walckenaeria atrotibialis	15	2.75	5	<2%
Agyneta olivacea			21	3.47
Satilatlas britteni	19	3.48		

TABLE 3. Dominant species in sweep-net samples at Clara Bog and Carrowbehy Bog, 2007 (>2% of total catch from each site) showing adult and immature numbers and percentage of pitfall catch.

	Clara Bog				**Carrowbehy Bog**			
	Adults	Imms	total	% total	Adults	Imms	Total	% total
Dictyna arundinacea	84	569	653	68.37	5	63	68	20.35
Tetragnatha extensa	6	119	125	13.08	4	82	86	25.74
Neottiura bimaculatum	4	30	34	3.57				
Hypsosinga pygmaea	5	29	34	3.56	15	91	106	31.73
Minicia marginella	6	22	28	2.93				
Xysticus cristatus	1	21	22	2.31	2	16	18	5.38
Tibellus sp		7	7	.73		7	7	2.09

TABLE 4. Clara Bog, Co. Ofally, 2010. Most abundant species (>3%) in pitfalls at central and marginal locations as % of catch trapped at each location.

	Central	**Marginal**
Pirata piscatorius	36.75	<1
Jacksonella falconeri		31.89
Antistea elegans	21	<1
Pirata uliginosus	15.29	3.62
Diplocephalus permixtus	11.41	
Pardosa nigriceps	<2	9.61
Gongylidiellum latebricola		5.29
Pardosa pullata		5.15
Lepthyphantes mengei		4.59
Neon reticulatus	<1	3.48
Pirata piraticus	3.42	

TABLE 5. Most abundant species (>3%) swept at central and marginal locations as % of total catch swept at each location.

	Central	**Marginal**
Dictyna arundinacea	40.38	45.74
Theridion	3.84	17.02
Tetragnatha extensa	16.02	2.12
Hypsosinga pygmaea	14.10	<2
Neottiura bimaculatum	8.33	2.12

APPENDIX 1. Clara Bog, Co. Offaly, 2007. Each date represents specimens collected by hand and sweep-net on that date and by pitfalls in the period up to that date. New county records indicated *.

Species	11 Apr	3 May	25 May	28 June	30 July	8 Sept	13 Oct	Total
AGELENIDAE								
**Agelena labyrinthica* (Clerck)	Immatures only							
ARANEIDAE								
**Agalenatea redii* (Scopoli)	Immatures only							
Araneus quadratus Clerck							0/1	0/1
Hypsosinga albovittata (Westring)	Immatures only							
Hypsosinga pygmaea (Sundevall)		0/4	1/0		0/1			1/5
Larinioides cornutus (Clerck)							0/2	0/2
CLUBIONIDAE								
Clubiona trivialis C.L.Koch	2/0			0/1	5/0	0/3		7/4
DICTYNIDAE								
Dictyna arundinacea (Linnaeus)		11/54	3/13	0/12	0/8	0/1		14/88
GNAPHOSIDAE								
**Haplodrassus signifer* (C.L.Koch)				1/0				1/0
HAHNIIDAE								
Antistea elegans (Blackwall)	0/2	0/67	0/33	0/21	3/7	2/7	73/8	78/145
**Hahnia pusilla* C.L.Koch	0/1	0/1		0/1	1/2			1/5
LINYPHIIDAE								
**Aphileta misera* (O.P.-Cambridge)	2/2	1/1	0/1	3/0	1/3			7/7
Araeoncus crassiceps (Westring)	2/0							2/0
Bathyphantes gracilis (Blackwall)		1/0					4/3	5/3
**Centromerita concinna* (Thorell)			0/1					0/1

APPENDIX 1 (Continued)

