

FIRST IRISH RECORDS OF THE SEED-BEETLE *HARPALUS (AMBLYSTUS) HONESTUS* (DUFTSCHMID, 1812) (COLEOPTERA: CARABIDAE) FROM SKELLIG MICHAEL, PÁIRC NÁISIÚNTA NA MARA, CO. KERRY

Myles Nolan

c/o National Museum of Ireland – Natural History, Merrion Street, Dublin 2, Ireland.

e-mail: <mylesnolan@hotmail.com>

Abstract

The ground beetle *Harpalus honestus* (Duftschmid, 1812) (Coleoptera: Carabidae) was collected from Skellig Michael in 2023 and 2024, Co. Kerry, the first Irish records. The beetle is a thermophilous, xerophilous species of fast-draining or dry habitats. Evidence is adduced to demonstrate its preference for montane situations and its southern temperate European distribution. It is suggested the species is a post-glacial relict whose narrow environmental preferences limit its distribution in Ireland.

Key words: Coleoptera, Carabidae, *Harpalus honestus* (Duftschmid, 1812), new, Ireland, Skellig Michael, Kerry.

Introduction

Skellig Michael (Sceilg Mhicíl) and the adjacent Little Skellig (Sceilg Bheag) lying *circa* 12k off the Kerry coast, are instantly recognisable as triangles of rock perched on the horizon, and are composed of Old Red Sandstone. In 1986 Skellig Michael was designated a Special Protection Area due to its importance as a breeding site for burrow nesting seabirds including *inter alia* the Manx shearwater *Puffinus puffinus* (Brünnich, 1764), and for a range of other cliff-nesting bird species. In 1996 it was designated a UNESCO World Heritage Site in recognition of its unusual history as a Christian monastic settlement in the latter half of the first and into the second millennium AD. In recent decades it has become a popular tourist destination, and was seen by a global audience in 2019 when it featured in *Star Wars: The Rise of Skywalker* as Luke Skywalker's retreat from the chores of fighting the good fight. Managed by the Office of Public Works (OPW), a range of overlapping interests coalesce around the Skelligs, including archaeological, nature conservation and heritage related tourism. On 22 April 2024, when Ireland's newest National Park (Páirc Náisiúnta na Mara: National Park of the Seas) was announced, no less than three government ministers were involved: Malcolm Noonan, Minister of State for Nature, Heritage and Electoral Reform, Darragh O'Brien, Minister for Housing, Local Government and Heritage and Kieran O'Donnell, Minister of State for the Office of Public Works. Páirc Náisiúnta na Mara encompasses several existing areas of significant heritage and conservation status, including the Skelligs.

I made a number of collecting visits to Skellig Michael in 2023 and 2024 to survey the invertebrate fauna for the National Parks and Wildlife Service (NPWS); collecting through 2023 was done by hand; grubbing through vegetation, beating same into a tray or net, turning stones etc. In 2024, I set transects of pitfall traps at two locations and continued hand-collections. In 2023 I collected a single specimen of a ground beetle (Carabidae) which I identified as *Harpalus (affinis?)* but at the time did not further resolve its identity. In 2024, seven similar specimens were collected by Brian Power (BP) and myself which I identified as *Harpalus honestus* (Duftschmid, 1812), a species not previously recorded from Ireland. The specimen from 2023 proved also to belong to this species. The following identification keys were used: Luff (2007), Duff (2012), Allegro *et al.* (2022) and Lompe (2024). Martin Luff confirmed the identification from photographs of diagnostic features and the dissected aedeagus. The photograph of the male (Plate 1) was taken with a Nikon Digital Sight 1000 camera mounted on a Nikon SMZ1270 stereo-microscope, courtesy of the National Museum of Ireland, Natural History (NMINH) and images stacked using Helicon Focus software. The photo of both sexes (Plate 2) was taken with a phone camera, through the lens of a Nikon stereo-microscope.

