Vortex rings aid spore dispersal

Whittaker, D.L. & Edwards, J. (2010). *Sphagnum* moss disperses spores with vortex rings. *Science* **329**, 406.

Sphagnum spore dispersal is something we may think we understand, but in practice we do not. Last year, Jeff Duckett and colleagues published an interesting paper (in *New Phytologist*) on the 'air gun' mechanism for spore discharge and the role of stomata in the capsule wall, over-turning some of the conventional views of how sphagna disperse their spores.

Now, in the above paper, Whittaker & Edwards have looked in more detail at the actual discharge of the spores. In common with most moss spores, those of *Sphagnum* can be carried by air currents over considerable distances from the parent plant. However, there is a potential problem – as the spores are small and light, they decelerate and fall quite quickly to the ground in the still air close to the surface. Dispersal distance depends strongly on release height – the higher up the spores are released, the more likely they are to catch turbulent air currents that will help them to travel away from the parent plant. Even ballistically launched spores only travel a few millimetres from the capsule. So on the face of it, given the short pseudopodium of *Sphagnum* species, the spores should not be able to reach the height required to catch the air currents that will carry them for a suitable distance.

◁ Capsules of *Sphagnum subnitens*. *David Holyoak*

The authors of this paper have used high-speed video to capture in slow motion the movement of the spores as they escape the exploding capsules of *Sphagnum*. They observed that as the capsules explode, vortex rings are produced – tiny air currents which can carry spores high enough to catch that all-important turbulent air to aid dispersal.

There is a nice video of this in action on the IAB blog website; go to **http://internationalassociationofbryologists.blogspot.com**

The first moss genome has been sequenced – what next?

Beike, A.K. & Rensing, S.A. (2010). The *Physcomitrella patens* genome – a first stepping stone towards understanding bryophyte and land plant evolution. *Tropical Bryology* **31**, 43–50.

Beike & Rensing have produced a short and non-technical overview of some of the implications of the recently published sequence of the *Physcomitrella patens* genome.

In particular, they illuminate the taxonomic position of the bryophytes in relation to other land plants, and suggest that bryophytes make suitable model organisms for the study of early land plants. In addition, the authors make recommendations about which other mosses should be considered for future genome sequencing projects; representatives of the Hypnanae, Sphagnopsida and Takakiopsida for their informative phylogenetic positions, and *Tortula* (=*Syntrichia*) *ruralis*, *Schistostega pennata* and *Polytrichum commune* for their morphological or physiological features. They also suggest that sequencing a hornwort and a basal liverwort, such as *Haplomitrium*, would be interesting. Finally, they summarize plant genome evolution among the mosses.

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