Species	11 Apr	3 May	25 May	28 June	30 July	8 Sept	13 Oct	Total
Ceratinella brevipes (Westring)			1/0					1/0
Ceratinella brevis (Wider)		2/2	1/0	1/2				4/4
Diplocephalus permixtus (O.P.-Cambridge)		1/4			0/1			1/5
Erigone atra Blackwall		0/1		0/1			1/0	1/2
Erigone dentipalpis (Wider)	0/1							0/1
Erigonella hiemalis (Blackwall)		1/0						1/0
Gongylidiellum latebricola (O.P.-Cambridge)		2/0	1/2	10/0	1/0			14/2
Gongylidiellum vivum (O.P.-Cambridge)			1/0					1/0
Jacksonella falconeri (Jackson)		7/0	2/0					9/0
Lepthyphantes ericaeus (Blackwall)		0/1	0/1	0/1				0/3
Lepthyphantes tenuis (Blackwall)	0/1	0/3	1/1	0/2			2/3	3/10
Lepthyphantes zimmermanni Bertkau							1/0	1/0
**Meioneta beata* (O.P.-Cambridge)			1/0					1/0
Minicia marginella (Wider)		2/4						2/4
Oedothorax retusus (Westring)		1/0						1/0
Peponocranium ludicrum (O.P.-Cambridge)	3/0	4/1	0/3					7/4
Pocadicnemis pumila (Blackwall)			2/1	0/2				2/3
**Satilatlas britteni* (Jackson)	19/8	1/14	0/16	0/2				20/40
Silometopus elegans (O.P.-Cambridge)	1/0	2/5	0/3	0/1				3/9
**Stemonyphantes lineatus* (Linnaeus)	0/1							0/1

APPENDIX 1 (Continued)

Species	11 Apr	3 May	25 May	28 June	30 July	8 Sept	13 Oct	Total
Trichopterna thorelli (Westring)		0/1	2/1	0/2				2/4
Walckenaeria alticeps (Denis)	2/0	1/2	0/2	0/3	0/1			3/8
**Walckenaeria atrotibialis* (O.P.-Cambridge)				5/6	1/3			6/9
**Walckenaeria cuspidata* Blackwall		1/0						1/0
Walckenaeria vigilax (Blackwall)				2/0	1/0			3/0
LIOCRANIDAE								
Agroeca proxima (O.P.-Cambridge)		0/1						0/1
Scotina gracilipes (Blackwall)					1/0	0/1		1/1
LYCOSIDAE								
Alopecosa pulverulenta (Clerck)			1/0	1/0				2/0
Pardosa nigriceps (Thorell)		4/1	7/4	3/1				14/6
Pardosa pullata (Clerck)		2/1	5/4		0/2	0/1		7/8
Pirata latitans (Blackwall)				0/1				0/1
Pirata piraticus (Clerck)		0/1	1/3	12/14	1/5	0/1		14/24
**Pirata piscatorius* (Clerck)		2/0	10/2	6/1	0/1	0/2		18/6
Pirata uliginosus (Thorell)		6/2	65/6	23/6	0/3			94/17
Trochosa terricola Thorell	0/1	3/3	0/1	0/2	0/3	1/0	1/0	5/10
MIMETIDAE								
**Ero cambridgei* Kulczynski							0/1	0/1
PHILODROMIDAE								
Tibellus oblongus (Walckenaer)			1/0	1/0				2/0
SALTICIDAE								
Neon reticulatus (Blackwall)		3/0	2/2	0/4	1/1			6/7
TETRAGNATHIDAE								
Pachygnatha degeeri Sundevall		1/1	1/0					2/1
Tetragnatha extensa (Linnaeus)			1/0	5/2		0/2		6/4
THERIDIIDAE								
Euryopis flavomaculata (C.L.Koch)			9/1	7/1	0/1			16/3

APPENDIX 1 (Continued)

Species	11 Apr	3 May	25 May	28 June	30 July	8 Sept	13 Oct	Total
Neottiura bimaculatum (Linnaeus)		0/2	2/0	1/4	1/1			4/7
**Robertus arundineti* (O.P.-Cambridge)		1/0						1/0
Robertus lividus (Blackwall)				1/0	1/0			2/0
Theridion impressum L. Koch					0/2	0/1		0/3
THOMISIDAE								
Ozyptila trux (Blackwall)	0/1	1/1	1/3	7/0	0/1			9/6
Xysticus cristatus (Clerck)		2/1	2/1	1/0				5/2

APPENDIX 2. Carrowbehy Bog, Co. Roscommon, 2007. Each date represents specimens collected by hand and sweep-net on that date and by pitfalls in the period up to that date. New county records indicated *.

