### Begging by Nestlings

### 雏鸟的乞食行为

Many signals that animals make seem to impose on the signalers costs that are overly damaging. A classic example is noisy begging by nestling songbirds when a parent returns to the nest with food. These loud cheeps and peeps might give the location of the nest away to a listening hawk or raccoon, resulting in the death of the defenseless nestlings. In fact, when tapes of begging tree swallows were played at an artificial swallow nest containing an egg, the egg in that “noisy” nest was taken or destroyed by predators before the egg in a nearby quiet nest in 29 of 37 trials.

一些动物发出的信号可能会给他们自身带来过份的伤害，一个典型的例子就是鸣禽的雏鸟在它们的父母带着食物归巢时吵闹的乞食行为。这些叽叽喳喳的叫声有时会让巢外的老鹰和浣熊听到并且定位，从而致使毫无抵抗能力的雏鸟丧命。事实上，一个蛋被放在一个假的树燕巢中且附近播放着树燕乞食叫声的录音带时，这个“嘈杂”的巢中的蛋在 39 次试验中有 27 次早于放在安静的巢中的蛋而被食肉动物带走或毁掉。

Further evidence for the costs of begging comes from a study of differences in the begging calls of warbler species that nest on the ground versus those that nest in the relative safety of trees. The young of ground-nesting warblers produce begging cheeps of higher frequencies than do their tree-nesting relatives. These higher-frequency sounds do not travel as far, and so may better conceal the individuals producing them, who are especially vulnerable to predators in their ground nests. David Haskell created artificial nests with clay eggs and placed them on the ground beside a tape recorder that played the begging calls of either tree-nesting or of ground-nesting warblers. The eggs “advertised” by the tree-nesters' begging calls were found bitten significantly more often than the eggs associated with the ground-nesters' calls.

乞食行为成本更进一步的证据来自与一项关于地面筑巢的黄莺与住在相对安全的树上的黄莺对比的研究。幼年的地面筑巢的黄莺所发出的乞食叫声的频率要高于树上筑巢的黄莺。这种高频的声音不会传播的很远，可以更好的隐藏这些容易受到食肉动物攻击的在地面筑巢的雏鸟。David Haskell 制作了一个盛有泥蛋的假巢并把它分别放在播放地面筑巢和播放树上筑巢的黄莺的乞食声音的录音机旁。被放在树上筑巢的声音旁的蛋被发现的几率要比被放在地面筑巢的黄莺声音旁的蛋高得多。

The hypothesis that begging calls have evolved properties that reduce their potential for attracting predators yields a prediction: baby birds of species that experience high rates of nest predation should produce softer begging signals of higher frequency than nestlings of other species less often victimized by nest predators. This prediction was supported by data collected in one survey of 24 species from an Arizona forest, more evidence that predator pressure favors the evolution of begging calls that are hard to detect and pinpoint.

一个关于乞食行为的假说认为乞食行为已经进化出了一种降低他们被食肉动物发现的几率的预防机制：这种高被捕食率的种类的幼鸟需要发出比其他被食肉动物较少捕杀的幼鸟更高的频率和更小的叫声。在对亚马逊森林里的 24 个物种进行调查和收集的数据证实了这种预防机制，而更多的证据也表明食肉动物迫使乞食叫声变得难以侦测和定位。

Given that predators can make it costly to beg for food, what benefit do begging nestlings derive from their communications? One possibility is that a noisy baby bird provides accurate signals of its real hunger and good health, making it worthwhile for the listening parent to give it food in a nest where several other offspring are usually available to be fed. If this hypothesis is true, then it follows that nestlings should adjust the intensity of their signals in relation to the signals produced by their nestmates, who are competing for parental attention. When experimentally deprived baby robins are placed in a nest with normally fed siblings, the hungry nestlings beg more loudly than usual—but so do their better-fed siblings, though not as loudly as the hungrier birds.

考虑到食肉动物可以让雏鸟为了得到食物而付出巨大代价，那么到底雏鸟可以从乞食行为这种交流方式中得到什么？一个可能的原因使吵闹的幼鸟可以给出准确的信号：他们很饿而且很健康，这么做是为了让它的父母在与众多同巢的其它可以被喂食的后代中挑选出它作为喂食对象。如果这个假说成立，那么可以推出雏鸟是因为其他与之争抢父母注意的同伴发出的信号而调整它们信号的强度。当实验性的带走的幼年知更鸟并安放在那些正常喂养的同类的巢中，饥饿的雏鸟的乞食行为会比那些正常的要大，但是那些喂养的更好的同类反而叫得不像饥饿的鸟那么响。

If parent birds use begging intensity to direct food to healthy offspring capable of vigorous begging, then parents should make food delivery decisions on the basis of their offsprings calls. Indeed, if you take baby tree swallows out of a nest for an hour feeding half the set and starving the other half, when the birds are replaced in the nest, the starved youngsters beg more loudly than the fed birds, and the parent birds feed the active beggars more than those who beg less vigorously.

如果成鸟是根据乞食的剧烈程度来派发食物给那些健康的更积极乞食的后代，那

么父母分配食物的决定就是建立在他们的后代的叫声上的。所以，如果你把一个

雏燕带离鸟巢并在一个小时里只喂半饱，当这个雏鸟被放回巢时，这个饿坏了的

小家伙会比其他吃饱了的叫得更响，它的父母也会喂它比喂那些乞食不积极的幼

鸟更多。

As these experiments show, begging apparently provides a signal of need that parents use to make judgments about which offspring can benefit most from a feeding. But the question arises, why don't nestlings beg loudly when they aren't all that hungry? By doing so, they could possibly secure more food, which should result in more rapid growth or larger size, either of which is advantageous. The answer lies apparently not in the increased energy costs of exaggerated begging—such energy costs are small relative to the potential gain in calories— but rather in the damage that any successful cheater would do to its siblings, which share genes with one another. An individual's success in propagating his or her genes can be affected by more than just his or her own personal reproductive success. Because close relatives have many of the same genes, animals that harm their close relatives may in effect be destroying some of their own genes. Therefore, a begging nestling that secures food at the expense of its siblings might actually leave behind fewer copies of its genes overall than it might otherwise.

这些实验表明，乞食行为很明显的提供给父母一个用于判断谁可以从喂食中获益

更多的需求信号。但是问题又出来了，为什么雏鸟不在它们不饿的时候大声的乞

食呢？如果它们这样做了，那就可以保证更多的食物，也就能更快的成长或者拥

有更大的体型，怎么说都是有利的。这个问题的答案显然不是在与因为过分乞食

而消耗的能量，因为这些损耗的能量对于其潜在能得到的热量来说只是冰山一

角——而是因为任何成功的骗子这么做了的话就会对他们和他们共享基因的同

伴产生危害。一个个体在繁衍中延续他或她的基因所产生的影响要比只是它个人的延续繁衍要成功。因为近亲中有很多相似的基因，动物伤害它们的近亲很可能同时摧毁一些他们自己的自有基因。因此，一只在它的同类吃饱后仍然能保证食物来源以供生存的雏鸟，所保存的基因往往要比另一种单一的办法所延续的基因要多。