

Alchemilla acutiloba Opiz.

Starry Lady's-mantle

Alchemilla acutiloba is one of our tallest lady's-mantles and has distinctive triangular leaf lobes. It often occurs as large patches amongst tall, unmanaged vegetation in upland hay meadows, and on the banks of roads, railways and rivers. The core native British distribution is in Teesdale and Weardale, with outliers in Northumberland and Angus, where it has recently been discovered. Plants do not survive intensive grassland management, with silage-making accounting for the majority of recent losses, leading to an assessment of Vulnerable in GB.



©Kev in Walker

IDENTIFICATION

Alchemilla acutiloba is one of the largest British lady's-mantles with dense patent hairs on the petioles and the lower part of the stem. The leaves are densely hairy on the lower-side but glabrous to sparsely hairy above with long, almost triangular leaf lobes.

SIMILAR SPECIES

Alchemilla acutiloba can be distinguished from other lady's-mantles with spreading hairs by its distinctive triangular leaf-lobes. In Eastern Europe *A. acutiloba* is most easily confused with *A. micans* (Pihu *et al.* 2009) and genetic and morphological analyses suggest that they are probably best united as a single microspecies (Sepp *et al.* 2000). However, in Britain at least, *A. micans* differs in having the erecto-



Alchemilla acutiloba persists on this roadside verge in the lightly managed area to the rear, perhaps cut once a year, but not in the main part of the verge due to too frequent cutting. ©Stuart Hedley

patent hairs on the stem and petiole and a more attenuate base to the hypanthium.

In Britain *A. acutiloba* resembles the much more common *A. xanthochlora* which is similar in size, habitat and hairiness, especially on the upper side of the leaves. *A. subcrenata* grows with *A. acutiloba* in a few meadows but is told from it by the lack of deflexed hairs on the stem. In *A. filicaulis* the hypanthium is sparsely hairy or hairless while in *A. acutiloba* it is always glabrous.

HABITATS

Alchemilla acutiloba is a plant of upland hay meadows which have not been markedly improved by re-seeding or heavy fertiliser applications, and whose cutting is delayed until after seed-set (Wigginton 1999). However, many of these sites have been improved and so the majority of surviving populations are now confined to the banks and verges of roads, railways and rivers, where relict hay meadow communities have survived, sometimes in large stands.

The vegetation on these verges was formerly NVC MG3a *Anthoxanthum odoratum*-*Geranium sylvaticum* grassland, *Bromus hordeaceus* ssp. *hordeaceus* sub-community, but most sites have now become species-poor due to inappropriate cutting regimes. Often *A. acutiloba* now only survives in areas that have been unmanaged for many years and so are now closer to NVC MG1 *Arrhenatherum elatius* grassland (a, c or e). It has, however, been recorded in more improved grassland such as NVC MG6 *Lolium perenne*-*Cynosurus cristatus* grassland, suggesting that it can tolerate moderately high soil fertility (O'Reilly 2011).

Alchemilla acutiloba Opiz.

BIOGEOGRAPHY

Alchemilla acutiloba is a Boreo-temperate species with a markedly continental distribution in Europe, extending from the Alps to Greece, and northwards to southern Scandinavia and Russia.

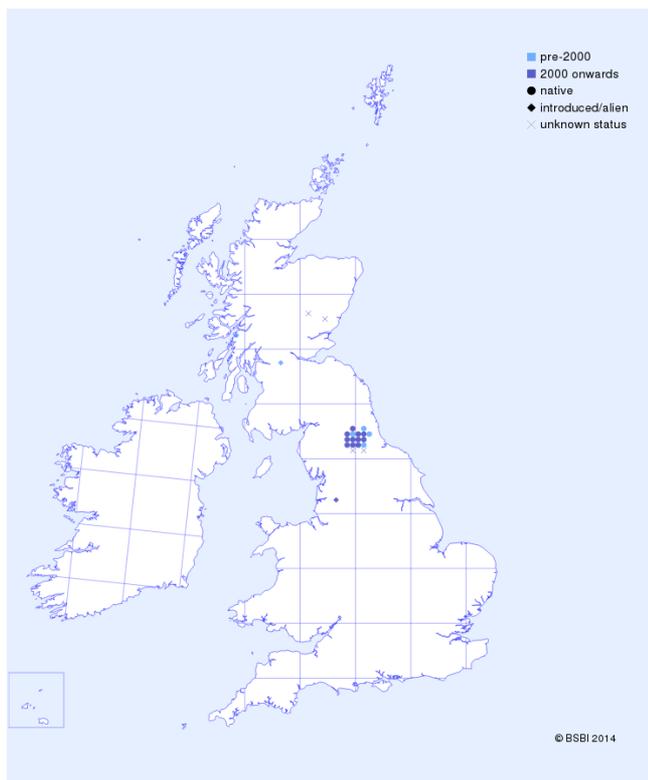
In England it is largely restricted to Teesdale and Weardale, where it is much more widespread and locally abundant, with a few outlying populations in Northumberland (Bradshaw, 2009). In Scotland, it has recently been discovered in similar habitats at four sites in Angus where it is assumed to be native (Hogarth 2013). It was also formerly recorded from a reservoir embankment in Lancashire where it is likely to have been native, although plants only survive in cultivation due to engineering works (Peter Jepson, pers. comm.). Populations in Lanarkshire and marshaling yards in Glasgow probably originated from imported hay (Dickson *et al.* 1993).

