

Alchemilla subcrenata Buser

Large-toothed Lady's-mantle

Alchemilla subcrenata is a medium-sized Lady's-mantle with at least a few deflexed hairs on the stems and petioles and distinctive 'up-turned' basal lobes on the leaves. It is a very rare plant in Britain, now almost entirely confined to hay-meadows and pastures in Upper Teesdale where it was first discovered in 1951. The overall population has declined due to agricultural intensification and it now persists in around 20 sites where its numbers probably do not exceed 1000. Only one of these populations is located within a SSSI although most sites are managed under agri-environment scheme agreements. It is categorized as Endangered in GB.



©Mark Lynes

IDENTIFICATION

Alchemilla subcrenata is a medium-sized Lady's-mantle with hairy stems and petioles with at least a few deflexed hairs which should be examined very carefully before disturbing the rest of the plant.

The leaves are orbicular, sparsely hairy above, often on the folds, undulate, and with distinctive basal lobes that are 'turned-up' and in doing-so sometimes touch across the sinus. The leaf lobes have large teeth and the inflorescence branches, pedicels and hypanthia are all glabrous.

SIMILAR SPECIES

In Britain confusion can occur with *A. acutiloba* which occasionally has reflexed hairs on the stem or petioles, but



Alchemilla subcrenata growing in disturbed meadow vegetation in County Durham ©Mark Lynes

this species can usually be told apart from *A. subcrenata* by its more distinctly triangular leaf lobes. *A. filicaulis* is generally much smaller, a bluer-green and with a reddish base to the petioles, especially in subsp. *vestita*.

HABITATS

In Britain *A. subcrenata* is confined to hay-meadows that have received little or no artificial fertilizer in the past (Bradshaw, 1962; Foley, 1999) although many have become less species-rich since the 1950s, due to more intensive agricultural management (Bradshaw, 2009). Consequently the associated hay meadow vegetation now occurs on a continuum from species-rich NVC MG3 *Anthoxanthum odoratum* – *Geranium sylvaticum* grassland to more improved, species-poor NVC MG6 *Lolium perenne* – *Cynosurus cristatus* grassland and NVC MG7 *Lolium perenne* s (Rodwell, 1992; O'Reilly, 2011).

Populations in pasture often occur in vegetation much closer to species-rich sub-communities of NVC MG5c *Cynosurus cristatus* – *Centaurea nigra* or NVC U4c *Festuca ovina* – *Agrostis capillaris* – *Galium saxatile* grassland, often being confined to small areas that are infrequently cut for hay (e.g. species-rich banks within or on the edge of meadows).

BIOGEOGRAPHY

Alchemilla subcrenata has a very restricted distribution in Britain. Since it was discovered in Teesdale in 1951 it has been recorded in around 20 meadows between Holwick and Newbiggin in Teesdale and formerly in two meadows in Weardale that have since been agriculturally improved (Bradshaw, 2009). More recently it has been found in three meadows in Allendale, South Northumberland (Groom & Richards, 2010) and with *A. acutiloba* in one meadow in

Alchemilla subcrenata Buser

South Lancashire where it is likely to be native (Peter Jepson & Mark Ly nes, pers. comm.). These recent finds suggest it may be over-looked in other regions.

In Europe *A. subcrenata* has a very similar distribution to *A. monticola*, extending from the Alps and Greece northwards to southern Scandinavia and Russia with outliers in the Netherlands and Britain. In the Alps and Scandinavia it is an abundant hay meadow plant and has a wide altitudinal range extending into the subalpine zone (Foley, 1999).

ECOLOGY

Alchemilla subcrenata is a relatively tall, obligate perennial apomict. Very little is known about its ecology, but its restriction to hay meadows suggests a reliance on cutting and aftermath grazing, and in particular an ability to produce seeds before the hay is cut in mid-July (Bradshaw, 1962). Nevertheless it seems able to tolerate high levels of fertilizer application and consequently survives in a number of meadows that lack many characteristic 'Northern Hay-meadow' species. More rarely it grows in species-rich pasture with low grazing pressure and formerly on a roadside verge. Flowers June-July.

THREATS

As with other Lady's-mantles restricted to hay-meadows the main threats are changes in farm management and animal husbandry, in particular more intensive use of meadows by livestock, earlier cutting dates, use of artificial fertilizers, changes in the content of farmyard manure, decreases in the

applications of lime or basic-slag and reseeded (Bradshaw, 2009). In a few sites top-soil has been 'scraped off' the ridges in the past in order to improve the productivity of the sward (Margaret Bradshaw, pers. comm.). With the exception of one Teesdale site all the populations occur outside of SSSIs. Nevertheless, all the Teesdale meadows are managed under agri-environment options designed to maintain traditional management and species-rich swards (Chris McCarty, pers. comm.).

MANAGEMENT

In hay meadows the survival of *A. subcrenata* appears reliant on a summer hay-cut followed by aftermath grazing (Bradshaw, 1962). In at least one pasture site the banks on which *A. subcrenata* grows have been fenced-off to better control grazing levels and ensure that plants are able to flower and set a adequate seed.

REFERENCES

- Bradshaw M. E. 1962. The distribution and status of five species of the *Alchemilla vulgaris* L. aggregate in upper Teesdale. *Journal of Ecology* 50: 681-706.
- Bradshaw M. E. 2009. The decline of Lady's-mantles (*Alchemilla vulgaris* L. agg.) and other hay meadow species in Northern England since the 1950s. *Watsonia* 27: 315-321.
- Foley, M. J. Y. 1999. *Alchemilla subcrenata* Buser (Rosaceae). In: M. J. Wigginton (ed.), *British Red Data Books. 1. Vascular Plants*, third edition, p. 33. Joint Nature Conservation Committee, Peterborough.
- Groom, Q. & Richards, A. J. 2010. *The Rare Plant Register of South Northumberland (VC67) 2010*.
- O'Reilly, J. 2011. *An Analysis of Survey Data from Upland Hay Meadows from the North Pennines AONB Partnership's Hay Time project*. Natural England Commissioned Report NECRO69, Ptyxis Ecology.
- Rodwell, J. (ed.) 1992. *British Plant Communities. Volume 3. Grasslands and Montane Communities*. Cambridge University Press, Cambridge.
- Walters, S. M. 1952. *Alchemilla subcrenata* Buser in Britain. *Watsonia* 2, 277-278.

AUTHOR VERSION

Kevin Walker. Version 1: 9 October 2015.

SUGGESTED CITATION

Walker, K. J. 2015. *Alchemilla subcrenata* Buser. Large-toothed Lady's-mantle. Species Account. Botanical Society of Britain and Ireland



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