Species	10 Apr	2 May	26 May	27 June	30 July	8 Sept	13 Oct	total
ARANEIDAE								
Araneus quadratus Clerck						0/1		0/1
**Hypsosinga pygmaea* (Sundevall)	0/1	2/8	1/5	0/4				3/18
Larinioides cornutus (Clerck)				0/1				0/1
CLUBIONIDAE								
**Clubiona trivialis* C.L.Koch			1/1	1/1		1/0		3/2
CYBAEIDAE								
**Argyroneta aquatica* (Clerck)		0/1		2/1	2/0	2/0		6/2
DICTYNIDAE								
Dictyna arundinacea (Linnaeus)		0/4	0/1	0/5	0/2	0/1		0/13
GNAPHOSIDAE								
**Drassodes cupreus* (Blackwall)		1/0		0/1	0/1	0/1		1/3
HAHNIIDAE								
**Antistea elegans* (Blackwall)		0/5	0/3	0/1	0/1	16/0	1/0	17/10
**Hahnia helveola* Simon			0/1					0/1
LINYPHIIDAE								
**Agyneta conigera* (O.P.-Cambridge)			0/6	2/0				2/6
**Agyneta olivacea* (Emerton)		2/1	10/7	3/5		0/1		15/14
**Agyneta subtilis* (O.P.-Cambridge)				4/0	1/0			5/0
**Aphileta misera* (O.P.-Cambridge)			2/1	0/1		0/1		2/3
Bathyphantes gracilis (Blackwall)		2/2	0/1	0/2		0/1	2/0	4/6
**Bathyphantes setiger* F.O.P.-Cambridge				0/1				0/1
Centromerus dilutus (O.P.-Cambridge)		0/2						0/2

APPENDIX 2 (Continued)

Species	10 Apr	2 May	26 May	27 June	30 July	8 Sept	13 Oct	total
Ceratinella brevipes (Westring)		0/4						0/4
Diplocephalus permixtus (O.P.-Cambridge)		0/1						0/1
Erigone atra Blackwall		1/0		5/1	0/1			6/2
Erigonella ignobilis (O.P.-Cambridge)		1/0						1/0
Gonatium rubens (Blackwall)		0/4	0/3	0/2				0/9
**Gongylidiellum latebricola* (O.P.-Cambridge)		1/0	13/3	9/1	5/0			28/4
Gongylidiellum vivum (O.P.-Cambridge)			0/1	1/0				1/1
Hypomma bituberculatum (Wider)		1/1						1/1
**Jacksonella falconeri* (Jackson)		4/0	2/0					6/0
Lepthyphantes ericaeus (Blackwall)	0/1	2/24	3/16	8/18	5/15	1/11		19/85
Lepthyphantes mengei Kulczynski		1/3	2/8	3/2	2/9	0/3		8/25
Lepthyphantes obscurus (Blackwall)		2/0	2/0					4/0
Lepthyphantes tenuis (Blackwall)		1/0	1/2	0/1				2/3
Lepthyphantes zimmermanni Bertkau				0/1				0/1
**Lophomma punctatum* (Blackwall)		0/1						0/1
**Meioneta mossica* Schikora			3/1	1/1	0/3	0/1		4/6
**Metopobactrus prominulus* (O.P.-Cambridge)		1/0	1/1	0/2				2/3
Micrargus herbigradus (Blackwall)		3/1	1/2	0/4	4/1			8/8
**Oedothorax fuscus*					1/1			1/1
Oedothorax gibbosus (Blackwall)				8/0				8/0

APPENDIX 2 (Continued)

Species	10 Apr	2 May	26 May	27 June	30 July	8 Sept	13 Oct	total
Peponocranium ludicrum (O.P.-Cambridge)		2/5	0/1		0/1			2/7
Pocadicnemis pumila (Blackwall)			1/1					1/1
Poeciloneta variegata (Blackwall)		0/1						0/1
**Porrhomma montanum* Jackson			0/1					0/1
Saaristoa abnormis (Blackwall)				4/2	2/1			6/3
**Satilatlas britteni* (Jackson)	1/0		0/1					1/1
**Silometopus elegans* (O.P.-Cambridge)				0/1				0/1
Taranucnus setosus (O.P.-Cambridge)	0/1	0/2	1/3	0/1	0/2	0/2		1/11
**Trichopterna thorelli* (Westring)		1/0	0/3					1/3
Walckenaeria acuminata Blackwall		0/1	0/1		1/0			1/2
Walckenaeria atrotibialis (O.P.-Cambridge)				0/1	2/2			2/3
Walckenaeria cuspidata Blackwall	0/1	4/10	1/12	0/15	0/4	0/2	1/1	6/45
Walckenaeria nudipalpis (Westring)						0/1		0/1
LIOCRANIDAE								
**Agroeca proxima* (O.P.-Cambridge)						2/0		2/0
**Scotina gracilipes* (Blackwall)				0/1		4/0		4/1
LYCOSIDAE								
**Alopecosa pulverulenta* (Clerck)			3/7		0/2			3/9
**Pardosa nigriceps* (Thorell)	1/1	3/1	7/3	1/9	0/3	0/2		12/19
Pardosa pullata (Clerck)		6/10	3/12	1/5	1/5	1/2		12/34
Pirata piraticus (Clerck)		1/1	4/3	23/9	2/2	0/1		30/16
**Pirata piscatorius* (Clerck)		1/0	4/2	2/0	0/1	0/1		7/4