Its virtual confinement to Teesdale and Weardale has led to speculation that it may be an accidental or intentional introduction, possibly in hay imported by early farmers (Bradshaw 1962).

Elsewhere in Europe it occurs by paths and in pastures in montane and subalpine regions. Its altitudinal range in Britain is from 140 to 555 m (Langdon Common).

ECOLOGY

Alchemilla acutiloba is a perennial agamosperous apomict that forms vigorous large patches amongst tall vegetation with its conspicuous leaves persisting from April to October.



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

Flowering occurs in June and July. It was first recorded (as *A. pastoralis*) in Teesdale in 1933 but was not identified correctly there until 1946 (Walters 1949).

Its seeds are small (0.4 mg; 1×1 mm) and have no structures to aid dispersal. Very little is known about its ecology but it is clear that survival is dependent on the continuation of traditional management of upland hay meadows or roadside verges. It does not survive intensive grassland management, especially for silage, which appears to account for the majority of recent losses (Bradshaw 2009).

THREATS

As with other Lady's-mantles of hay-meadows, the main threats are changes in farm management and animal stocking, in particular more intensive use of artificial fertilizers and livestock, earlier cutting dates, changes in farmyard manure content, declining use of lime and reseedling.

Road verge populations have been affected by road-works (widening, verge strengthening), eutrophication, a shift from cutting to flailing of verges and in at least a few sites just outside of Weardale, and competition with scrub and bracken.

MANAGEMENT

At least annual cutting of roadside verges is likely to be beneficial, but not before seed-set, and may be an important means of dispersing seeds and establishing new colonies, as has occurred to the northeast of Weardale.

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.
- Dickson, J.H., Hunter, R. & Walters, S.M. 1993. *Alchemilla acutiloba* Opiz new to Scotland. *Botanical Journal of Scotland* 46: 499-502.
- Hogarth, B. 2013. *Provisional Guide to the Alchemilla Microspecies found in the Northeast of Scotland*. Privately published.
- 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 NECR069, Ptyxis Ecology.
- Pihou, S., Høimra, J., Köster, E. & Pärtel, M. 2009. Environmentally dependent morphological variability in seven apomictic microspecies from *Alchemilla* L. (Rosaceae). *Folia Geobotanica* 44: 159-176.
- Sepp, S, Bobrova, V.K., Troitsky, A.K. & Glazunova, K.P. 2000. Genetic polymorphism detected with RAPD analyses and morphological variability in some microspecies of

Alchemilla acutiloba Opiz.

apomictic *Alchemilla*. *Annales Botanica Fennici* 37: 105-123.

Walters, S.M. 1949. *Alchemilla vulgaris* L. agg. in Britain. *Watsonia* 1: 6-18.

Wigginton, M.J. 1999. *Alchemilla acutiloba* Opiz. (Rosaceae). In: M.J. Wigginton (ed.), *British Red Data Books 1. Vascular Plants*, third edition, p.27. Joint Nature Conservation Committee, Peterborough.

AUTHOR VERSION

Kevin Walker. Version 1: 9 October 2015.

SUGGESTED CITATION

Walker, K.J. 2015. *Alchemilla acutiloba* Ortiz. Starry Lady's-mantle. Species Account. Botanical Society of Britain and Ireland.