

生物策略表

類別	生物策略 (Strategy)
生物策略 STRATEGY	火燒使種莢打開 (Fire opens seed capsules)
生物系統 LIVING SYSTEM	班克木屬 <i>Banksia</i>
功能類別 FUNCTIONS	#散佈種子 #從環境感應溫度訊號 #Disperse seeds #Sense temperature cues from the environment
作用機制標題	班克木屬的種子透過兩瓣的種莢在火燒高溫下打開來傳播種子 (Seeds of <i>Banksia</i> plants are dispersed via two-valved seed capsules that open in high fire temperatures.)
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>班克木屬 (<i>Banksia</i>) 是一類壯觀的常綠灌木或喬木，與生長在南非的帝王花屬 (<i>Protea</i>) 關係相近，除了其中一個物種擴展到太平洋之外，其餘成員都局限生長在澳洲。在 75 個物種中的 60 種只生長在 [澳洲的] 西南方。它們奇特的花序是由數千朵小花 (floret) 聚集在單一個枝條上構成，且排列成垂直的線條，部分物種的花序則是些微的螺旋扭轉排列…它們需要花費數個月的時間發育，然後綻放數週。鳥類如吸蜜鸚鵡 (lorikeets) 和有袋類動物 (marsupials) 如蜜袋貂 (honey possum) 會前來吸食花蜜，在吸蜜的過程中替它們授粉。不過，通常只有一小部分的小花能產生種子。在某些物種中，沒成熟的小花依然附著在頭狀花序 (flower head) 上，形成一層灰色毛茸狀的外皮…種子成熟的時間大約一年。就像紅千層屬/瓶刷樹屬 (bottlebrush, <i>Callistemon</i>)，部分班克木要等到火災來臨才會散落其種子。事實上，要從植株上取下種子幾乎是不可能的，因為它們被包覆在堅硬木質的兩瓣果莢 (蓇葖果) 之中。但隨著火焰燒焦枝條，劇烈的高溫促使果莢打開。果莢的前端就像毛茸狀枝條上一雙褐色的嘴唇…透過只能藉由火災喚起班克木釋放種子，它們能確保種子會掉落在完全清理過、光線充足且剛以灰燼施肥過的地面上，因此能在極端嚴苛且缺乏營養的土地中，得到最適合的萌芽環境。</p>	

“Banksias are spectacular evergreen bushes and trees related to the proteas of South Africa but, with the exception of one whose range extends into the Pacific, they are totally restricted to Australia. Of the 75 or so species that exist, 60 grow only in this south-western corner [of Australia]. Their strange inflorescences consist of several thousand small florets massed together in a single spike and arranged in vertical lines, that in some species have a gentle spiral twist... They take several months to develop and then open over several weeks. Birds such as lorikeets and marsupials like the honey possum come to drink nectar from them and in the course of doing so pollinate them. Usually, however, only a small proportion of the florets produce seed. In some species, those that are unsuccessful remain attached to the flower head, forming a grey rather bristly fur... It takes about a year for the seeds to mature. Like the bottlebrush, some banksias will not shed their seeds unless there is a fire. Indeed, it is almost impossible to remove them from the plant because they are held in hard woody two-valved capsules. But as the flames scorch the branches, the intense heat causes the capsules to open. Their front ends resemble pairs of brown lips on the side of the furry spike... By releasing their seeds only in the wake of a fire, the banksias ensure that they will fall on well-cleaned, brightly-lit ground recently fertilised with ash and so get the most favourable of starts in what is, even at best, an extremely harsh and demanding environment.” (Attenborough 1995: 188-190)

參考文獻清單與連結 (REFERENCE LIST)

Attenborough, D. (1995). *The private life of plants*. Princeton University Press

延伸閱讀

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

<https://en.wikipedia.org/wiki/banksia>

<https://www.onezoom.org/life/@banksia>

<https://eol.org/pages/1090146>

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AskNature 原文連結

<https://asknature.org/strategy/fire-opens-seed-capsules/>