Arnside and Silverdale AONB: Grasslands (meadows and pastures)

Wildflower-rich or semi-natural grasslands are one of our most iconic wildlife habitats. They are also one of the most threatened habitats in Britain mainly due to changes in agriculture since the 1950s, including greater mechanisation, ploughing and re-seeding with high-yielding grasses, application of chemical fertilisers, abandonment of grazing and a change from hay making to silage production.

The main grassland type in the Arnside and Silverdale AONB is **limestone grassland (lowland calcareous grassland)**. This is due to carboniferous limestone being almost the only rock type outcropping in the AONB. The only areas where the limestone (alkaline) influence is masked is where it is overlain by superficial deposits such as glacial till, wind-blown loess or peat. The limestone grasslands often occur in association with limestone pavements, limestone heath, woodlands and scrub and, more locally they may grade into marshy grassland and spring or groundwater-fed alkaline fens.

View of Morecambe Bay from Arnside Knott with limestone grassland in the foreground (R. Jefferson)

The grassland is typically very rich in plant species with up to 30 species in a square metre. Blue-moor-grass is usually abundant together with other grasses such as common bent, sheep's-fescue and quaking-grass. A wide diversity of herbaceous species commonly occur including common rock-rose, wild thyme, harebell, salad burnet, small scabious, carline thistle and fairy flax. A number of threatened species occur at one or more sites including several orchids such as autumn lady's

tresses and green-winged orchid plus other plant species, namely spring sandwort, spring cinquefoil and rare spring-sedge. It has been estimated that limestone grassland covers less than 2% (127 ha) of the AONB. A high proportion of the limestone grassland is included in Sites of Special Scientific Interest (SSSI), namely Arnside Knott, Jack Scout, Gait Barrows, Coldwell Farm pastures and Warton Crag.

Autumn lady's tresses

Wild thyme (R. Jefferson)

Carline thistle (R. Jefferson)

The limestone grasslands and associated habitats are rich in insects and other invertebrates. Several rare butterflies occur including scotch argus, Duke of Burgundy, northern brown argus and grayling.

Grayling (Saxifraga: Harold van den Oetalaar)

Juniper in limestone grassland on Arnside Knott (R. Jefferson)

Where the soil is deeper due to overtopping drift so-called **neutral grasslands (lowland meadows)** may occur on soils that are neither alkaline or acidic. These are rich in plant species and are usually composed of grasses such as crested dog's-tail, red fescue and common bent and a wide variety of herbs such as common bird's-foot-trefoil, lady's bedstraw, common knapweed, meadow vetchling and ox-eye daisy. Neutral grasslands are small in extent in the AONB totalling around 50 ha - less than 1% of the area. However, The Landscape Trust has restored some lowland meadow near Coldwell Farm using hay strewing and broadcasting of seed.

Common bird's-foot-trefoil (Saxifraga: Ed Stikvoort)

Even more scarce in the AONB are species-rich **wet or marshy grasslands (Purple moor-grass & rush pastures)** which consist of grasses such as purple moor-grass, various rushes and sedges and herbaceous plants including marsh marigold, meadowsweet, great burnet, devil's-bit scabious, marsh hawksbeard and common marsh-bedstraw. One of the largest areas of this marshy grassland occurs within Gait Barrows and Hawes Water SSSIs in bands around the latter marl lake and the smaller Little Hawes Water.

Devil's-bit scabious (Saxifraga: Jan van der Straaten)

All of the wildflower grassland types within the AONB depend on either grazing or mowing or both to maintain their biodiversity value.

Richard Jefferson April 2023