

SPIDERS AND OTHER INVERTEBRATES OF
SKELLIG MICHAEL,
PÁIRC NÁISIÚNTA NA MARA. CO. KERRY.

A SUMMARY REPORT FOR THE NATIONAL PARKS AND
WILDLIFE SERVICE

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INTRODUCTION AND METHODS

Skellig Michael was visited on a number of occasions through the summers of 2023 and 2024 with the object of surveying spiders and other invertebrates on the island. Collections were made by hand in 2023, primarily by sampling vegetation, turning stones and searching by eye (e.g. for webs). In 2024, more hand-collections were made and this included searches of nesting material from bird burrows. Also in 2024, transects of pitfall traps were installed at two locations for four weeks (with due care being taken not to impact on bird burrows). One site was dominated by a dense sward of *Silene* sea-campion, the other by a mixed sward of thinly vegetated (grasses and campion) and bare soils. Pitfall trapping was desirable in order to obtain a broader picture of the relative numbers of the most common invertebrate species, and to supplement the species list compiled in 2023.

This summary report details some of the results so far obtained, offering a list of the spiders including numbers of specimens seen (Appendix 1). A list is given also of other invertebrates identified with a brief indication of their status (abundance) on the island (Appendix 2). The numbers given for some spiders are not indicative of their actual abundance as many more specimens could have been collected of some species. A fully detailed paper is in preparation which will provide a complete analysis of all the invertebrates recorded.

RESULTS

Nearly 1000 spider specimens were collected and identified in 2023 and a further 1100 in 2024, with nearly 2100 identified in total. Most of the specimens collected in 2024 were from the pitfall traps. Over 3000 specimens of other invertebrates were collected, and again, a very large proportion of these were from the pitfall traps in 2024. The most abundant invertebrate seen was an amphipod (sand-hopper) with an estimated >8000 specimens appearing in the pitfall traps. These have not been yet fully examined. As such, a rough total of some 14,000 specimens were collected and assessed to some taxonomic level.

Dominant fauna

The dominant (by abundance) invertebrates were three detritivorous species. The most abundant, as stated above was an amphipod, only a small number of specimens of which I have identified as they were not a target group for the survey. Thus far, the only species identified is *Orchestia gammarellus*, a common and widespread species typical of marine upper shore situations. The next two most commonly trapped species were two woodlice, *Porcellio scaber* and *Oniscus asellus*, over 1600 specimens of which were collected. They are two of the most common and widespread woodlouse species in Ireland. After these species a number of spider, beetle and other invertebrates appeared in relatively large numbers (>100). Some observations on the fauna recorded are given below.

SPIDERS

In total 43 species of spider have been identified so far from Skellig Michael. A full list of the spiders identified, the numbers in which they were collected, and the number of Irish hectads in which they have been recorded (to end 2022) is given in appendix 1. Any species occurring in more than 100 hectads may be taken to be common and widespread in Ireland. A number of observations on the spider fauna observed can be made.

A 'grassland' fauna

A tranche of species might be described as representative of a truncated grassland fauna. These species were most abundant on dense sea-campion *Silene* sward and are broadly characteristic of very open or grassland habitats in Ireland; *Erigone atra*, *Gongylidiellum vivum*, *Micrargus subaequalis*, *Oedothorax retusus*, *Pocadicnemis pumila* and *Savignia frontata*, all from the Linyphiidae (money spiders). Other species such as *Pachygnatha degeeri* and *Tenuiphantes tenuis* enhance this characterisation. More broken soils, with less vegetation, hosted far fewer spider specimens. A number of very common, diurnal species of wolf spider are characteristic of grassland habitats, and were notable by their *absence* from Skellig Michael. Only one wolf spider is present there, the large, common, nocturnal species *Trochosa terricola*.

Rarities

While the most frequently spiders recorded there are generally widely distributed and common species, a small number of much rarer spiders were also collected. These include the coastal linyphiid species *Parapelecopsis nemoralioides*, the rare hahniid *Hahnia pusilla* and the sac spider *Drassodes lapidosus*. Skellig Michael is at present the only breeding location I am aware of in Ireland for *Drassodes lapidosus*. Its Irish status has remained uncertain due to confusion with the closely related *Drassodes cupreus*.