APPENDIX 2 (Continued)

Species	10 Apr	2 May	26 May	27 June	30 July	8 Sept	13 Oct	total
**Pirata uliginosus* (Thorell)		2/2	39/7	18/6	0/1	0/4		59/20
Trochosa terricola Thorell		0/3			0/1	1/5	2/0	3/9
MIMETIDAE								
**Ero cambridgei* Kulczynski			0/1					0/1
PHILODROMIDAE								
**Tibellus oblongus* (Walckenaer)			0/1					0/1
PISAURIDAE								
Dolomedes fimbriatus (Clerck)		1/0	1/0					2/0
SALTICIDAE								
Neon reticulatus (Blackwall)			0/1					0/1
TETRAGNATHIDAE								
Tetragnatha extensa (Linnaeus)				0/4	1/2			1/6
THERIDIIDAE								
**Euryopis flavomaculata* (C.L.Koch)				1/0	2/0	1/0		4/0
Pholcomma gibbum (Westring)	0/3	1/1	1/1	0/1				2/6
Robertus lividus (Blackwall)				0/1				0/1
**Theridion impressum* L.Koch							0/1	0/1
THOMISIDAE								
Ozyptila trux (Blackwall)			2/4	12/1	0/1		0/1	14/7
Xysticus cristatus (Clerck)		2/0			0/1	1/0		3/1
ZORIDAE								
**Zora spinimana* (Sundevall)			1/1	1/0	0/1			2/2

APPENDIX 3. Clara Bog, Co. Offaly, 2010. Species and numbers of specimens (♂/♀). Each column amalgamates specimens from the two collecting periods and dates. Numbers without a slash (/) indicate immatures. Species/genera in bold were not recorded in 2007. New county records indicated *.

Species	Pitfall Central	Sweep Central	Pitfall Marginal	Sweep Marginal
Araneidae				
Agalenatea redii (Scopoli)				1/1
Araneus quadratus Clerck				7
Araniella				1
Hypsosinga albovittata (Westring)		1		
Hypsosinga pygmaea (Sundevall)		6/16		1/1
Larinioides cornutus (Clerck)		4		1
Zygiella?				1
Clubionidae				
Clubiona		1		3
Clubiona trivialis C.L.Koch			0/1	0/1
Dictynidae				
Dictyna arundinacea (Linnaeus)		30/33		38/48
Gnaphosidae				
Drassodes cupreus (Blackwall)	1/0		1/0	
Haplodrassus signifer (C.L.Koch)			2/0	
Micaria pulicaria (Sundevall)			1/2	
Hahniidae				
Antistea elegans (Blackwall)	0/92		0/4	
Hahnia helveola Simon			0/3	
Linyphiidae				
Aphileta misera (O.P.-Cambridge)	1/0			
Bathyphantes gracilis (Blackwall)	1/1		0/1	
Centromerita bicolor (Blackwall)			0/2	
Centromerita concinna (Thorell)			0/12	
Centromerus arcanus (O.P.-Cambridge)			4/1	
Centromerus levitarsis (Simon)	0/1			
Centromerus prudens (O.P.-Cambridge)			0/11	
Ceratinella brevis (Wider)	0/1		13/4	
Ceratinella brevipes (Westring)	1/1			
Diplocephalus permixtus (O.P.-Cambridge)	15/35			
Erigone atra Blackwall	1/0			