RECORDS

CO. KERRY: Skellig Michael: 6 June 2023, V245605, ♂ sifted from vegetative debris pooled at the base of a cliff, coll. MN; 19 June 2024, V24591 60533, ♂ grubbed from spurrey *Spergularia* dominated vegetation, coll. MN; 19 June 2024, V24630 60440, ♀ caught in a humane mousetrap set in the lower lighthouse, coll. MN & BP; 20 June 2024, V24591 60533, ♂♀♀ collected by hand from under sandbags, coll. MN; 20 June 2024, V24637 60492, ♀ beaten into a tray from spurrey *Spergularia* growing on a strongly inclined soil slope, coll. MN; 19 June-16 July 2024, V24514 60605, ♂ pitfall trapped on trampled grass/campion *Silene* sward at a cliff base towards western end of island, coll. MN (traps set at another location in pure campion sward and away from the cliff face did not collect the beetle). All specimens det. MN. The male and female collected from spurrey on 19 June 2024 and 20 June 2024 respectively have been donated to the National Museum of Ireland, registration number, NMINH: 2025.6.

The beetle is a relatively large insect, the Skellig specimens measuring *circa* 9.5-12mm (labium to elytral apex). This might suggest they are larger than British specimens as Luff offers lengths of 8.5-10mm (Luff, 2007). When collecting some of them in strong sunlight they seemed to me to appear a strongly shining green. Pinned and inspected under artificial light the male appears a rather darker shining green (Plate 1). The pronotum and elytra of females are strongly micro-sculptured giving them a rather more matt appearance than the shining males and this is very clear in alcohol (Plate 2). Amongst a number of features observed that distinguish the species from other British and Irish *Harpalus* were: 3-5 punctures at apex of

fifth elytral interval, these completely absent from the apex of the seventh; antennomeres 2-4 basally darkened in dorsal and ventral view, darkening weaker and gradually smaller from antennomere 5 on (infuscation clearest in antero-ventral view); aedeagus in lateral view with a distinctly flat dorsal surface (c.f. Allegro *et al.*, 2022); female elytral sutural apices produced into short, distinct points; all specimens brachypterous, wings reduced to very short stubs. Some of these features, despite the large size of the beetle, were not straightforward to identify. It occurred to me to wonder whether the beetle has possibly been misidentified as another *Harpalus* species, and the same view was expressed to me independently (Roy Anderson, pers. comm.).

Classification and taxonomy

In a major treatment of *Harpalus* genera globally, Kataev (2023) places *H. honestus* in the subgenus *Amblystus* Motchulsky, 1864, nesting within the *Amblystus* Subgroup. Kataev splits the subgenus into two centres of species diversity, one Mediterranean (especially western Mediterranean) and one Himalayan (Kataev, 2023) and notes that some species, especially taxa from the western Mediterranean, are in need of revision. Kataev (2002) earlier reviewed the Himalayan species, referring to them then as the *honestus* group, but *H. honestus* does not occur amongst them.

Preferred environment and distribution

The beetle is generally characterised as thermophilous and xerophilous, strongly montane but occurring also in lowlands, and associated with bare, insolated habitats with fast draining soils (Jeannel, 1942; Freude *et al.*, 1976; Allegro *et al.*, 2022 (citing Koch, 1989); Wachmann *et al.*, 1995; Kataev, 2023). The largest British population, discovered and assessed from 1994 to 1996, supports these findings. It occurs at the base of coastal, sandy cliffs where numerous specimens could be found in very sunny conditions (Luff *et al.*, 1997). Information was downloaded from the Global Biodiversity Information Facility (GBIF, 2025) and confirms the beetle's montane habit, indicating concentrations of records from the Pyrenees, the Ardeche and Ardennes, Provence-Alpes-Cote d'Azur, the alps (stretching across lakes Lemman, Maggiore, Lugano and Como) and a scattering of records from the Austrian uplands. Records from Iran were also from montane environments (Ghahari *et al.*, 2009; Namaghi *et al.*, 2010).

