

# 生物策略表

類別	生物策略 (Strategy)
生物策略 STRATEGY	紅鸛形成友誼關係 (Flamingos form friendships)
生物系統 LIVING SYSTEM	紅鸛 Phoenicopteridae (Flamingos)
功能類別 FUNCTIONS	#透過自我組織形成群落協調 #Coordinate by self-organization
作用機制標題	長期社交關係透過提供互助支持以幫助紅鸛存活 (Long-term social bonds help flamingos survive by providing mutual support.)
生物系統/作用機制 示意圖	

## 作用機制摘要說明 (SUMMARY OF FUNCTIONING MECHANISMS)

科學家很少研究人類及猿類 (apes) 以外的動物之間的友誼。數百年以來，科學家都拒絕認為動物可能也會有情緒或是其它人類特質。然而在最近，很多科學家開始接受鳥類及哺乳類有感情及理解能力，當受傷時會痛苦，以及會與其他個體結盟以改善牠們自身的生活條件。

在英國的一個野生動物保護區，科學家研究了四個物種的紅鸛鳥群。這些長壽的水鳥 (wading birds) 在龐大的鳥群中覓食及生育，這些遍佈非洲、亞洲、歐洲及美洲的鳥群中的紅鸛數量有時能達到數千隻。科學家發現紅鸛偏好與屬於同一小群體的其它紅鸛一起活動。這些包含兩隻、三隻、或四隻鳥的群體，而且這種社會關係會維持數年。但並不是所有鳥都是友善的；也有一些鳥會互相迴避。

紅鸛生長在生存十分艱鉅的棲息地。舉個例子，生活在南美安第斯山脈 (Andes Mountain) 高海拔的安第斯紅鸛 (Andean flamingo)。牠們整個夏天都會在鹽湖 (salty lakes) 中覓食，並在冬天遷徙到海拔較低的濕地。與其他紅鸛保持穩定的關係可能幫助牠們找尋食物、增加獲得配偶的機會，以及面對不同的逆境例如食物短缺或人類干擾。

在動物園中，持續追蹤被標記紅鸛之間的友誼是非常有用的。透過這種方法，如果紅鸛與其他同類相處的時間長度突然改變，可能就是哪裡不對勁的警訊。

Scientists have rarely studied friendships among animals other than humans and apes. For hundreds of years, scientists refused to think that animals could have emotions or other human traits. Recently, however, many have started to accept that there are birds and mammals that have feelings and senses, suffer when hurt, and form coalitions and alliances with other individuals to improve their own conditions.

In an English wildlife reserve, scientists studied flocks of four species of flamingos. These long-lived wading birds feed and breed in large flocks sometimes numbering in the thousands in Africa, Asia, Europe, and the Americas. The scientists found that flamingos preferred hanging out with the same small groups of other flamingos. These included groups of two, three, or four, and these social bonds lasted for years. But it's not all friendly; there are also birds that avoid each other.

Flamingos live in habitats where survival is difficult. For example, the Andean flamingo lives in the high elevation Andes Mountains of South America. They spend the summer feeding in salty lakes and migrate to lower elevation wetlands for the winter. Having stable relationships with other flamingos may help them find food, improve access to mates, and cope with sources of stress such as food shortages or human disturbance.

In a zoo, it may be useful to keep track of friendships among marked flamingos. That way, if there's suddenly a change in the amount of time a flamingo spends with others, it could be a warning that something is wrong.

#### 文獻引用 (REFERENCES)

「關於這四個鳥群的研究，證實了紅鸛在找尋社交夥伴時具有選擇性，並能維持穩定的夥伴關係長達數年。紅鸛鳥群並不是同質社會 (homogeneous societies)；紅鸛會尋找能和睦相處的夥伴，並與特定的個體形成長久的關係。雄性及雌性紅鸛都傾向與 (conspecifics)維持一連串的社交關係。單獨行動紅鸛的出現與其鳥群大小並沒有關聯，顯示在所有研究的紅鸛鳥群中，所有紅鸛都能夠與其他選中的個體來往。」 (Rose and Croft 2020: 8)

“Study of these four flocks demonstrates that flamingos are selective in their choice of social partner and can maintain stable partnerships over several years. Flamingo flocks are not homogenous societies; birds seek out and remain with compatible partners to form long-standing relationships with specific individuals. Male and female flamingos are both likely to maintain a range of connections with conspecifics [members of the same species]. No relationship was found for the occurrence of solitary flamingos and their flock size, suggesting that in each flock studied all flamingos were able to associate with other chosen birds.” (Rose and Croft 2020: 8)

### 參考文獻清單與連結 (REFERENCE LIST)

Rose, P. E. and D. P. (2020). Evaluating the social networks of four flocks of captive flamingos over a five-year period: Temporal, environmental, group and health influences on assortment. *Behavioural Processes* 175: 104118. (<https://doi.org/10.1016/j.beproc.2020.104118>)

Dagg, A. I. (2011). *Animal friendships*. Cambridge, Great Britain: Cambridge 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/Flamingo>

### 撰寫/翻譯/編修者與日期

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### AskNature 原文連結

<https://asknature.org/strategy/flamingos-form-friendships/>