

## The spider fauna of Ireland

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### Spider fauna, Ireland, faunal composition, dispersal

**Abstract.** The spider faunas of Ireland, Great Britain, and Continental Europe are compared. Ireland is clearly undercollected in comparison with Great Britain. Ireland shares all its spider species with Great Britain but possesses only 59.6% of that fauna. Some families are better represented than others. Families of webbuilding species are better represented than the non-webbuilders. It is suggested that the absence of certain types of habitat is the cause for the unbalanced representation. The few endemic species for the islands of Great Britain and Ireland are commented upon.

### INTRODUCTION

Ireland forms the westernmost tip of Europe, Iceland excepted. It is a continental island and one expects the spider fauna of the island to be derived from that of Great Britain. The names Ireland and Great Britain here are used in a zoogeographical sense only, with Ulster and the Republic of Ireland together constituting Ireland. For Great Britain there exists the recent work of Roberts (1993), while subsequent additions could be traced fairly easily. A species list of the Irish spider fauna was compiled by myself. For comparison with the continental fauna I have used all the available regional and national check lists and world catalogues (Bonnet, 1955–1959; Brignoli, 1983; Platnick, 1989, 1993). For none of the regions do I claim to be complete and none of the faunas will be completely known, but for this comparative study one or two missed species will not make much difference.

### NUMBERS OF SPECIES

The species list for Ireland holds 377 names, records of non-established exotic imports and not truly indigenous species not included. *Hasarius adansoni*, therefore, is not included, but *Pholcus phalangioides* is. One never knows where to draw the line, of course, but, again, in the present context this makes no difference. For Great Britain I have counted 632 species. Just to give an idea of the richness of the fauna of Great Britain: the Netherlands and Belgium together hold 695 species. Belgium has more to offer than the Netherlands, because Belgium has a broader ecological range, from the Flemish lowlands to the mountaneous regions of Luxemburg and Hainaut, and from the Dutch border to Virton which is claimed to be the northernmost tip of the mediterranean region. The Belgians also have been more active in inventorizing their fauna over the last decades and have published one new faunistic record after the other.

**Table 1.** Possible endemic spider species of Great Britain and Ireland.

species	IR	GB	EU	
<i>Euophrys browningi</i> Millidge & Lockett, 1955	--	+	--	shingle beaches, East Anglia cf. <i>E. obsoleta</i> Simon
<i>Eboria caliginosa</i> Falconer, 1910	--	+	--	"wet habitats on high ground"
<i>Entelecara errata</i> O. P.-Cambridge, 1913	+	+	+	taxonomy! not also found on continent
<i>Centromerus minutissimus</i> Merrett & Powell, 1993	--	+	--	recent discovery on arable land

With the exception of two questionable records (*Tegenaria pagana* and *Entelecara media*) all 377 species of Ireland also occur in Great Britain. Great Britain has another 257 species. Thus the Irish fauna constitutes 59.6% of the fauna of Great Britain. Of the 632 British species only one, according to the literature, is endemic to Ireland and Great Britain: *Entelecara errata*, a mountain-dwelling species in Great Britain and found at sea level in Ireland, and recently also collected on the continent (unpublished record); however, a revision of the genus *Entelecara* is needed. Three species are endemic to Great Britain alone (Table 1): *Euophrys browningi*, which occurs on shingle beaches in East Anglia (and which so much resembles *E. obsoleta* Simon that it has been suggested to be its synonym, or at least a subspecies); *Eboria caliginosa*, exclusively known from northern England and Scotland; and *Centromerus minutissimus* Merrett & Powell, 1993, which has been described only recently and may turn up on the continent before long. *Hahnina microphthalma* Snazell & Duffey was an endemic species of Great Britain for more than a decade but now has been found in Germany (J. Wunderlich, pers. comm.). I would not be surprised if all the above species will finally be shared with other parts of Europe.

The number of species shared by Ireland, Great Britain, Belgium and the Netherlands amounts to 361, or, with other words, only 51.9% of the spider fauna of Belgium and the Netherlands occurs in Great Britain. All other British species, except for the few endemics and endemics-for-the-time-being, occur elsewhere on the continent. Several species are shared with Scandinavia, or have an arctic-alpine distribution which includes the British isles. Others are South or Central European, while some have Holarctic or even wider distributions and probably are the result of chance introductions.