Rock-face species

Bare, vertical, rock-face was frequented by one large orb-weaving species, *Metellina merianae*. The common jumping spider, *Salticus scenicus*, a diurnal hunter, was the only other spider species seen to make frequent use of it by day. A number of species use it as a hunting ground by night, the sac spider *Drassodes lapidosus*, the woodlouse spider *Dysdera crocata* and its close relation *Harpactea hombergi*.

Introduced species

Four species that live usually or obligatorily in association with humans have been introduced to the island, the common, orb-weaving, sector spider *Zygiella x-notata*, the daddy long-legs spider *Pholcus*

phalangioides, the common house spider *Tegenaria domestica* and the small false widow, *Steatoda grossa*. None of these show significant signs of being able to colonise areas of the island away from the huts and built areas they occupy. Two other species, *Dysdera crocata* and *Salticus scenicus*, frequently occur in or around houses but are also found in natural habitats. If they were introduced to the island by humans, they are now wholly naturalised.

Thermophile fauna

The bare rock-face that characterises much of the island functions as a heat-sink and creates conditions preferred by thermophilous species (species that need a warmer than usual environment). These include the sac spider *Drassodes lapidosus* and the jumping spider *Salticus scenicus*. Four species of jumping spider (nearly one quarter of the Irish occurring species) were collected on Skellig Michael, and all are diurnally active and broadly thermophilous. The number of species from this family is very high relative to the total spider fauna recorded there and is indicative of the relatively warm environment.

OTHER INVERTEBRATES

In total 66 species of other invertebrate have been identified to some taxonomic level for this report. A full list of is given in appendix 2 with a brief indication of their general abundance on Skellig Michael.

Common coastal, grassland beetles

A number of rove beetles (Staphylinidae) were collected in relatively large numbers e.g. *Philonthus laminatus* from dense Sea campion. It is a widespread and abundant species, preferring damp soils. *Tasgius ater* prefers coastal grasslands, as does *Sepedophilus nigripennis* though it is a widespread species. Also collected in large numbers was the carabid *Calathus fuscipes* which is common and widespread and slightly thermophilous, Other abundantly recorded species included the carabid *Pterostichus niger*, the click beetle *Athous haemorrhoidalis* and the decay beetle *Megasternum concinnum*. All are common and widespread species that can be found in a wide range of habitats.

Rock face fauna

Two species could be seen in great abundance on the rock face, especially at night, the sea slater *Ligia oceanica* and bristle-tails (Thysanura), almost certainly from the genus *Petrobius*. The other most commonly seen invertebrates making use of the bare rock face were flies (Diptera), ruby-tailed wasps (Chrysididae) and the only solitary bee met on the island *Lasioglossum leucopus*; these species used the bare rock as a roost between flights.

Rarities and local species

A number of specimens of a ground beetle (Carabidae) were recorded that is a first record for Ireland. A note is in preparation on this find. The species is very rare in Britain and it is characteristic of highly insolated and fast-draining habitats. The vast majority of other species recorded are fairly common and widespread. Less commonly recorded, or somewhat local, species include the rove beetle *Xantholinus elegans*, the hydraenid (a 'water' beetle) *Ochthebius dilatatus*, the weevil *Apion cruentatum* and the pill beetle *Simplocaria semistriata*. The more local species recorded tend to be associated with coastal habitats and as such are inevitably less widespread than those species characteristic of grasslands. Numerous specimens of the arctic-alpine weevil *Otiorhynchus arcticus* were seen in 2023 but none in 2024. This species is restricted to Atlantic Irish coasts.

Thermophile fauna

As well as the beetle newly recorded for Ireland noted above, other beetles with a preference for highly insolated and fast-draining conditions were recorded and include the carabids *Amara aenea*, *Calathus fuscipes*, *Nebria salina* and the staphylinids *Quedius levicollis* and *Xantholinus elegans*. Other thermophiles recorded are two relatively uncommon ant species, *Tetramorium cespitum* and *Myrmica sabuleti*, both of which are confined to warm, insolated, fast-draining habitats in Ireland, and are thus far less frequently recorded than the other ant species noted from Skellig Michael. The small leaf hopper bug *Megophthalmus scanicus* was also collected and seems to prefer dry, fast draining habitats.

