

生物策略表

類別	生物策略 (Strategy)
生物策略 STRATEGY	緊密包覆的莖幹隔絕寒冷:絨毯植物 (Tightly packed stems insulate against cold: cushion plants)
生物系統 LIVING SYSTEM	絨毯植物/座墊型植物 (Cushion plants)
功能類別 FUNCTIONS	#保護免受溫度危害 #Protect from temperature
作用機制標題	絨毯植物的莖透過嚴密的包覆保護自身免於寒冷 (The stems of cushion plants protect from the cold via tight packing.)
生物系統/作用機制 示意圖	
作用機制摘要說明 (SUMMARY OF FUNCTIONING MECHANISMS)	
文獻引用 (REFERENCES)	
<p>「其他植物透過將莖幹緊密地靠攏成墊狀 (cushion) 來應付寒冷，透過這樣的行為，植物創造了一個溫度、濕度和營養資源都明顯優於外界的微型生態系統。絨毯植物毛茸茸的外表作用就像一隻手套，幫助保持任何能包含的溫暖，有時絨毯植物甚至會再花費一點點的儲備營養物質，略微提高自身的內部溫度。</p> <p>絨毯植物的透薄的纖維團能像海綿一樣保持水分，讓猛烈的風不會使它乾透。葉片中的營養素也不會在它們死亡時流失，它們不會脫落，而是留在絨毯內，然後莖的上部會伸出側小根 (rootlet)，以便在葉子腐爛釋出養分的同時，立即重新吸收葉子大部分的成分…沒有植物能比在塔斯馬尼亞 (Tasmania) 山頂生長的植物產生更巨大的絨毯，它們這樣做是因為有特別需求的。因為周圍的海洋使氣候相對溫和，很少有雪落在這些山峰上。但是大海並沒有辦法減少風的吹拂，強風在這些海拔帶來的寒冷確實非常嚴酷。冬季時這些的植物缺乏保護性的雪毯，因此受到特別嚴重的寒害……在這裡的絨毯植物與雛菊 (daisy) 和蒲公英 (dandelion) 同屬菊科，但它們的花很小且莖幹緊密地包覆在一起，一平方碼範圍內可能包含十萬個芽，因此一個大絨毯可以很容易地有一百萬根枝條…有些絨毯達到 12 英尺寬，溢出巨石 (boulder) 和樹幹周圍。絨氈可能包含幾個物種的混合，使它們的表面閃爍著深淺不同的綠色。」 (Attenborough 1995: 255)</p>	

Other plants deal with cold by packing their stems tightly together into a cushion. By doing so, the plant creates a miniature ecosystem where the resources of warmth, humidity and nourishment are significantly better than in the world outside it. The cushion's furry exterior acts like a muff, helping to hold any warmth it might contain. The plant may even add to that by, on occasion, expending a little of its food reserves in slightly raising the internal temperature.

The sheer bulk of fibres of the cushion retains water like a sponge and the fierce winds do not dry it out. Nor is the nutriment embodied in the leaves lost when they die. Instead of being shed, they remain within the cushion and the upper part of the stems puts out lateral rootlets to reabsorb much of the leaves' constituents just as soon as decay releases them... No plants develop bigger cushions than those growing on the tops of the mountains in Tasmania. They have a particular need to do so. Snow seldom falls on these peaks because the surrounding sea keeps the climate relatively mild. But the sea does nothing to reduce the wind, and the chill it brings at these altitudes can be very bitter indeed. The plants in winter, lacking a protective blanket of snow, are thus subject to particularly severe chilling... The plants that form the cushions here belong to the same family as daisies and dandelions, but their flowers are tiny and their stems are packed tightly together. A single square yard may contain a hundred thousand shoots so that a big cushion could easily contain a million stems... Some cushions are twelve feet across and spill over boulders and around the boles of trees. They may contain several species intermingled so that their surface is spangled with different shades of green.”
(Attenborough 1995: 255)

參考文獻清單與連結 (REFERENCE LIST)

Attenborough, D. (1995). *The private life of plants*. BBC Books.

延伸閱讀

生物系統延伸資訊連結 (LEARN MORE ABOUT THE LIVING SYSTEM/S)

撰寫/翻譯/編修者與日期

徐茵憶翻譯 (2019/04/28)；譚國鏊編修(2020/04/14)；許秋容編修 (2020/11/26)

AskNature 原文連結

<https://asknature.org/strategy/tightly-packed-stems-insulate-against-cold/>