Anti-predatory benefits of heterospecific colonial breeding in a predominantly solitary bird

João Gameiro¹, Aldina M.A. Franco², Teresa Catry³, Jorge M. Palmeirim¹, Inês Catry⁴,⁵,⁶

In Portugal, the European roller Coracias garrulus, can nest solitarily or within Lesser kestrel Falco naumanni colonies. Does this tipically solitary bird aquire anti-predatory benefits from breeding in heterospecific colonies? To find out, we used 2 different behavioural experiments, along with long-term monitoring data of life-history traits.

1. Neophobia experiment
How long do rollers take to return to the nest?

Novel object (GoPro) placed near the nest entrance

![Diagram showing latency to resume incubation for solitary and colony rollers](image)

Rollers in colonies return almost twice as fast as solitary rollers

2. Predator decoy experiment
How long do rollers take to return to the nest? How frequent do they mob the decoy?

Predator decoy place above nest:

![Diagram showing latency to return to nest-site for solitary and colony rollers](image)

No differences between solitary and colony = 33 (1 year)

Rollers in larger colonies arrived sooner, but attacked the decoy less often

3. Life-history traits

![Diagram showing predation risk and productivity for solitary and colony rollers](image)

Rollers in colonies suffered from half as much predation as solitary rollers

Anti-predatory benefits not reflected into higher productivity. Trade-offs associated with costs of group living?

The Roller is classified as Critically Endangered in Portugal. It is important to understand how their social context may influence their survival and productivity.