



Ecological Terms

Read the passage below then answer the questions that follow.

Blanket Bog is a globally restricted peat land habitat confined to cool, wet oceanic climates. However, it is one of the most extensive semi-natural habitats in the UK. The EC Habitats Directive on priority habitats, states that for 'active' blanket bog, it is a 'bog supporting an area of vegetation that is still peat forming'.

Blanket Bogs have a varied topography of drier hummocks and wetter hollows. They are a rich and diverse habitat providing important and specialised niches for bog – mosses, cotton grasses, sundews and many insects. Unlike other habitats which are minerotrophic, Blanket Bogs are an ombrotrophic system that is they receive all their nutrients from rainfall. This creates very acidic conditions and low oxygen levels which only specialised species can tolerate.

Common Heather (*Calluna vulgaris*) is a low-growing perennial shrub. It is found on acidic soils in sunny situations. It is the dominant plant on moorland in Europe.

Heather has tiny, narrow leaves shaped like the needles on a Christmas tree. This stops the plant from losing too much water out of its leaves as the winds blow across the moors. These special adaptations help heather to survive in this harsh environment.



Heather shares its habitat with Bilberry (*Vaccinium myrtillus*), another deciduous shrub. The two plants have very similar habitat requirements. The table below shows some features of both species.

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| | Calluna vulgaris | Vaccinium myrtillus |
|--------------------|-------------------------|----------------------------|
| Height | 0.6m | 0.2m |
| Soils | Sandy/loamy soils | Sandy/loamy soils |
| Soil pH | Acid and very acid | Acid and very acid |
| Flowers | Jul-Oct | Apr-June |
| Seeds | Oct-Nov | Jul-Sept |
| Pollination | Bees, flies, wind | Bees, flies, self |

Both sheep and Red Grouse love to eat the young shoots of Heather plants. Grouse also use older plants to make their nests in.

As well as supporting sheep and Grouse, Blanket Bogs support a very wide range of other terrestrial and aquatic vertebrates and invertebrates. As with plant species, some of these are widespread and common, some are much more local, and quite a number are of international interest for either their rarity or for the densities of their breeding populations.



The Blanket Bogs of the Peak District support a breeding bird community of international importance. About 2% of the British population of Golden Plover breed here, feeding on the worms and beetles living amongst the bog vegetation. Merlins (the UK's smallest bird of prey) hunt over the moors for smaller birds to eat and Short-eared Owls hunt for small mammals especially Voles which make their homes in the banks of moorland streams.



The indigenous species of Mountain Hare (*Lepus timidus*) today survives only in Scotland, the Isle of Man and on the moors of the Peak District. In Britain they are only found above 500m and global warming is likely to increase this limiting altitude.

Blanket Bogs also provide a number of other ecological services. Peat

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forms when decay is prevented and organic matter accumulates. This allows peat to capture and store large amounts of carbon. Blanket Bogs play an important role in securing high water quality and help to reduce flood risk downstream through slowing hydrological pathways. Blanket Bogs also fulfil an important function as repositories of archaeological and palaeoecological material, with some blanket peat being over 9,000 years old.

Questions

1. Using its binomial classification, give the name of one species living on the Blanket Bogs of the Peak District.
2. Name two **abiotic** factors which affect the distribution of Common Heather. Suggest how these factors may vary between the hummocks and hollows on the moor.
3. Name a **biotic** factor that affects the distribution of Common Heather.
4. Name the two **habitats** that Common Heather is commonly found in.
5. Common Heather supports **populations** of many organisms, name one.
6. The passage states '*The Blanket Bogs of the Peak District support a breeding bird community of international importance*'. What is the difference between a **community** and a **population**?
7. Heather and bilberry are two plant species sharing the same habitat. They are both deciduous shrubs with similar growing requirements. Usually no two species can share the exact same **niche**. What is different about their requirements that differentiate their niches?
8. Voles are the prey for which species of animal? Sketch a graph to show how the populations of these two species would change and influence each other over time.
9. What other factors may affect the population size of the Voles?
10. Active Blanket Bogs are an 'EU Habitats Directive 'priority habitat''. Imagine that the EU were considering removing this status from the habitat. What arguments would you use to ensure that the priority habitat status remained?

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