Bird burrows

Examination of nest material from the burrows of puffin and Manx shearwater showed they play host to a small number of commensal species. The most abundantly found was the carrion beetle *Sciodrepoides watsoni*, which could be collected in some numbers. It also appeared in pitfall traps and is clearly common across the island. The bird flea *Ornithopsyllus laetitiae* could be collected in large numbers and is a well-known associate of the Manx Shearwater. It has been recorded previously from Skellig Michael. The trogid beetle *Trox scaber* frequents bird nests and was recorded in fewer numbers than the other commensals. It is generally rather scarcely found. A linyphiid spider, *Thyreosthenius parasiticus*, that is often found in association with burrows, was collected in 2023, but no specimens were collected directly from burrows in 2024.

CONCLUSIONS

Human occupants of the island have introduced a number of spider species that are now resident in and on the built structures on the island, including the small wooden huts used by contractors, the two lighthouses and other concrete structures. They have not been able to naturalise and do not pose a threat to the fauna established in the natural environment. The other major inhabitants of the soil

dominated areas of the island, burrow nesting birds, play host to a number of commensal species of beetle and flea. Mammals that are present, including mice and rabbits, probably facilitate such commensals also.

While the combination of geology and vegetation might suggest the fauna would be composed essentially of species characteristic of coastal cliff habitat, a number of common spider species are present, in large numbers, that are highly characteristic of open grassland situations on mainland Ireland.

The superabundance of detritivorous species of amphipod and isopod (woodlouse) must be of great importance for soil development. There are significant differences between the fauna observed from densely vegetated areas versus bare soils, and vegetation cover is very important for species that need high humidity levels. The insolated nature of the island is almost certainly very hostile to such species.

A subset of species have a slight or strong preference for insolated, fast-draining habitats, and these are adapted in different ways to the environment; *Drassodes lapidosus* is nocturnal, secreting itself under stones by day and hunting on the warmed rock surfaces by night, while *Salticus scenicus* hunts openly by day, even in the strongest sunlight. Other thermophilous species included a number of beetles and two ant species. A small number of species recorded are very rare in Ireland and, as noted above, this is the only location from which a breeding population of *Drassodes lapidosus* is known with certainty. A thermophilous ground beetle, rare in Britain, was also recorded there, the first record from Ireland.

In summary, the invertebrate fauna of Skellig Michael is dominated by generally common and widespread species that are characteristic of open grassland, and coastal cliff habitats. Despite its small size, and the highly exposed and hostile environment in which it is situated, the island hosts a wide range of invertebrate species, including a number of species that are genuinely rare in Ireland.

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APPENDIX 1. Spiders recorded from Skellig Michael, alphabetic by family and species, the numbers recorded, and the number of Irish hectads in which they occur.

