

Assessment of the conservation status of *Vaucheria* species in England: Request for specimens

The conservation of freshwater algae (apart from charophytes and a few particular species or genera) has been neglected throughout much of the world. In recent years, some work has been done to try to rectify this in England through projects funded by the Natural England Species Recovery Programme, looking at the conservation of *Gongrosira scourfieldii* (John et al. 2019) and compiling a Red List of species in the genera *Nostoc* and *Rivularia* (Lansdown and Pentecost 2019). The former was successful, enabling discovery of new, stable populations but the latter mainly highlighted the lack of information on these two genera. In an attempt to find ways to inform conservation of freshwater algae in England, a different approach is being tested, looking at the distribution and conservation status of species in the genus *Vaucheria* A.P.de Candolle, 1801. In total, 22 species of *Vaucheria* occurring in freshwater have been confirmed in the UK (John et al. 2011), including *V. schleicheri* recently added to the British list (John and Whitton 2019), with another three species which are considered doubtful (John et al. 2011).

Vaucheria species may occur as aquatic or terrestrial forms. Aquatic forms are rarely fertile (although they can apparently be brought on to fruit in cultivation). In terrestrial form, *Vaucheria* populations occur on damp mud, on the muddy edges of paths, the draw-down zones of seasonal, on ant-hills and on the edges of ditches or even seepage zones on river margins. Occasionally aquatic populations may be fertile when stranded in areas where streams flow over rock outcrops.



Figure 1 Reproductive structures of *Vaucheria* species, identified as (left to right): *V. frigida*, *V. geminata*, *V. pseudogeminata* and *V. taylorii*

The aim of the project is to document as many populations as is practical in one year. Documentation will be based on description of specimens. The reproductive parts of *Vaucheria* species are complex and most fertile collections can be named using the illustrations in the New Algal Flora (John et al. 2011). The reproductive parts of each specimen will be sketched and photographed and assigned to a species, although each specimen will be lodged in the herbarium of the Natural History Museum (BM), London so that identifications can be confirmed by specialists at a later date.



Figure 2 Left: A patch of *Vaucheria* on mud with bryophytes, Cannop Ponds, Gloucestershire: Right: Fertile terrestrialised *Vaucheria* on a rock in a stream, Weston Coombe, Dorset

This note is a request for submission of samples to Richard Lansdown at 45 The Bridle, Stroud, Glos. GL5 4SQ. Specimens should be posted either in a sample pot or a sealed plastic bag without additional water, but within a semi-

rigid or rigid container which will ensure that the package is not passed through the rollers by the Post Office which appears to destroy the structure of samples.

Most populations of terrestrialised filamentous algae are *Vaucheria*, but the fruit can readily be seen in the field using a x8 or greater hand-lens (see Fig. 2).

The information needed with each sample is as follows:

Site name

Collector

Date

OS Grid reference

Habitat (within 100 m)

Microhabitat (within 1 m)

References

- John, D.M., Casanova, M. and Wilbraham, J. 2019. Conservation status of the potentially endangered freshwater green alga *Gongrosira scourfieldii*. Unpublished report to Natural England, Peterborough.
- Lansdown, R.V. and Pentecost, A. 2019 An assessment of the conservation status of species of the genera *Nostoc* and *Rivularia* in England. Unpublished report to Natural England, Peterborough.
- John, D.M., Whitton, B.A. and Brook, A.J. (Eds) 2011 The freshwater algal flora of the British Isles. An identification guide to freshwater and terrestrial algae. 2nd edition. Cambridge University Press, Cambridge.
- John, D.M. and Whitton, B.A. 2019 Freshwater Algal Flora of the British Isles – Update 7. *The Phycologist* 96: 24.