### MORE NUMBERS

If we look at the family level (Table 2) we see that for nearly all families Ireland has a lower number of species than Great Britain. As a rule of thumb, Irish faunists generally use the 65–70% rule: of a certain taxon 65–70% of the fauna of Great Britain should be present in Ireland. If not, then we have a special case: the taxon either is still undercollected, or the taxon is underrepresented for zoogeographical reasons, such as

**Table 2.** Procentual differences in numbers for selected families.

Family	IR (n)	(%)	GB (n)	NL + B (n)
<b>Webbuilders</b>				
Linyphiidae	185	68	272	267
Araneidae	18	54.5	33	37
Tetragnathidae	9	100	9	11
Theridiosomatidae	1	100	1	1
Metidae	4	80	5	4
Theridiidae	31	58.5	53	57
Mimetidae	2	50	4	4
Agelenidae	9	47.4	19	21
<b>Total webbuilders</b>	259	65.4	396	402
<b>Without Agelenidae</b>	250	66.3	377	381
<b>Non-webbuilders</b>				
Lycosidae + Pisauridae	26	66.6	39	47
Liocranidae + Clubionidae	21	58.3	36	41
Liocranidae	6		13	15
Clubionidae	15		23	26
Salticidae	14	38.8	36	47
Philodromidae + Thomisidae	20	46.5	43	56
Philodromidae	7		18	18
Thomisidae	13		25	38
Gnaphosidae	11	36.7	30	43
<b>Total non-webbuilders</b>	92	50	184	234

“could not reach it” or “the biotope is not available”. Since Ireland has not more than 60% (59.6) of the spider fauna of Great Britain, it scores too low according to the 65–70% rule.

If we look at this more closely, leave out small families and group the remaining families according to webbuilding or non-webbuilding, we can see that for the webbuilders (species with exposed webs) Ireland has more than 65.4% of the fauna of Great Britain. However, note also that some families score significantly lower: Araneidae 54.5 %, Theridiidae 58.5 %, Agelenidae 47.4 %. If the Agelenidae are removed from this assemblage, being an outgroup in some way, the percentage for the webbuilders goes up to 66.3%. In the webbuilders group the difference in numbers between Belgium and the Netherlands, as representatives of the continent, and Great Britain is very slight (396 in Great Britain against 402 in the Netherlands and Belgium).

If we look at the non-webbuilders we see significant differences between the continent and Great Britain, while Ireland has only 50% of the fauna of Great Britain, which is largely due to the low numbers of species in the Liocranidae, Salticidae, Philodromidae, Thomisidae, and Gnaphosidae. Lycosidae + Pisauridae, and Clubionidae score 65% and 66.6%, respectively. For this ecological group there are significant differences between Great Britain (184) on the one hand and the Netherlands and Belgium (234) on the other.

## CONCLUSIONS

With 59.6% of the fauna of Great Britain being present in Ireland the fauna of Ireland is incompletely known. More collecting certainly will increase the percentage towards 65 or 70%. At the same time the distributions of the species will become more complete, which is not a luxury because too many species are now known from one or two localities only. However, this cannot explain the unbalanced representation of certain families. Why do Linyphiidae with 68 % and Lycosidae with 66.6 % score so much higher than Salticidae and Gnaphosidae, both represented by less than 40% of the fauna of Great Britain? We may safely assume that collectors do not more easily find species of Linyphiidae than of conspicuous Salticidae or Thomisidae.

Two possible explanations come to mind. In the first place we should consider the possible differences in dispersal capacity between different families. Aerial dispersal, the so-called "ballooning" (but "sailing" is a more appropriate term according to Parker, 1989) is common among spiders, but the existing literature is inconclusive as to differences between families. Linyphiidae, which travel as adult specimens in autumn, winter and spring, score high in all papers on the subject, but juvenile specimens of other families use this technique as well in summer (Duffey, 1956).

The second and most likely explanation concerns the availability of suitable habitats. Ireland is a big enough island to offer a large variety of habitats, but we have to be aware of a number of characteristics of the island. First of all the climate is oceanic with a high precipitation, hence the large areas of bog (mountain bogs, raised bogs, blanket bogs). Fenlands are not very common but there are many lakes. Different types of wetlands, therefore, are well represented in Ireland. Two other types of habitat, however, are scarce: forests and dry grasslands. Only very small patches of original forest have remained. Most so-called forests are conifer plantations on peat soil and may have a very poor and secondary fauna. Dry grasslands and dry heathlands of good quality are equally scarce and the typical xerophilous and thermophilous fauna so characteristic of such habitats is not favoured in a country with a high precipitation and much wind. Ireland is not a warm country, although the climate is oceanic and mild. This may explain the low numbers of Dictynidae, Liocranidae, Gnaphosidae, Philodromidae and Salticidae.

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