Aleksandrowicz (2011) (citing Löbl and Smetana, 2003) gives its distribution as stretching across southern Europe into the Caucasus and Western Asia. The GBIF (2025) dataset has records from eighteen European countries, and further east from Russia, Armenia and Georgia. Most European records are from Switzerland and France, with far fewer from Germany and Austria, and fewer again from other countries. It barely has a presence in the Baltic with single records from near Kiel (Germany) and Estonia – neither record coastal – and it is absent from

Norway, Sweden and Finland (GBIF, 2025). It occurs on Corsica but there are no records from southern Iberia and the southernmost Italian record mapped lies north of Rome. Ortuño *et al.* (2023) assigned the beetle to the “Turanian-European” biogeographical area (Vigna Taglianti *et al.*, 1992) but the beetle is not recorded from much of the south of this region, and it excludes northern continental Europe and Britain where the beetle does occur.

In an interesting approach to understanding the “origins and affinities” of Irish ground beetles, Anderson *et al.* (2000) applied to them a binary classification system created to assess British Isles’ plant distribution (Preston and Hill, 1997). An appendix included British species not occurring in Ireland and classified *Harpalus honestus* as Southern Temperate Eurosiberian [Biome code 84]. Namaghi *et al.* (2010) echo this, characterising the beetle as an element of a “Sibero-European chorotype”. I have not, however, found records of the beetle from Siberian Russia. Records from eastern Europe seem to be few: first recorded in Belarus in 1997 (Aleksandrowicz, 2011); few Georgian records summarised by Reck and Chaladze (2004); the most easterly records from northern and north-eastern provinces of Iran, where it was recorded at 60° of longitude (Ghahari *et al.*, 2009; Namaghi *et al.*, 2010). The beetle does not seem to extend across the Urals. Preston and Hill’s definition of ‘Eurosiberian’ encompasses Europe extending east to 120°, while ‘European’ includes species “with a mainly European distribution...but do not occur east of 60°” (Preston and Hill, 1997). As such the Biome code 83, Southern Temperate [8] and European [3], might better represent the species’ distribution. It may well occur east of 60° longitude, but how far east and how many records would it take to make the designation ‘Eurosiberian’ more representative?

The preponderance of montane records in Europe is of particular interest with respect to Irish biogeography. Of 2,262 records for *Harpalus honestus* in GBIF (2025) 2,013 are from only four countries and of these 1,431 (71%) had elevation data (Table 1) 79% of Swiss records and 74% of all records are from above 500m. The highest elevation was 2650m from France. The data thus confirms the beetle’s preference for montane situations and records from low-lying areas e.g. Germany, are largely scattered.

The majority of records fall between the 41st and 51st parallels, with over 75% of German records south of the 51st (Benisch, 2025), and it has a minimal presence in more southern areas e.g. southern Spain and Italy. The northern boundary of the Southern zonobiome (Preston and Hill, 1997), does not lie far north of the southern distribution limit of *Harpalus honestus*. All of which suggests the beetle is not tolerant of temperature extremes. An antipathy for such confirms its relatively narrow environmental preferences: insolated areas of cooler montane (coastal in Ireland and Britain) habitats, with a vertical (fast-draining) component and drier soils. It’s occasional occurrence in urban areas e.g. Île de la Cité in the centre of Paris (GBIF, 2025), suggests that components thereof emulate the preferred habitat.

TABLE 1. Elevation data on *Harpalus honestus* from GBIF dataset (GBIF, 2025) detailing the four countries with largest number of records and % of records from between 500-1000m and above 1000m.

	Records	with data	elevation	500-1000m	>1000m
Austria	100	86	86%	37 43%	9 10%
France	353	104	29%	21 20%	57 55%
Germany	111	22	20%	0 0%	0 0%
Switzerland	1449	1219	84%	496 41%	458 38%
18 others	164	44	27%	9 20%	4 9%
	2177	1475	65%	563 38%*	528 36%*
No country	85				
Total	2262				
*38% + 36% = 74% >500m					

The distribution of *Harpalus honestus* is not dissimilar to a number of other carabid beetles occurring rarely in Britain e.g. *Lebia cyanocephala* (Linnaeus, 1758) and *Cymindis axillaris* (Fabricius, 1794). Both have a relatively strong presence in the same montane areas of Europe as *H. honestus* (GBIF, 2025) and both are characteristic of fast draining habitats. The principal differences are their preference for sandy soils and that they have no obvious association with hard-cliff habitat. In Britain, they occur at low altitudes in the south and *C. axillaris* has a strong coastal presence in western Atlantic locations.

