

# A bed of snow...for plants that enjoy a cool nap!

## What are Snowbeds?

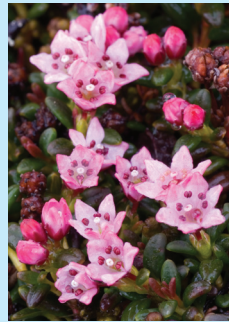
Above the tree line live many plant communities. The distribution of snow in winter influences their composition. When snow falls it is re-distributed by the wind, blowing off ridge-tops and being deposited in hollows known as 'snowbeds'.

Deep snow acts like an insulating blanket, protecting plants from strong winds and freezing temperatures. Under the snow the climate is cool and humid: above it plants are typically exposed to temperatures of -15°C and to the damaging effects of ice crystals blown by the wind. The protective effects of snow allow species to survive where the climate would otherwise be too harsh.

## Snowbeds under threat

Climate change predictions for Scotland suggest that rising temperatures will reduce winter snow fall by **50 – 90%** by 2080. There has already been a 30% reduction in the number of snowy days per year since the 1960s.

**Reduced snow fall** could have serious consequences for snowbed communities. Shorter periods of snow cover could allow common grasses and shrubs to invade and out-compete slow-growing specialists. Reduced depth of snow would also mean reductions in meltwater supply and many areas which are normally irrigated throughout the summer could experience droughts.



*Loiseleuria procumbens*



*Arctostaphylos alpina*



*Cetraria nivalis*



*Alectoria sarmentosa*



*Thamnolia vermicularis*

## Snow in June!

Snow influences plants in summer too. Where deep deposits of snow build up they take months to melt, and snow can last until early summer. This affects the amount of time available for growth in summer; the 'growing season' length.

Where snow cover is thin the growing season lasts from May to October (6 months). In snowbeds the snow may not melt until June or July and the growing season is only 3-4 months. In extreme cases the snow may not melt every year.

Not all plants can tolerate short growing seasons; as the snow-free period decreases, vegetation becomes dominated by 'snowbed specialists' including many mosses and lichens. Some of these species are very rare and restricted to areas where snow lies for long periods.

## Water storage

Snow is also important as a **frozen store of water**, deposited in winter and released gradually during spring and summer as snowbeds melt. Snow-free ridge-tops receive only rainfall during the summer and experience periods of drought. Around snowbeds plants receive a constant supply of water as the snow melts helping to maintain plant growth during dry periods.

During melting plant nutrients such as nitrogen which were deposited in the snow are released and can boost growth. The melt water eventually feeds into streams and rivers and helps to maintain a steady flow of water during the year.



*Cetraria islandica*



*Nardus stricta*



*Cladonia maxima*



*Gnaphalium supinum*



*Salix herbacea*



*Polytrichum sexangulare*  
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*Kiaeria glacialis*  
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