

## *Alchemilla glomerulans* Buser

### Clustered Lady's-mantle

*Alchemilla glomerulans* is a medium-sized lady's-mantle with sub-appressed silky hairs and globe-like flowers held in dense clusters. It is a largely montane plant in the British Isles occurring on rock outcrops, screes and flushed grassland at high altitudes in the Highlands of Scotland and northern England. It is often grazed by livestock and therefore easily overlooked or mistaken for more common species. Nevertheless it appears to have suffered declines in many areas, especially in northern England. As a consequence, it has been classified as Vulnerable in GB and Endangered in England.



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#### IDENTIFICATION

*Alchemilla glomerulans* is one of the more distinctive medium-sized Lady's-mantles with sub-appressed silky hairs on the upper leaf surface, stems and petioles and with the sub-glabrous flowers held in dense clusters. The leaf lobes are rounded, and the leaf surface is undulate with a closed sinus.

#### SIMILAR SPECIES

*Alchemilla glabra* and *A. wichurae* both differ from *A. glomerulans* in having appressed hairs at the base of the stem and petioles, glabrous (or sub-glabrous) leaves on the upper surface and laxer inflorescences. The leaf-lobes of *A. wichurae* are also more rounded and have finer teeth.



*Alchemilla glomerulans* at Knock Ore Gill. ©Jeremy Roberts.

#### HABITATS

In the Scottish Highlands *A. glomerulans* occurs in a variety of ungrazed or lightly grazed habitats on base-poor rocks including NVC U17 *Luzula sylvatica* – *Geum rivale* tall herb community and NVC W20 *Salix lapponum* – *Luzula sylvatica* scrub on rock-ledges and NVCCG12 *Festuca ovina* – *Alchemilla alpina* – *Silene acaulis* dwarf herb community on flushed screes and heavily sheep-grazed turf below cliffs. In northern England it is also found in circum-neutral pastures and meadows of varied NVC type, often in flushed soils below limestone outcrops.

#### BIOGEOGRAPHY

*Alchemilla glomerulans* is an amphiatlantic plant with a Boreo-arctic montane distribution in Europe, centred on Scandinavia but extending eastwards to the northern Urals. It also occurs in Iceland, Greenland, Labrador and Svalbard where it reaches its absolute northern limit at 74°N (Engelskøn *et al.*, 2003). In southern Europe it is restricted to the Cordillera Cantabrica, the Pyrenees, the Balkans and the French, Italian and Slovenian Alps (Kurtto *et al.*, 2009).

In Britain *A. glomerulans* was first recorded on Ben Lawers in 1913 (Wilmott, 1922) but was not discovered in Upper Teesdale, as new to England, until 1947 (Walters, 1949). It occurs throughout the Highlands of Scotland although it is seldom abundant and probably overlooked in many areas, especially in heavily-grazed situations where it often grows as a depauperate form around the base of cliffs with *A. filicaulis* subsp. *filicaulis* and *A. glabra*.

It is an extremely rare plant in northern England (Cumbria, Durham, Northumberland, Mid-west and North-west Yorkshire) where populations are typically small and

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fragmented. As a consequence, its threat-level was recently assessed as Endangered in England as compared to Vulnerable for Great Britain as a whole (Stroh *et al.*, 2014). It occurs from 185 m in Upper Teesdale to 1030 m in corries near Cairngorm.

### ECOLOGY

*Alchemilla glomerulans* is a medium-sized perennial apomict associated with a range of rock types from relatively acidic granites at high altitudes to highly calcareous soils derived from limestones in Upper Teesdale and the Yorkshire Dales. It is often associated with moist conditions on rock faces in the mountains, but sites at lower altitude, especially on limestone, tend to be much drier, although often influenced by base-rich flushing.

It persists in grazed and ungrazed locations but has probably been eliminated from many pastures due to intense sheep grazing. It reproduces vegetatively and by seed and this may account for its reappearance in a re-sown hayfield (Roberts, 1994) and on a road verge near to Holwick disturbed by roadworks. The roots are readily colonised by arbuscular mycorrhizal and dark septate endophytic fungi even in subarctic meadows where the growing season is very short (Ruotsalainen *et al.*, 2002). Flowering is from June to September.

### THREATS

*Alchemilla glomerulans* probably had a wider distribution in Scotland and northern England in the past, but has been

eliminated from many sites by intense overgrazing of pastures, and in a few cases the agricultural 'improvement' of hay meadows (Bradshaw, 2009).

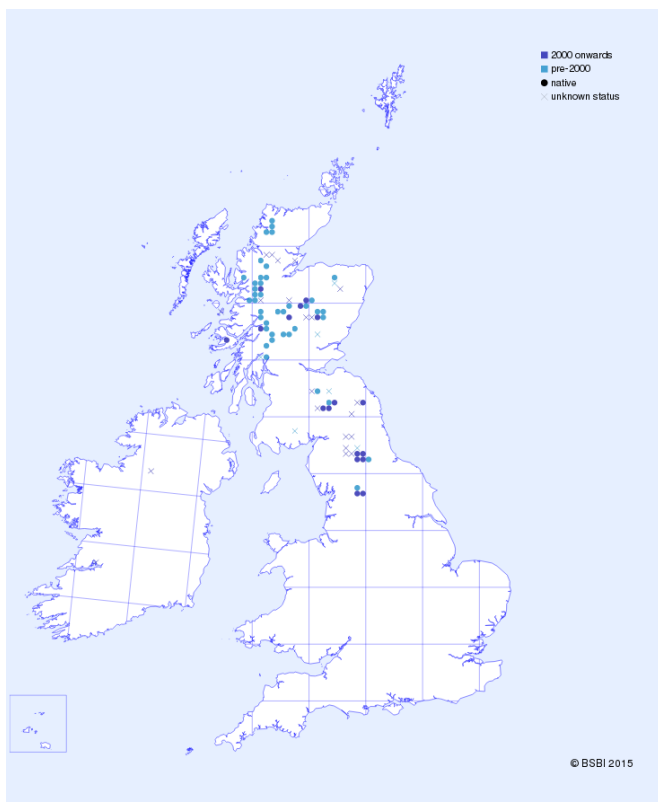
Populations are usually very small and fragmented, especially in northern England, and are therefore susceptible to localized extinction via chance events and possibly low levels of genetic variation. Declines in *A. glomerulans* have been reported from low arctic tundra in Greenland, possibly caused by a shift to drier conditions following climate warming (Callaghan *et al.*, 2011). British populations growing on dry, south-facing slopes at low altitudes may therefore be susceptible to warming temperatures.

### MANAGEMENT

*Alchemilla glomerulans* often occurs in sites that are subject to extensive grazing by both sheep and deer and in areas where livestock concentrate in variable numbers due to the palatability of the turf. Managing grazing levels on these sites can therefore be difficult but should aim to maintain low levels throughout the year.

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Distribution of *Alchemilla glomerulans* in Great Britain and Ireland.

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## AUTHOR VERSION

Kevin Walker. Version 1: 9 October 2015.

## SUGGESTED CITATION

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