Rarity and conservation status

In the UK the species is Red Listed as Vulnerable (D2) (Restricted area of occupancy or number of locations with a plausible future threat that could drive the taxon to CR or EX in a very short time (IUCN, 2012)). This is due to the fact that the population at St Bees Head is abundant and seems to be stable (Telfer, 2016). There are older British records but some doubt about others more recent (Telfer, 2016). It is Critically Endangered in Belgium and has declined in the post-1980 period (Desender *et al.*, 2008). In Germany, it was assessed as Vulnerable (Vorwarnliste – literally ‘advance warning list’), a change from the previous ‘safe’ (ungefährdet) (Schmidt *et al.*, 2016).

Summary and conclusions

Skellig Michael can be characterised as a relatively monotonous, maritime, hard-cliff habitat. The beetle was found in south-facing and insolated situations, often stony, (the north side of the

island is more difficult to access than the south and was essentially not examined). Soils with which it was associated were sandy/gritty, thinly or not vegetated, or vegetated though poorly developed and of little depth. The beetle is a seed-eating species (as other *Harpalus*) and needs local vegetation to sustain populations. Specimens collected at the lower lighthouse cannot be considered synanthropic as the building is highly porous and will inevitably be visited by wandering animals.

Harpalus honestus is a thermophilous beetle preferring insolated, fast-draining habitats. Its presence on Skellig Michael is probably related to the south-facing cliff faces producing a heat-sink effect, in combination with vertical/sloping surfaces and rather dry soils that provide rapid-draining. Other thermophilous species identified from Skellig Michael include the ants *Myrmica sabuleti* Meinert, 1861 and *Tetramorium caespitosum* (Linnaeus, 1758), the latter of which was frequently seen. *H. honestus* can be characterised as a Southern Temperate European species with a strong montane habit. Skellig Michael provides a western, lowland corollary to the insolated, montane habitats of western and central southern Europe where it is most frequently recorded. It seems to be relatively abundant on Skellig Michael suggesting it is tolerant of the anthropogenic disturbances the island has seen, especially over the last 200 years; it is difficult to suggest it would qualify as Critically Endangered or Endangered if assessed under Red List criteria and would probably merit the same status as Britain, Vulnerable (D2).

How the beetle came to be on Skellig Michael is a pertinent question. The brachypterous condition of all specimens found precludes the possibility of their reaching it by flying. It might be easy to suggest it was introduced by human agency; however, this begs the question of the location of a source population. It is wholly improbable that *H. honestus* does not (or did not at some time) occur on mainland Ireland also. The British records from St Bees Head were originally attributed to import activities at the port of Whitegate, some 6km away; it was felt the species could not have been previously missed from elsewhere in Britain (Luff *et al.*, 1997). Telfer (2016), however, in his review of threatened British Carabidae, favoured the view that the St Bees' beetles are a 'native isolated population' that has persisted for a long period of time 'but remains restricted to this small area of specialised natural habitat'. This comment could be applied to the population on Skellig Michael, and finding the population there surely bolsters the argument for the 'native' status of the population at St Bees.

Harpalus honestus' distribution suggests a truncated version of the well-known spring gentian *Gentiana verna* L., which is essentially restricted to the karst landscape of the Burren and south Galway, and is found barely anywhere else in Ireland. While the gentian occurs also in widely separated locations such as central Asia and arctic Russia, its main area of occupancy are the mountainous areas of Europe noted above for *H. honestus*. As such, the beetle might be grouped with those plants and animals whose small or isolated Irish populations are found well away from the main area of European distribution and, as with many of these, it is difficult to

explain how it came to occur in Ireland.