Family	Species	Numbers	Irish Hectads
Agelenidae	<i>Tegenaria domestica</i> (Clerck, 1757)	2	40
Agelenidae	<i>Textrix denticulata</i> (Olivier, 1789)	3	91
Araneidae	<i>Zygiella x-notata</i> (Clerck, 1757)	13	54
Dysderidae	<i>Dysdera crocata</i> C. L. Koch, 1838	9	44
Dysderidae	<i>Harpactea hombergi</i> (Scopoli, 1763)	1	60
Gnaphosidae	<i>Drassodes lapidosus</i> (Walckenaer, 1802)	42	2?
Hahniidae	<i>Hahnia pusilla</i> C. L. Koch, 1841	1	5
Linyphiidae	<i>Centromerita concinna</i> (Thorell, 1875)	1	96
Linyphiidae	<i>Centromerus prudens</i> (O. P.-Cambridge, 1873)	1	42
Linyphiidae	<i>Ceratinella brevis</i> (Wider, 1834)	2	55
Linyphiidae	<i>Dicymbium nigrum</i> (Blackwall, 1834)	9	150
Linyphiidae	<i>Diplostyla concolor</i> (Wider, 1834)	13	100
Linyphiidae	<i>Dismodicus bifrons</i> (Blackwall, 1841)	1	149
Linyphiidae	<i>Erigone atra</i> Blackwall, 1833	55	265
Linyphiidae	<i>Gongylidiellum vivum</i> (O. P.-Cambridge, 1875)	58	197
Linyphiidae	<i>Maro minutus</i> O. P.-Cambridge, 1906	4	58
Linyphiidae	<i>Micrargus subaequalis</i> (Westring, 1851)	42	59
Linyphiidae	<i>Monocephalus castaneipes</i> (Simon, 1884)	3	53
Linyphiidae	<i>Oedothorax fuscus</i> (Blackwall, 1834)	3	233
Linyphiidae	<i>Oedothorax retusus</i> (Westring, 1851)	178	155
Linyphiidae	<i>Palliduphantes ericaeus</i> (Blackwall, 1853)	1	181
Linyphiidae	<i>Parapelecopsis nemoralioides</i> (O.P.-Cambridge, 1884)	9	2?
Linyphiidae	<i>Peponocranium ludicrum</i> (O.P.-Cambridge, 1861)	10	92
Linyphiidae	<i>Pocadicnemis pumila</i> (Blackwall, 1841)	152	140
Linyphiidae	<i>Savignia frontata</i> Blackwall, 1833	188	113
Linyphiidae	<i>Tenuiphantes tenuis</i> (Blackwall, 1852)	82	300
Linyphiidae	<i>Tenuiphantes zimmermanni</i> (Bertkau, 1890)	37	252
Linyphiidae	<i>Thyreosthenius parasiticus</i> (Westring, 1851)	4	13
Linyphiidae	<i>Tiso vagans</i> (Blackwall, 1834)	28	116
Linyphiidae	<i>Walckenaeria acuminata</i> Blackwall, 1833	12	212
Linyphiidae	<i>Walckenaeria nudipalpis</i> (Westring, 1851)	2	126
Lycosidae	<i>Trochosa terricola</i> Thorell, 1856	61	216
Oonopidae	<i>Oonops pulcher</i> Templeton, 1835	8	51
Pholcidae	<i>Pholcus phalangioides</i> (Fuesslin, 1775)	5	66
Salticidae	<i>Euophrys frontalis</i> (Walckenaer, 1802)	16	59
Salticidae	<i>Heliophanus cupreus</i> (Walckenaer, 1802)	2	33
Salticidae	<i>Neon reticulatus</i> (Blackwall, 1853)	73	49
Salticidae	<i>Salticus scenicus</i> (Clerck, 1757)	16	49
Segestriidae	<i>Segestria senoculata</i> (Linnaeus, 1758)	3	107
Tetragnathidae	<i>Metellina merianae</i> (Scopoli, 1763)	86	128
Tetragnathidae	<i>Pachygnatha degeeri</i> Sundevall, 1830	89	225
Theridiidae	<i>Steatoda grossa</i> (C.L.Koch, 1838)	3	25
Thomisidae	<i>Xysticus cristatus</i> (Clerck, 1757)	30	213
43 species		1358	

APPENDIX 2. Other invertebrates recorded from Skellig Michael, alphabetic by order, family, and species, their common name, and an indication of their abundance/rarity on the island.

