生物策略表

類別	生物策略 (Strategy)
生物策略 STRATEGY	提供營養及穩固性的關係 (Relationship provides nutrients, stability)
生物系統 LIVING SYSTEM	巨多孔菌 *Meripilus giganteus* (Giant polypore)
功能類別 FUNCTIONS	#不同物種之間合作/競爭 #循環養分 #保護免受風危害 #Cooperate/compete between different species #Cycle nutrients #Protect from wind
作用機制標題	簷狀菌及成熟樹木由於它們的互利共生關係，彼此獲得養分及樹木的結構穩固性 (Bracket fungi and mature trees gain nutrients for both and structural stability for the trees thanks to their mutualistic relationship.)
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)

因為簷狀菌 (bracket fungus) 的第一個看得見的徵兆只會在樹木老化或已經患病時才會出現，常常會被推斷真菌是像疾病般感染樹木，並導致樹木的死亡。但這不完全是。真菌沒有侵害樹木的活組織，而只是枯死的木材。現在，它不僅不會傷害樹木，還帶來了相當重要的益處。

首先，木頭的殘餘部分，被真菌所消化後，會變成樹木可以吸收的型態。因此隨著這些腐朽漿狀物質 (rotted pulp) 累積在土面上的中空樹幹裡，橡樹會伸入細小的根進入到樹幹以前的中心，來回收其畢生積蓄的一部分。另外也會出現新的、有價值的營養物。中空的樹幹會變成對動物充滿吸引力的家。蝙蝠會棲息在裡面，在樹幹的內壁倒掛著。貓頭鷹也會在樹幹中築巢。而這些動物的排泄物掉落到地上，將會提供更多豐富的營養給樹木。

移除樹木死亡的中心部分還有其它好處。從實心的圓柱狀轉變成中空圓筒狀的型態，改變了樹幹反應於機械應力 (mechanical stress) 的方式。這使其變得更加具彈性 (resilient) 及穩定性。清除大量的木材同時亦能減少樹木老化及根系腐壞無疑會帶來的負擔。結果中空的老樹通常會比起未腐朽的年輕樹木還能抵擋強風 (gale)。在英格蘭一些古老的狩獵公園 (hunting parks) 例如溫莎 (Winsor)，那裡的樹木豎立在開放的、沒有任何擋風的地方，

在風暴過後一點也不難發現，樹齡大約四五百歲的中空橡樹仍然屹立不倒，而樹齡只有老樹四分之一左右的較年輕橡樹已經被吹倒了。樹木與真菌都在追逐自己最佳的利益，相聚一起共同受益。」 (Attenborough 1995: 213-214)

"Because this first visible sign of the [bracket] fungus only appears when the tree is elderly or already stricken, it is usually assumed that it is the fungus that has infected the tree like a disease and is bringing about its death. But that is hardly just. The fungus has not attacked the living tissues of the tree, only the dead timber. And now, far from harming the tree, it brings it considerable advantages.

"To start with, the remains of the wood, after the fungus has digested it, are in a form that the tree can absorb. So as this rotted pulp accumulates on the ground within the hollowed trunk, the oak puts out small roots into what was once its centre to reclaim some part of its lifetime savings. And there is new valuable nutriment there too. The hollow trunk has become an attractive home for animals. Bats roost in it, hanging from its walls. Owls nest there. And droppings from these creatures fall on to the ground within and provide further rich sustenance for the tree.

"The removal of the tree's dead heart brings yet another advantage. The change of form from solid pillar to hollow cylinder alters the way in which the trunk reacts to mechanical stress. It is much more resilient and stable. The removal of many tons of timber also reduces the strain on the tree's elderly and doubtless somewhat decayed root system. The result is that an old hollow tree is often able to withstand a gale better than a younger undecayed one. In the ancient hunting parks of England such as Windsor, where trees stand out in the open, unprotected by others from the wind, it is by no means rare after a storm to discover that hollow oaks, four or five hundred years old, remain upright when younger ones, a quarter their age, have been blown over. Tree and fungus, each pursuing its own best interests, have come together to the benefit of both." (Attenborough 1995: 213-214)

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/meripilus_giganteus
https://www.onezoom.org/life/@meripilus_giganteus
https://eol.org/pages/1005265

撰寫/翻譯/編修者與日期

譚國鎏翻譯 (2021/03/22)；林振祥編修 (2021/04/19)

AskNature 原文連結
https://asknature.org/strategy/relationship-provides-nutrients-stability/