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## Helpers at the Nest

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### Definition

A breeding system in which offspring from the previous breeding period remain with the parents and play a role in raising young.

### Introduction

The term helpers at the nest is typically applied to species in which young animals of both sexes delay dispersal and remain in their home territory through at least one breeding cycle. The proportion of young remaining and the period of time that they spend as helpers are both variable. As the name suggests, the phenomenon has been recorded most often in birds with examples known in over 200 species (mostly monogamous, passerine species). Among mammals, the system is seen in most members of the dog family (Canidae) and many marmosets and tamarins (Callithridae) and sporadically elsewhere, e.g., beavers (*Castor canadensis*). There are a few examples from fish (Hatchwell and Komdeur 2000). The term is sometimes applied to communal breeding systems with delayed dispersal

predominantly by one sex. In this context, it has been applied to social insects and to humans.

### Main Text

The evolutionary costs and benefits to helping need to be analyzed in terms of inclusive fitness where costs and benefits apply both to the individual involved (direct fitness) but also that individual's effects on the reproductive success of genetic relatives (indirect fitness). Indirect fitness is usually a product of altruistic behavior (usually feeding the offspring of other individuals). Some of the first and most detailed studies of altruism directed at kin (kin selection) come from species with helpers at the nest.

Helpers do all the caring behaviors of their parents notably protection (babysitting and chasing predators), carrying young (especially in marmosets and tamarins), and playing with young. However, the commonest and probably most useful action is providing food (often by regurgitation).

Do helpers help? The majority of studies with good quantification show increased fitness of young when helpers are present. However, help can depend on current resources. In African wild dogs (*Lycan pictus*), there is an overall positive correlation between pup survival and number of helpers. However, in a time of food shortage the helpers stole food regurgitated to the pups (Malcolm and Marten 1982). In several species,

the parents contribute less in the presence of helpers and may benefit from enhanced survival (Heinsohn 2004).

Under what circumstances does helping behavior evolve? Helping depends on the balance between the direct and indirect components of fitness. However, it seems that in most cases the direct components are more important. Direct fitness depends on the chance of successful emigration versus the benefits of stay in the natal territory. Helping is usually seen in saturated habits where there is very limited opportunity for successful dispersal. The benefits of not dispersing can be enhanced through the opportunities for care for siblings, but animals seldom appear to forgo a chance to disperse and have the opportunity to raise their own offspring.

## Conclusion

The retention of offspring into the breeding group is a feature of most forms of cooperative breeding. Helpers at the nest is a term for this philopatry

mainly studied in birds. Breeding systems with helpers at the nest have yielded some of the most detailed information on inclusive fitness theory.

## Cross-References

- ▶ [Alloparenting](#)
- ▶ [Communal Breeding](#)
- ▶ [Cooperative Breeding](#)
- ▶ [Delayed Dispersal](#)

## References

- Hatchwell, B. J., & Komdeur, J. (2000). Ecological constraints, life history traits and the evolution of cooperative breeding. *Animal Behaviour*, 59(6), 1079–1086.
- Heinsohn, R. G. (2004). Parental care, load-lightening and costs. In *Ecology and evolution of cooperative breeding in birds* (pp. 67–80). Cambridge: Cambridge University Press.
- Malcolm, J. R., & Marten, K. (1982). Natural selection and the communal rearing of pups in African wild dogs (*Lycaon pictus*). *Behavioral Ecology and Sociobiology*, 10(1), 1–13.