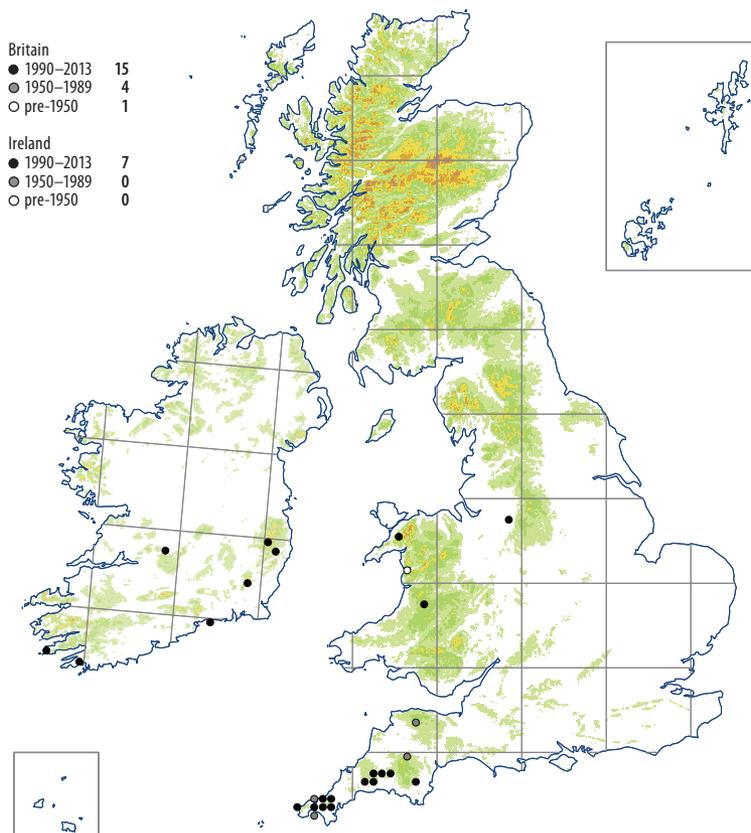


Cephaloziella nicholsonii



Like *Cephaloziella massalongi*, which shares many of its sites, *C. nicholsonii* is most frequent on copper-bearing rocks and mine spoil. It is locally abundant on several disused copper mines, forming extensive, almost pure mats, and tolerates more exposed conditions than *C. massalongi*, although colonies can persist in deep shade for many years (Holyoak, 2012). It typically grows on damp spoil or alongside mine leats, sometimes on metal-enriched wall mortar of mine buildings. In Cornwall it occurs on substrates with moderately high concentrations of lead and zinc as well as high concentrations of copper, and in Ireland there are small populations growing on disused lead mines in the absence of high copper concentrations (Holyoak & Lockhart, 2009a). Soil analyses on Cornish mines revealed that *C. nicholsonii* tolerates concentrations of copper up to 6,920 ppm, lead up to 770 ppm, tin up to 12,200 ppm, and zinc up to 253 ppm (Callaghan &

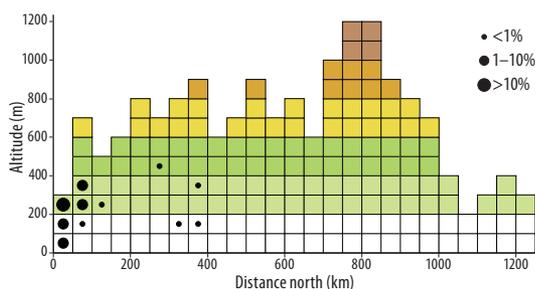
Bowyer, 2011). Recorded associates include *C. massalongi*, *C. stellulifera*, *Dicranella varia*, *Pohlia annotina* and *Scopelophila cataractae*. Altitudinal range: 10–295 m.

Lost from a few sites because of mine reclamation (Church *et al.*, 2001). At the time of the 1991–1994 Atlas only one colony was known outside SW England, in N Wales, but new recording has revealed seven colonies in Ireland, one in Cheshire and three additional Welsh sites. That said, the national trend has been a slow but definite decline following the end of metal-mining in our region, a trend that will continue for the foreseeable future.

Paroicous; perianths are frequent but sporophytes are unknown. Gemmae are common.

Easily confused with *C. massalongi* or overlooked as other *Cephaloziella* species, especially in areas where weakly-toothed morphs predominate. For example, all three extant Welsh populations are much less distinctive than many Cornish colonies, but they have been confirmed cytologically (Callaghan, 2011). Shaded populations are usually less distinctive than those from exposed situations and may be almost impossible to name (Holyoak, 2012).

Suboceanic Temperate. Outside Britain and Ireland, *C. nicholsonii* has only been reported from Germany and Spain, and neither of those records has been confirmed.



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