

生物策略表

類別	生物策略 (Strategy)		
生物策略 STRATEGY	鳥類裝作自己受傷去引開掠食者 (Birds Feign Injury to Draw Away Predators)		
生物系統 LIVING SYSTEM	鴉亞科物種 (Charadriinae spp.)		
功能類別 FUNCTIONS	#保護免受動物危害 #適應行為 #Protect From Animals #Adapt Behaviors		
作用機制標題	鴉假裝自己翅膀受傷來吸引掠食者遠離他們的巢和後代 (Plovers fake having a broken wing in order to lead predators away from their nest and protect their young)		
生物系統/作用機制示意圖 (確認版權、註明出處；畫質)			
	圖一， <i>Charadrius alexandrinus</i> 展現的“斷翅表現”。改自 Gómez-Serrano, 2018。		
作用機制摘要說明 (SUMMARY OF FUNCTIONING MECHANISMS)			

Plovers, such as the piping plover and the Wilson's plover, are small, sparrow-sized birds that live along coasts and make their nests on sandy beaches. These are not nests like you'd find woven in a tree, but merely small depressions in the sand, sometimes hidden among light grasses but other times completely out in the open—in either case, extremely vulnerable to predators.

The eggs' main protection is camouflage: they are speckled gray-brown in color and look like rocks on the beach. In order to prevent intruders from getting too close though, plover parents exhibit a range of conspicuous distraction behaviors, the most notable of which is called the "broken-wing display."

In this scenario, when a potential predator approaches, the plover will fan its tail, squawk loudly, and flutter and drag its wings while walking forward along the ground. Painting the picture of an injured bird, the plover will hobble along for tens or hundreds of meters as the observer/predator follows. Once far from the nest, the bird will suddenly take off and fly away, clearly unwounded.

The effect is so convincing that it begs the question of whether this is an uncontrollable, automatic response (like opossums feigning death), or a masterful and intentional performance.

Researchers tested the plovers' broken-wing display to see if it had the consistency and effectiveness of a purposeful behavior. Forty-five trials were performed, in which a person approached a plover's nest from various directions. In 44 out of these 45 trials, the direction of the plover's display was such that the intruder was led away from the nest. Furthermore, the plovers consistently positioned themselves nearer to the intruders and more centered in their field of view before beginning their displays. Photographs and videos show that as the birds perform the broken-wing display and move away from the intruder, they repeatedly turn their heads sharply back over their shoulders, presumably to see if the distraction is working.

The researchers also performed trials in which the researchers posing as intruders either did not follow the displaying bird, or stopped following after a short distance. In 55% of these cases, the plovers stopped their displays and either flew or walked closer to the intruders; in 29% of the cases, the birds continued their displays, sometimes increasing their intensity with louder squawks and more vigorous flapping.

鴉 (plover)，如笛鴉和厚嘴鴉，是一群棲息於海岸、築巢於沙灘的小型、如麻雀般大小的鳥類。他們的巢並非和你在樹叢中發現的鳥巢一樣，而是僅在沙地上挖一個小坑，有時會隱藏在稀疏的草地，但大部分是築在完全空曠的區域——不過無論何種情況下，都是非常容易被捕食者攻擊的。

這些蛋利用偽裝進行防衛：他們散布著灰棕色的顏色，看起來像海灘上的石頭。為了防止入侵者離的太近，鴉類的親鳥會展示一系列分散掠食者注意力的行為，其中最值得注意的行為叫做“斷翅表現 (broken-wing display)”。

在潛在掠食者靠近的情形下，鴉類會掄動自己的尾巴，大聲發出令人不悅的聲音，並且於沿著地面移動時拍動並拖著自己的翅膀。鴉會假裝自己是受傷的鳥，並在掠食者/觀察者跟隨的情況下跛行數十或數百米的距離。當離巢夠遠時，他們會立刻飛走。

這種效果非常令人信服不禁讓人想知道這種行為是否為不可控、自發性的反應 (如負鼠的裝死行為)，或是熟練且刻意的行為。

研究員測試這種斷翅表現是否具目的性行為的持續性和效果。他們進行了 45 個由一人從鴿巢的各個方向靠近的試驗。其中 44 個試驗中，鴿會利用該行為將侵入者引至遠離巢的方向。此外，鴿在展現斷翅表現之前，會持續將自己定位於靠近入侵者的位置，並更位於他們的視野中心。照片及影片顯示他們在展現斷翅表現時會不斷轉頭，可能是在觀察是否分散入侵者的注意。

研究員亦進行了入侵者未跟隨展現斷翅表現的鳥，或是僅跟隨該鳥很短的距離的試驗。在 55% 的案例中，鴿會停止該行為並飛/走進入侵者；29% 的案例中，這些鳥會持續進行該行為，並發出更大的聲音及更大力拍翅，以增強該行為的強度。

文獻引用 (REFERENCES)

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Ristaur C. (1991). Aspects of the cognitive ethology of an injury-feigning bird, the piping plover. In Ristaur C. (ed), *Cognitive ethology: the minds of other animals* (pp 91–126). Lawrence Erlbaum Associates, Hillsdale.

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Gómez-Serrano M. (2018) Broken Wing Display. In: Vonk J., Shackelford T. (eds) Encyclopedia of Animal Cognition and Behavior. Springer, Cham.
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