

THE SPREAD OF THE TERRESTRIAL AMPHIPOD ARCITALITRUS DORRIENI  
IN BRITAIN AND IRELAND : WATCH THIS NICHE!

PAUL T. HARDING

Biological Records Centre, NERC Institute of Terrestrial  
Ecology, Monks Wood Experimental Station, Abbots Ripton,  
Huntingdon PE17 2LS

and

STEPHEN L. SUTTON

Department of Pure & Applied Biology, University of Leeds,  
Leeds LS2 9JT

INTRODUCTION

Terrestrial amphipods are distributed almost exclusively in the tropics and the southern hemisphere. One species Arcitalitrus dorrieni, was described as new to science from Britain (Hunt 1925), but has subsequently been found to be native to Australia (New South Wales and Southern Queensland) and to have been introduced to Norfolk Island, New Zealand and the British Isles (Friend & Richardson 1986). Detailed information on its biology and reproduction in Britain was given by Richardson (1980) and Moore & Spicer (1986).

ARCITALITRUS DORRIENI IN BRITAIN AND IRELAND

The occurrence of Arcitalitrus dorrieni in the British Isles was summarised by Richardson (1980), Welch (1981) and Moore & Spicer (1986). We have traced records from over 90 localities in Britain and Ireland, all of which are now held on computer file at the Biological Records Centre. A summary of the records are given in Fig. 1. Some localities have not been examined for many years (e.g. St. Agnes and Bryher in the Isles of Scilly, and Abbotsbury in Dorset). Several new localities have been found in recent years (e.g. in 1986 at Wimborne in Dorset and in 1987 at Ivybridge and Sharpitor in Devon).

Arcitalitrus dorrieni reproduces successfully in several parts of the British Isles and from information given in Moore & Spicer (1986) seems capable of movement of up to 30 to 40 metres per night. Despite these facts, most records have been of small isolated populations with evidence of only limited spread over several years. Many of the records have been from ornamental gardens and nurseries. Richardson (1980) suggested that some unknown climatic or biotic factors severely limit the distribution of Arcitalitrus dorrieni. For example, "innoculations" into new sites may be repeatedly reduced to low numbers by harsh winter weather so that further spread is slow.

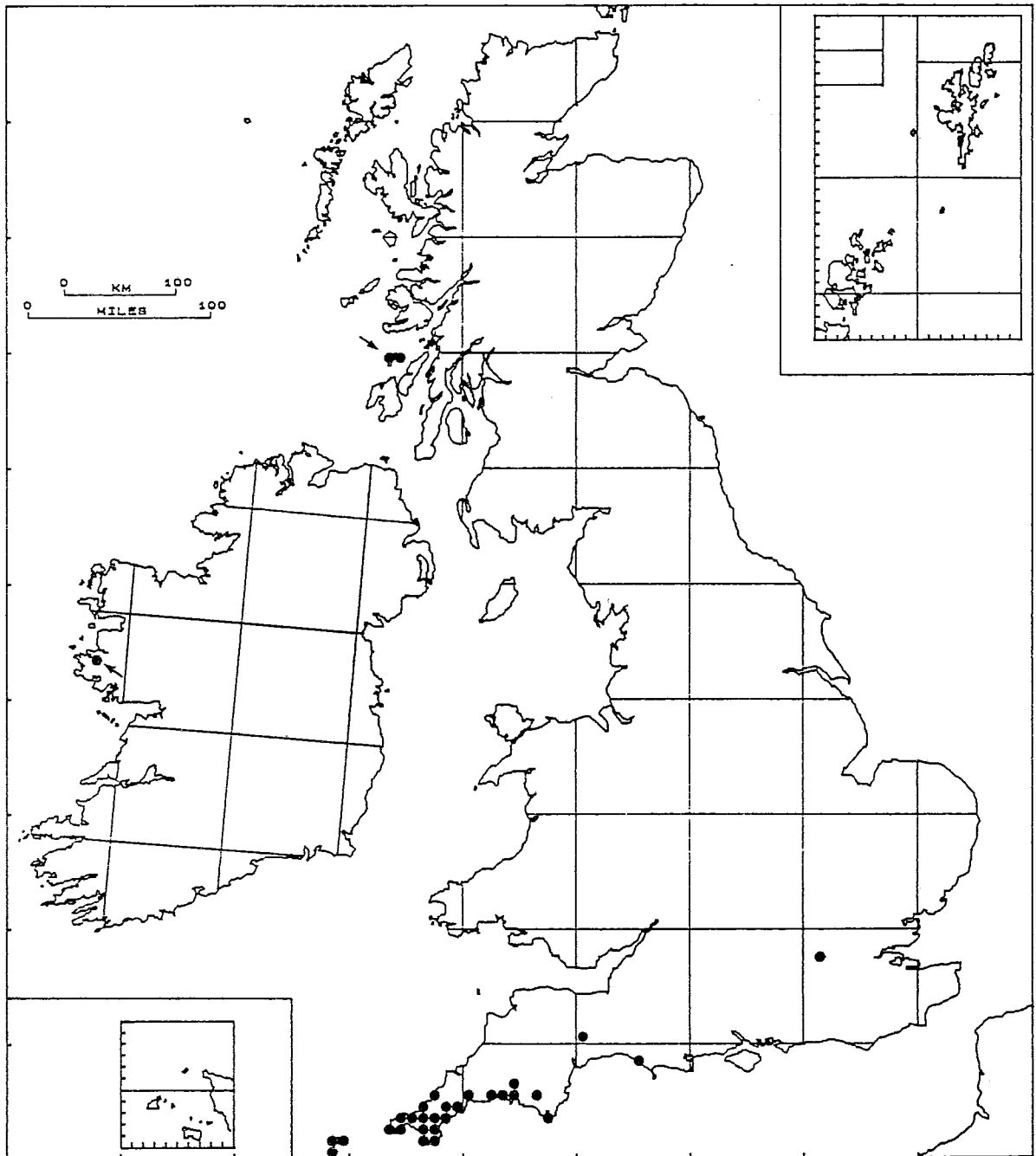
Prolonged frost has been suggested as a factor in limiting spread, but several of the long-established sites are known to have occasional severe winter conditions. A climatic factor, such as cold winter weather, would seem to be a plausible explanation of the very restricted, but long-persisting, occurrence in Ireland (see below). One of the largest populations so far observed is at Budshead Wood (see below) in Plymouth, an area which regularly experiences winter frosts and snow cover.

