

**REPRODUCTIVE STRATEGIES AND POPULATION STRUCTURE
IN THE ENDANGERED PTERIDOPHYTE *TRICHOMANES
SPECIOSUM* (HYMENOPHYLLACEAE: PTERIDOPHYTA)**

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ABSTRACT

Trichomanes speciosum Willd. (Hymenophyllaceae) is unique amongst European ferns in that the gametophyte generation can survive indefinitely in the absence of the sporophyte, propagate vegetatively and disperse locally. Reproductive success, both in terms of spore production and sporophytic recruitment currently vary widely across the species' broad, disjunct range, declining from south to north and west to east. Reproductive success would appear to be controlled largely by climatic factors, although genetic components also must be considered. Detailed study of populations throughout the species' range, over a 15 year period, have led to a greater understanding of growth rates, powers of dispersal and the reproductive strategies currently operating. Using this knowledge, the extent and pattern of genetic variation regionally and locally, i.e. within sites, can be used to infer the routes and mechanisms of colonisation and subsequent reproductive history.

Many sites for this species have been considered as glacial refugia, i.e., supporting relictual populations through cycles of glaciation throughout the Tertiary. The validity of these claims is tested using molecular and other data.