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Optimal gut size of small birds and its dependence on environmental and physiological parameters

Adnane Ez-zizi , John M. McNamara , Gaurav Malhotra ,
Alasdair I. Houston

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Highlights

- We present an optimal foraging model of small birds that includes both fat reserves and gut contents as state variables.
- There exists a unique gut size that maximises a bird's chances of survival.
- The optimal gut size depends on the meal size, food availability, and, to a lesser extent, the rate of digestion.
- In rich environments, the optimal gut size exactly equals the meal size.

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