

# 乌鸦学会打开巢箱进行捕食

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**摘要:** 本文首次报道了大嘴乌鸦 (*Corvus macrorhynchos*) 学会打开人工巢箱捕食在里面繁殖的绿背山雀 (*Parus monticolus*), 包括成鸟、雏鸟和卵。这种行为极有可能是通过观察人类行为而习得, 但需要进一步研究来验证。

**关键词:** 大嘴乌鸦; 学习; 巢箱

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## Crows Learn to Open Nest-boxes for Predation

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**Abstract:** Here we reported that the Large-billed Crow (*Corvus macrorhynchos*) could open the nest-boxes and predate the eggs, nestlings or adults of Green-backed Tit (*Parus monticolus*). Totally 43 nest-boxes were found to be opened, of which 4 were recorded by cameras, 2 were witnessed by observers of being opened by the crows, and 20 were found crow activities nearby. We assumed that all the nest-boxes were opened by crows, as no human activities or other Corvids were found around the nest-boxes. Of these 43 nest-boxes been opened, 19 were at incubating and nestling period of the Green-backed Tit, and 5 nest-boxes of adults, 3 nest-boxes of adults and eggs, 1 nest-boxes of adults and nestlings, 2 nest-boxes of nestlings and 8 nest-boxes of eggs were predated. For the cases that adults were predated, their blood and residual plumages could be detected. We suspect that crows might be able to open the nest-boxes by observing and learning from human practices, which would be confirmed by further studies.

**Key words:** Large-billed Crow; Learning; Nest-boxes

学习是动物适应环境的重要行为, 在鸟类中尤以鸦科 (Corvids) 类群最为典型, 得益于其相对高的脑容量, 鸦科鸟类具有很强的行为可塑性和认知能力 (Hunt 1996, Shumaker et al.

2011)。另外, 由于觅食是动物赖以生存的行为基础, 认知学习行为又常常与觅食行为紧密联系, 如鸦属的许多乌鸦 (*Corvus spp.*) 都学会利用树枝为工具来勾取树干中的昆虫幼虫为食

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(Troscianko et al. 2008, Rutz et al. 2016)。2018 年 4 ~ 6 月在贵州宽阔水国家级自然保护区 (28°10'N, 107°10'E) 发现大嘴乌鸦 (*C. macrorhynchos*) 用喙打开人工巢箱 (木质长方体; 长 × 宽 × 高为 15 cm × 15 cm × 30 cm; 在巢箱正前面有直径 4.5 cm 的洞口) 捕食绿背山雀 (*Parus monticolus*) 及其卵和雏鸟, 该行为在以往未见报道。共计发现 43 个巢箱被打开, 其中, 5 个巢箱处于微型摄像头 (四川海思视讯电子有限公司) 的监控下且 4 巢录到大嘴乌鸦打开巢箱 (图 1), 2 个为观测者查看巢箱时观察到乌鸦打开巢箱, 20 个在被打开前观察到乌鸦在巢箱旁活动, 另外 16 个为查看巢箱时发现被打开。研究地只有研究人员和保护区工作人员, 已建立多年研究合作, 排除人为破坏巢箱的情况。鉴于研究地无其他常见鸦科鸟类, 也未观察到其他鸟类在巢箱周围活动, 所以大嘴乌鸦以外的鸟类打开巢箱的可能性极小, 所以我们推测这 43 个被打开的巢箱皆为大嘴乌鸦所为。被打开的巢箱中, 19 巢处于孵卵

或育雏期而被乌鸦捕食, 被捕食的对象包括亲鸟 (5 巢)、亲鸟和卵 (3 巢)、亲鸟和雏鸟 (1 巢)、卵 (8 巢) 和雏鸟 (2 巢)。在亲鸟被捕食的案例中, 可见巢箱内和周围沾有明显的血迹和亲鸟羽毛。另外 24 巢中, 11 巢处于筑巢期, 其他为空箱。乌鸦打开巢箱的方式为站立在巢箱旁的树枝上, 用喙将巢箱盖边缘自下而上翻开。虽然以往有研究证明乌鸦能够通过学习打开各种不同的装置 (Jacobs et al. 2016), 但此类型的研究属于室内控制实验。本研究发现乌鸦在自然情况下学会打开人工制作的巢箱进行捕食, 这有助于更好地了解鸟类的认知和学习行为。乌鸦打开巢箱的行为包含两个认知学习过程: (1) 将人工巢箱与捕食对象联系起来, 许多空箱被乌鸦打开, 意味着建立联系后它们不需要以山雀为指示物; (2) 学习如何打开人工巢箱, 虽然未有实验验证, 乌鸦极有可能通过观察人类如何打开巢箱, 从而掌握打开的位置和方法, 这有待进一步的研究进行确认。



图 1 录像监控下的大嘴乌鸦

Fig. 1 Large-billed Crow caught by video monitor

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