Harpalus honestus in Ireland would seem to be a relict of the post-glacial period. Its restricted environmental preferences suggest little ability to adapt to the landscape characteristic of most of Ireland today. The obvious place to look for other populations of the beetle in Ireland would be south-facing, maritime hard-cliff with vegetated sandy, fast-draining soils below.

Given this is the only known Irish population, and given the status of Skellig Michael as a World Heritage location, its presence there would merit fuller investigation.

Acknowledgements

Thanks are due especially to Philip Buckley (Regional Manager, NPWS) for funding the survey work, and Daniel Buckley, Conservation Ranger, NPWS for assistance on a number of fronts; Pat O'Shea (site foreman Skellig Michael, OPW) provided both a welcome and assistance where needed; Brian Power (Senior Ecologist, Envirico) joined in on some sandbag turning, and brought to my attention the presence of beetles in mouse traps; Willie Kennedy provided transport to and from the island on a number of occasions through 2023 and 2024; Martin Luff kindly confirmed my identifications from a number of photographs. Thanks also to Roy Anderson for reading this note in an earlier draft, providing some references, and making a number of useful suggestions, and to Paolo Viscardi, Keeper of Natural History, National Museum of Ireland - Natural History, for access to laboratory facilities.

References

- Aleksandrowicz, O. (2011) Recent records of steppe species in Belarus, first indications of a steppe species invasion? Pp 475-485. In Kotze, D. J., Assmann, T., Noordijk, J., Turin, H. and Vermeulen, R. (eds) *Carabid Beetles as Bioindicators: Biogeographical, Ecological and Environmental Studies*. *ZooKeys* **100**: doi: 10.3897/zookeys.100.1541
- Allegro, G., Magrini, P. and Pavesi, M. (2022). Tabella illustrata di determinazione per le specie del genere *Harpalus* note in Italia (Coleoptera, Carabidae, Harpalinae) [An illustrated key to the species of the genus *Harpalus* recorded from Italy [English version]]. *Bollettino della Società Entomologica Italiana* **154**(2): 51-86.
<<https://doi.org/10.4081/bollettinosei.2022.51>>
- Anderson, R., McFerran, D. and Cameron, A. (2000) *The ground beetles of Northern Ireland*. Ulster Museum Publications **No. 279**.
- Benisch, C. (2025) kerbtier.de – Beetle Fauna of Germany.
<<https://www.kerbtier.de/en/index.html>> (accessed 24 April 2025)
- Desender, K., Dekoninck, W. and Maes, D. (2008) An updated Red List of the ground and tiger beetles (Coleoptera) of Flanders (Belgium). *Entomologie* **78**: 113-131.

