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The barn owls altruism

Donation of food among siblings is extremely rare in raptors, while fratricide is common. The barn owl is one of the very few exceptions: the older chick can be generous by feeding its little brothers or sisters. An altruism that the team of Prof. Alexandre Roulin, at the Department of Ecology and Evolution of the University of Lausanne (UNIL), described in an article published on June 10th, 2020, in the journal *The American Naturalist*.

For almost 30 years, Alexandre Roulin, full professor at the Department of Ecology and Evolution of the Faculty of Biology and Medicine at UNIL, has made the Barn Owl (*Tyto alba*) his favorite animal model. This nocturnal raptor with strange hissing calls colonized all continents, with the exception of Antarctica. Living close to humans, it often inhabits in barns and other attics.

In a new article published on June 10th, 2020, in the journal *The American Naturalist*, the researcher, with two post-doctoral fellows, Pauline Ducouret and Andrea Romano, investigated the allofeeding behavior among young siblings. A generosity, yet unusual among raptors, demonstrated by the Barn owl. The team aimed at understanding what drives a chick to be so kind to its peers.

A transfer of responsibilities from parents to chicks

To carry out their investigation, the scientists filmed 30 wild broods during the breeding season, from April to September, for two days and two consecutive nights. Artificial nest boxes, installed for several years on the facades of barns located in Switzerland, were equipped with four miniature infrared cameras.

In order not to disturb the parents, the cameras were installed when the eldest of the brood was 40 days old. At this age, the parents usually visit their nest very quickly in order to bring a prey for their offspring. The behavior of the chicks as well as that of the parents was observed under two different conditions of food abundance: one night under the natural food provisioning regime provided by the parents only and a second night with an experimental addition of food.

Observations reveal up to four prey donations between young owls in one night. "As expected, these donations are made by the oldest chicks in good physical conditions, especially when food in the nest is abundant. The oldest member of the progeny will be the most altruistic also if parents favor it by providing it most of the prey items", reports DreSc. Pauline Ducouret, first author of the study.

This parental favoritism, apparently unfair, could actually be beneficial for the entire family. By transferring responsibility for food distribution among the offspring to the elder siblings, the parents do not waste time identifying the hungrier chick and can therefore spend more time hunting. Elder chicks, on the other hand, seem to have a certain sense of justice, since they redistribute food to their brothers and sisters in an equitable manner.

Exchange of courtesies

As part of their work, the biologists have highlighted another result concerning social behaviors among siblings: the altruistic chick gives prey either to its sibling that emitted the most intense solicitations for food, thus the one that is showing to be very hungry, or the one that has preened the donor for a long time in the previous hours. "By feeding a particularly hungry sibling, the elder chick gives it a larger chance to survive and reproduce, thereby promoting the transmission of the genes they have in common. Alternatively, the preening between chicks eliminates parasites and reduces social stress. The two chicks therefore exchange services, it is give and take" analyzes DrSc. Andrea Romano. The study of these behaviors in non-human organisms therefore provides important information on the evolution of social life.

Recover your due

The next step of research will aim to study the prey theft between siblings. The goal is to know if this behaviour, at first glance negative for the robbed individual, would not in fact be a food donation initiated by the thief. "Our preliminary analyses indeed show that the thief steals the sibling that is favored by the parents and the one whom it was preened for a longer time by the thief itself. These results largely mirror those we just published in *The American Naturalist*. The thief would therefore be nothing other than a sibling that comes to recover its due!" concludes DreSc. Pauline Ducouret.

Links :

- [Article *The American Naturalist*](#)
- [Group of Prof. Roulin](#)
- [Profil of Prof. Roulin](#)
- [La chouette effraie en Suisse](#)

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