APPENDIX 3 (Continued)

Species	Pitfall Central	Sweep Central	Pitfall Marginal	Sweep Marginal
Gonatium rubens (Blackwall)			0/2	0/1
Gongylidiellum latebricola (O.P.-Cambridge)			35/3	
Gongylidiellum vivum (O.P.-Cambridge)	1/0		11/0	
Jacksonella falconeri (Jackson)			229/0	
Lepthyphantes ericaeus (Blackwall)			1/0	
Lepthyphantes mengei Kulczynski			12/21	
Lophomma punctatum (Blackwall)	0/1	0/1		
Maso sundevalli (Westring)			2/0	
Meioneta beata (O.P.-Cambridge)			9/0	
****Metopobactrus prominulus*** (O.P.-Cambridge)			0/3	
Micrargus herbigradus (Blackwall)	1/0		2/1	
Microlinyphia		2		4
Microlinyphia pusilla (Sundevall)				0/1
Minicia marginella (Wider)		0/1		0/2
Monocephalus fuscipes (Blackwall)			2/2	
Oedothorax fuscus (Blackwall)	1/0			
Peponocranium ludicrum (O.P.-Cambridge)	2/0		1/3	0/2
Pocadicnemis pumila (Blackwall)	2/0		4/0	
Saaristoa abnormis (Blackwall)			1/0	
Satilatlas britteni (Jackson)	0/2			
Silometopus elegans (O.P.-Cambridge)			3/17	
Tallusia experta (O.P.-Cambridge)	0/1			
Tiso vagans (Blackwall)			2/0	
Trichopterna thorelli (Westring)	1/0			
Walckenaeria acuminata Blackwall			0/1	
Walckenaeria alticeps (Denis)	4/1			
Walckenaeria antica (Wider)			4/5	
Walckenaeria atrotibialis (O.P.-Cambridge)	0/1		10/9	
Walckenaeria cuspidata Blackwall			0/1	
****Walckenaeria dysderoides*** (Wider)			8/1	
Walckenaeria nudipalpis (Westring)			0/4	
Walckenaeria vigilax (Blackwall)	4/2		10/1	
Liocranidae				
Agroeca proxima (O.P.-Cambridge)			0/1	
Scotina gracilipes (Blackwall)			0/4	

APPENDIX 3 (Continued)

Species	Pitfall Central	Sweep Central	Pitfall Marginal	Sweep Marginal
Lycosidae				
Alopecosa pulverulenta (Clerck)			7/4	
Pardosa amentata (Clerck)			1/1	
Pardosa nigriceps (Thorell)	5/1		43/26	
Pardosa pullata (Clerck)			16/21	
Pirata latitans (Blackwall)	1/0			
Pirata piraticus (Clerck)	8/7			
Pirata piscatorius (Clerck)	136/25		1/0	
Pirata uliginosus (Thorell)	62/5		23/3	
Trochosa terricola Thorell	0/1		0/2	
Philodromidae				
Philodromus cespitum (Walckenaer)				1/0
Philodromus		2		6
Tibellus		1		
Pisauridae				
Dolomedes fimbriatus (Clerck)	1/0	1		2
Salticidae				
****Heliophanus flavipes*** (Hahn)				1/0
Neon reticulatus (Blackwall)	1/0		5/20	
****Sitticus caricis*** (Westring)		0/1		
Tetragnathidae				
Metellina?		1		8
Pachygnatha degeeri Sundevall	0/1		3/4	
Tetragnatha extensa (Linnaeus)		10/15		1/3
Theridiidae				
Enoplognatha				10
****Episinus angulatus*** (Blackwall)		1/0	8/3	0/1
Euryopis flavomaculata (C.L.Koch)	3/0		3/0	
Neottiura bimaculatum (Linnaeus)		13	1/3	2/2
Robertus arundineti (O.P.-Cambridge)			2/7	
Robertus lividus (Blackwall)	1/1		6/5	
****Simitidion simile*** (C.L.Koch)		1		1
Theridion		6		32
Theridion sisyphium (Clerck)				0/1
Thomisidae				
Ozyptila trux (Blackwall)	3/0		10/5	
Xysticus cristatus (Clerck)	0/1			0/1
Xysticus				2
Total species	34	18	52	28
Total specimens	438	156	718	188