



△ *Lophozia perssonii*. Michael Lüth

# Large, new population of *Lophozia perssonii* discovered on Salisbury Plain Defence Training Estate

**Sharon Pilkington** reports the first records of the scarce liverwort *Lophozia perssonii* in South Wiltshire and North Hampshire

In March 2009, whilst scrutinizing the contents of a quadrat on Silk Hill in the Salisbury Plain Defence Training Estate [DTE (SP)], Chris Preston spotted a tiny scrap of the calcicolous liverwort *Lophozia perssonii*. His find was duly confirmed as a first v.-c. record for South Wiltshire, representing a significant south-western extension of its known British range.

*L. perssonii* is a nationally scarce leafy liverwort with populations known currently from 23 hectads; it is thought to have been spreading in recent years. It is a minute species that at first glance resembles an alga more than a liverwort, and hence is easy to pass over. Once known, however, its pale green patches are easy to identify with a hand lens as the plant bears distinctive dark brown gemmae clustered at its shoot tips.

Primed by Chris about the likelihood of this

species occurring nearby, I found another scrap a few weeks later about 3 km away in an army firing range at Bulford. Andrew Branson then spotted another small colony just over the v.-c. border in a disused rifle range at Tidworth (new to North Hampshire, v.-c. 12). Then, in December 2009, whilst undertaking a survey of Windmill Hill on the eastern edge of Salisbury Plain, I came across a very large colony of plants along a chalk track used by military vehicles at the bottom of the hill. This population extended discontinuously along approximately 500 m of track and I conservatively estimated at least a few thousand plants. Another substantial colony has subsequently been found in a similar track near Silk Hill, less than 500 m from Chris' original discovery. In summary, six separate colonies have been found to date within a 6 km radius of the original Silk Hill find.



### Habitat on Salisbury Plain

*L. perssonii* appears to occur in two distinct habitats on Salisbury Plain, both of which are characterized by extensive areas of near-bare chalk maintained by disturbance. The primary habitat – associated with the two largest colonies – is compacted, semi-bare, soft white chalk in well-worn military tracks. The solid geology of the area is dominated by the Newhaven Chalk Formation from the Upper Cretaceous.

Populations of *L. perssonii* lie in a well-defined zone between unimproved species-rich CG2 or CG3 chalk grassland above, and bare, disturbed chalk below. At first sight this zone appears to be an unpromising habitat for bryophytes, and indeed there are few other species, apart from occasional *Leiocolea turbinata*, *Didymodon fallax*, *Seligeria calcarea* and *Dicranella varia*. Aspect and gradient seem to be immaterial, although in my unscientific opinion *L. perssonii* seems to prefer places affording at least some shelter from ground-level winds. The grassland nearby supports typical bryophytes of unimproved downland, such as *Homalothecium lutescens* and

△ Military track edge habitat at Windmill Hill. The arrow indicates a patch of *L. perssonii*. This track probably supports thousands of plants. S. Pilkington

*Ctenidium molluscum* along with scarcer species, including *Entodon concinnus*, *Abietinella abietina* var. *hystricosa* and *Ditrichum gracile*. Notable vascular plants known from the area around Silk Hill and Sidbury Hill include *Carex humilis*, *Thesium humifusum*, *Astragalus danicus* and *Minuartia hybrida*.

Two of the small colonies are associated with active or disused rifle butts, where open consolidated areas of chalk between the targets and deflection wall afford similar microhabitats.

### Future of *L. perssonii* on Salisbury Plain

The discovery of such a significant new **metapopulation** of *L. perssonii* is very exciting, especially as it seems to be thriving on Salisbury

A **metapopulation** is a group of spatially separated, interactive populations of the same species.





△ Pale green patches of *L. perssonii* growing trackside at Windmill Hill between tufts of *Festuca ovina*. S. Pilkington

Plain as a direct consequence of the disturbance of chalk substrate caused by routine military training activities. It also seems reasonable to suppose that armoured vehicle manoeuvres may play a significant role in spreading the gemmae to new trackside sites.

The eastern part of the plain has not been owned by the military for as long as some other areas, and this, combined with its use for dry training (non-firing) means that grazing continuity has been maintained since its purchase by the MoD. Short species-rich grassland has thus been retained in this area, and along with it many bryophyte species indicative of well-grazed unimproved southern downland. Although the botanical diversity of this part of Salisbury Plain has been well-surveyed and well-documented, its outstanding bryological importance has been overshadowed by its other riches until very recently. The area has been worked in the past by bryologists of such repute as Ron Porley, Francis Rose and Rod Stern, but the sheer scale of the place and largely restricted access due to military training are likely to have prevented detailed survey. In addition, Windmill Hill is a

small outlier of Salisbury Plain that lies outside the SSSI boundary and is rarely visited by local botanists and bryologists.

Discovery of the plant took place during a bryophyte survey of a representative set of habitats and features in Salisbury Plain SSSI for Natural England which revealed a tantalizingly rich bryoflora in parts of the eastern ranges (Preston *et al.* 2009). The survey also highlighted the importance of maintaining significant areas of disturbance in Salisbury Plain SSSI in delivering a diverse bryoflora.

Natural England have responded rapidly to the discovery of *L. perssonii* on Salisbury Plain by revising the SSSI Conservation Objectives to include the species in an assemblage of notable bryophytes as a specific designated feature, meaning that it will be included in future condition assessments. Fortunately however, no direct conservation measures seem necessary to maintain its populations – continuing military training activity should suffice. Track upgrading is a possible threat, but is unlikely as there tends to be a presumption against this within the SSSI given the high number of other rare and notable species associated with track edges and disturbed ground.

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### Reference

Preston, C.D., Hill, M.O., Pilkington, S.L. & Pywell, R.F. (2009). The effect of disturbance on the bryophyte flora of Salisbury Plain, Europe's largest chalk grassland. *Journal of Bryology* 31, 255–266.