Order/ family	Species	Common name	Status on Skellig Michael
Amphipoda			
Talitridae	<i>Orchestia gammarellus</i> *	sand-hopper	Superabundant
Coleoptera			
Apionidae	<i>Apion cruentatum</i>	weevil	Uncommon
Byrrhidae	<i>Simplocaria semistriata</i>	pill beetle	Few
Carabidae	<i>Amara aenea</i>	ground beetle	Common
Carabidae	<i>Calathus fuscipes</i>	ground beetle	Very common
Carabidae	<i>Harpalus honestus</i>	ground beetle	Occasional
Carabidae	<i>Loricera pilicornis</i>	ground beetle	Few
Carabidae	<i>Nebria salina</i>	ground beetle	Occasional
Carabidae	<i>Notiophilus biguttatus</i>	ground beetle	Common
Carabidae	<i>Ocys harpaloides</i>	ground beetle	Few
Carabidae	<i>Paranchus albipes</i>	ground beetle	Occasional
Carabidae	<i>Pterostichus niger</i>	ground beetle	Common
Carabidae	<i>Pterostichus strenuus</i>	ground beetle	Few
Cryptophagidae		fungus beetle	Very abundant
Curculionidae	<i>Ceutorhynchus cochlearia</i>	weevil	Few
Curculionidae	<i>Hypera arator</i>	weevil	Frequent
Curculionidae	<i>Otiorhynchus arcticus</i>	weevil	Occasional
Elateridae	<i>Agriotes lineatus</i>	click beetle	Very abundant
Elateridae	<i>Athous haemorrhoidalis</i>	click beetle	Very abundant
Elateridae	<i>Dalopius marginatus</i>	click beetle	Few
Hydraenidae	<i>Ochthebius dilatatus</i>	algae beetle	Few
Hydrophilidae	<i>Megasternum concinnum</i>	scavenger beetle	Very abundant
Latridiidae	<i>Corticaria impressa</i>	mould beetle	Few
Leiodidae	<i>Agathidium laevigatum</i>	fungus beetle	Few
Leiodidae	<i>Sciodrepoides watsoni</i>	decay beetle	Very abundant
Silphidae	<i>Nicrophorus investigator</i>	sexton beetle	Few
Staphylinidae	<i>Bisnius cephalotes</i>	rove beetle	Few
Staphylinidae	<i>Lathrobium fulvipenne</i>	rove beetle	Few
Staphylinidae	<i>Lesteva sicula</i>	rove beetle	Few
Staphylinidae	<i>Ocypus olens</i>	rove beetle	Occasional
Staphylinidae	<i>Omalius</i> sp.	rove beetle	Few
Staphylinidae	<i>Othius punctulatus</i>	rove beetle	Occasional
Staphylinidae	<i>Philonthus laminatus</i>	rove beetle	Very abundant
Staphylinidae	<i>Quedius levicollis</i>	rove beetle	Occasional
Staphylinidae	<i>Quedius simplicifrons</i>	rove beetle	Occasional
Staphylinidae	<i>Sepedophilus nigripennis</i>	rove beetle	Common
Staphylinidae	<i>Stenus brunripes</i>	rove beetle	Common
Staphylinidae	<i>Tachyporinae</i>	rove beetle	Common
Staphylinidae	<i>Tasgius ater</i>	rove beetle	Abundant
Staphylinidae	<i>Xantholinus elegans</i>	rove beetle	Few
Trogidae	<i>Trox scaber</i>	hide beetle	Few
Dermaptera			
Forficulidae	<i>Forficula auricularia</i>	earwig	Common

Diptera			
Syrphidae	Episyrphus balteatus	hover fly	Few
Syrphidae	Eristalinus aeneus	hover fly	Few
Syrphidae	Melanostoma mellinum	hover fly	Few
Syrphidae	Platycheirus (manicatus?)	hover fly	Few
Gastropoda			
Clausiliidae	Clausilia bidentata	door snail	Common
Hemiptera			
Aphrophoridae	Philaenus spumarius	frog hopper	Occasional
Cicadellidae	Anoscopus albifrons	leaf hopper	Frequent
Cicadellidae	Megopthalmus scanicus	leaf hopper	Occasional
Cixiidae	Cixius nervosus	lace hopper	Few
Lygaeidae	Stygnocoris fuliginus	ground bug	Few
Hymenoptera			
Formicidae	Myrmica ruginodis	Ant	Very abundant
Formicidae	Myrmica sabuleti	Ant	Few
Formicidae	Myrmica scabrinodis	Ant	Few
Formicidae	Tetramorium caespitum	Ant	Abundant
Halictidae	Lasioglossum leucopus	solitary bee	Frequent
Isopoda			
Ligiidae	Ligia oceanica	sea slater	Very abundant
Oniscidae	Oniscus asellus	woodlouse	Very abundant
Oniscidae	Trichoniscus pusillus	woodlouse	Occasional
Porcellionidae	Porcellio scaber	woodlouse	Superabundant
Opiliones			
Leiobunidae	Nelima gothica	harvestman	Frequent
Nemastomatidae	Nemastoma bimaculatum	harvestman	Occasional
Siphonaptera			
Ctenophthalmidae	Ctenophthalmus nobilis	mammal flea	Probably abundant
Pulicidae	Ornithopsyllus laetitiae	bird flea	Abundant
* few identified	66 species		