Arcitalitrus dorrieni has been known from Ireland for more than 50 years since it was discovered by Professor Orton in 1936 at Kylemore Lough, Co Galway (Rawlinson 1937). Nearby is the late 19th century Kylemore Abbey, the grounds of which include many acres of reclaimed bogland planted with shrubs. There seem to have been no subsequent records from this area until 1982 when Dr. J.P. O'Connor found it at the adjacent Pollacappul Lough. On 28 April 1987, Dr. D.C.F. Cotton found it in the same area. He described the site thus: "under a slab of stone beside a small stream just above the lime kiln, between Benbaun and Knockbrack mountains in the Connemara National Park (altitude c. 170 m)". Costello (1987) noted that it was abundant in this area in July 1987.

In Budshead Wood, a rather disturbed valley woodland in the suburbs of Plymouth, Arcitalitrus dorrieni is abundant. The woodland is a mixture of oak, ash, sycamore and hornbeam on shallow, acid to neutral clay soils over Devonian shales. The wood has, on its eastern boundary, a garden centre (Woodvale Nurseries) which has been operating since the early 1970's. The nursery obtains plant stock from many parts of Britain including the Truro area and the Isles of Scilly (both areas with long-standing colonies of Arcitalitrus dorrieni). The abundance of this species at Budshead Wood means that it must be taking a significant role in the consumption of leaf litter, a role normally associated with earthworms, woodlice and millipedes. It would be interesting to assess the effect of the introduction of this species on a natural population of detritivores.

#### CONCLUSIONS

Fig. 1 shows that Arcitalitrus dorrieni is widely spread in the west and south of Cornwall and along the southern coasts of Devon and Dorset. Further populations of this species almost certainly remain to be discovered within this range and possibly elsewhere (c.f. records from Colonsay, Galway and Kew Gardens). Any records of this species, or specimens for identification, should be sent to PTH at Monks Wood (address above).



**Arcitalitrus dorrieni (Hunt)**

Fig. 1 Recorded distribution of Arcitalitrus dorrieni in 10 km squares in Britain and Ireland to April 1988.

ACKNOWLEDGEMENTS

We are grateful to the following persons who supplied information on, or records of, Arcitalitrus dorrieni in the British Isles. A.D. Barber, Dr. D.C.F. Cotton, Dr. D. Morrill, Dr. J.P. O'Connor, Dr. A.M.M. Richardson, C.M. Sherriff and Mrs. S.M. Turk and the staff of the Cornish Biological Records Unit. We are also grateful to Dr. R.J. Lincoln and Ms. J.P. Ellis for allowing access to the collections of the British Museum (Natural History).

REFERENCES

- COSTELLO, M.J. (1987). Alien amphipod species in Ireland. Porcupine Newslett., 4, 3-7.
- FRIEND, J.A. & RICHARDSON, A.M.M. (1986). Biology of terrestrial amphipods. Ann. Rev. Entomol., 31, 25-48.
- HUNT, O.D. (1925). On the amphipod genus Talitrus with a description of a new species from the Scilly Isles, T. dorrieni n. sp. J. mar. biol. Ass. U.K., 13, 854-869.
- MOORE, P.G. & SPICER, J.I. (1986). On the status of Arcitalitrus dorrieni (Crustacea : Amphipoda) on the island of Colonsay, Inner Hebrides. J. nat. Hist., 20, 667-680.
- RICHARDSON, A.M.M. (1980). Notes on the occurrence of Talitrus dorrieni Hunt (Crustacea Amphipoda: Talitridae) in south-west England. J. nat. Hist., 14, 751-757.
- WELCH, R.C. (1981). Talitroides dorrieni (Hunt) (Crustacea; Amphipoda) in the Royal Botanic Gardens, Kew, Surrey. Lond. Nat., 60, 43-44.