Plant Crib

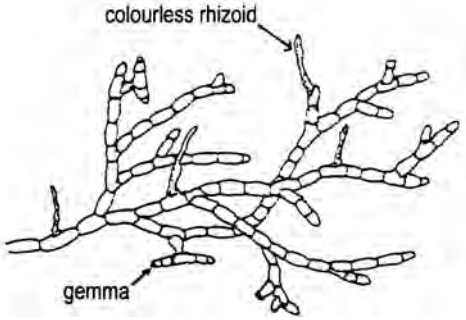
TRICHOMANES SPECIOSUM GAMETOPHYTES

The report of the widespread distribution throughout the British Isles of the independent gametophyte plant of the Killarney fern, *T. speciosum* Willd., (Rumsey *et al.* 1990, 1998) has alerted botanists to search suitable habitats. To date gametophytes have been detected in Britain in 122 10-Km grid squares in 39 Vice-counties: 1, 2, 3, 4, 14, 34-36, 39, 41-49, 52, 57, 59, 62-64, 67, 69, 70, 88, 95, 98, 100-105 and 107-109. In Ireland, records from 22 10-km squares have been made in V.c. H1- 3, 6, 8, 10, 13, 16, 20, 26, 27, 33 and 35.

Gametophytes are typically found growing in mats or hanging in loose tufts from dry rock surfaces in dark undercut areas at cliff bases, by stream-sides, in recesses amongst boulders in small natural caverns and in crevices. The majority of sites occur in woodland, those in open situations are predominantly coastal or rarely in hyper-oceanic montane areas. We believe that as more botanists become acquainted with the gametophyte, much of the appropriate country where the more acid (base-poor) sandstone, gritstones and the coarser volcanic rocks predominate will be shown to contain this stage of the Killarney fern. It should be noted, however, that although widespread, the gametophytic generation is by no means common. More than 75% of the grid squares mapped contain only single populations, in many cases restricted to a single micro-topographical feature.

The morphology of the gametophyte has been described and illustrated (Rumsey *et al.* 1991, 1998) but is described again here with the hope that a wider audience will come to recognise it. It consists of filaments characteristically branched at right-angles, the individual cells of which are *c.*40-55 µm wide and 150-300 µm long, that grow interwoven into tufts or mats with an open, felt-like appearance. These are of a bright, almost fluorescent green when well hydrated, taking on a somewhat bluish-black metallic cast as the filaments crumple on drying. The gametophyte colonies can vary in overall size, from occurring as scattered filaments among bryophytes, to more or less pure patches covering several square metres to a depth of about one centimetre. The majority of sites, however, support small tufts ranging from thumbnail-sized patches to up to *c.* 10 cm^2. The combination of colour, shape and restriction to particular niches within habitats makes field recognition of the gametophyte relatively easy in the majority of cases. The filaments maintain a rigidity, giving a distinctive wool-like resilience, when lightly touched, and by which an experienced worker can identify the colony or mat. They are distinguished from bryophyte protonemata by their larger diameter filaments, the cells of which are without oblique end-walls, and from filamentous green and yellow-green algae by their pale brownish rhizoids and the presence of characteristically-shaped gemmifers, gemmae and gametangia (sex organs), when present. The most superficially similar algae grow in wet, well-illuminated positions or on very base-rich rock, where *T. speciosum* gametophytes have never been found.

We must stress, at the time of writing, the species, **in its entirety**, is protected under laws in the European Union, the U.K. and the Republic of Ireland. We feel confident that the true picture of its distribution has yet to be determined. The characteristic structure of the filament mat is such that it can be confirmed in the field using a ×10 lens. New or potential sites should be reported to the appropriate Conservation Officer and details sent to F. J. Rumsey, Natural History Museum, Cromwell Road, London SW7 5BD.



Filaments of mat of *T.speciosum* gametophyte.

References Rumsey, F. J., Jermy, A. C. & Sheffield, E. (1998). *Watsonia* **22**: 1-19.
Rumsey, F. J., Sheffield, E. & Farrar, D. R. (1990). *Pteridologist* **2**: 40-42.

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