- Duff, A. G. (2012) *Beetles of Britain and Ireland. Volume 1: Sphaeriusidae to Silphidae*. A.G. Duff, West Runton, Norfolk.
- Freude, H., Harde, K. W. and Lohse, G.A. (1976) *Die Käfer Mitteleuropas 2: Adephaga 1 (Carabidae)*. Goecke & Evers Verlag, Krefeld.
- GBIF (2025) GBIF.org (28 February 2025) GBIF Occurrence Download <<https://doi.org/10.15468/dl.9vrffr>. DOI: <https://doi.org/10.15468/dl.9vrffr>>
- Ghahari, H., Kesdek, M., Samin, N., Ostovan, H., Havaskary, M. and, Imani, S. (2009) Ground beetles (Coleoptera: Carabidae) of Iranian cotton fields and surrounding grasslands. *Munis Entomology & Zoology* **4**(2): 436-450.
- IUCN (2012) *IUCN Red List Categories and Criteria: Version 3.1*. Second edition. Gland, Switzerland and Cambridge, UK: IUCN. iv + 32pp.
- Jeannel, R. (1942) Coléoptères Carabiques. Deuxieme partie. *Faune de France* **40**. 600 pp.
- Kataev, B. M. (2002) Revision of the *Harpalus honestus* group from the Himalaya and a review of the *Harpalus* species from Nepal (Coleoptera: Carabidae). *Russian Entomological Journal* **10**: 357-384.
- Kataev, B. M. (2023) Classification of the Genus *Harpalus* (Coleoptera, Carabidae) of the World Based on Imaginal Morphology. *Diversity* **15**: 971 [pp. 122] <<https://doi.org/10.3390/d15090971>>
- Koch, K. (1989) *Die Käfer Mitteleuropas. Ökologie*. **1**. Goecke & Evers, Krefeld. pp 15-107.
- Löbl, I. and Smetana, A. (2003) *Catalogue of Palaearctic Coleoptera Vol. 1. Archostemata-Myxophaga-Adephaga*. Apollo Books, Stenstrup.
- Lompe, A. (2024) *Käfer Europas*. <<https://coleonet.de/coleo/texte/harpalus.htm#honestus>>
- Luff, M. L. (2007) The Carabidae (ground beetles) of Britain and Ireland. 2nd edition. *Handbooks for the identification of British Insects* **4**(2). Royal Entomological Society.
- Luff, M. L., Read, R. W. J. and Copestake, D. (1997) *Harpalus honestus* (Duftschmid) (Carabidae) discovered in Cumbria. *The Coleopterist* **6**(2): 76-77.
- Namaghi, H. S., Avgin, S. S. and Farahi, S. (2010) New data to the knowledge of ground beetles (Coleoptera: Carabidae) fauna of Iran. *Türkiye Entomoloji Dergisi (Turkish Journal of Entomology)* **34**(2): 197-210.
- Ortuño, V. M., Arribas, O. and Andrés, E. (2023) The Carabidae (Insecta: Coleoptera) of the upper Salientes Valley (León, northern Spain): fauna, chorology, and taxonomic notes. *Graellsia* **79**(1): e189. <https://doi.org/10.3989/graellsia.2023.v79.364>
- Preston, C. D. and Hill, M. O. (1997) The geographical relationships of British and Irish vascular plants *Botanical Journal of the Linnean Society* **124**: 1-120.

- Reck, N. and Chaladze, G. (2004) Checklist of the ground beetles (Coleoptera, Carabidae) of Georgia. *Proceedings of the Institute of Zoology* **22**: 127-154.
- Schmidt, J., Trautner, J. and Müller-Motzfeld, G. (2016) Rote Liste und Gesamtartenliste der Laufkäfer (Coleoptera: Carabidae) Deutschlands. Pp 139-204. In Gruttke, H., Balzer, S., Binot-Hafke, M., Haupt, H., Hofbauer, N., Ludwig, G., Matzke-Hajek, G. and Ries, M. (eds) Rote Liste gefährdeter Tiere, Pflanzen und Pilze Deutschlands, Band 4: Wirbellose Tiere (Teil 2). Münster (Landwirtschaftsverlag). *Naturschutz und Biologische Vielfalt* **70**(4).
- Telfer, M. G. (2016) *A review of the beetles of Great Britain: Ground Beetles (Carabidae): Species Status No. 25*. Natural England Commissioned Reports, **Number 189**.
- Vigna Taglianti, A., Audisio, P. A., Belfiore, C., Biondi, M., Bologna, M. A., Carpaneto, G. M., De Biase, A., De Felici, S., Piatella, E., Racheli, T., Zapparoli, M. and Zoia, S. (1992) Riflessioni di gruppo sui corotipi fondamentali della fauna W-palearctica ed i particolare italiana. *Biogeographia* **16**: 159-179.
- Wachmann E., Platen R. and Barndt, D. (1995) Laufkäfer – Beobachtung, Lebensweise. Naturbuch Verlag, Augsburg.



PLATE 1. *Harpalus honestus* ♂ from Skellig Michael, Co. Kerry. Photograph: Myles Nolan.



PLATE 2. *Harpalus honestus* ♂ (left – the same male as in Plate 1) and ♀ (right) from Skellig Michael, Co. Kerry, photographed in alcohol, showing the contrasting appearance of the two sexes. Photograph: Myles Nolan.