Nest predation rates and life history strategies in shorebirds

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Breeding represents the key period of the life cycle of birds, and nest predation is the most common cause of breeding failure. Life-history strategies, anti-predator behaviour and nesting ecology often influence nest predation rates and may lead to adaptations that reduce the rate of nest predation. Here we use phylogenetic comparative analyses to investigate adaptation by ground-nesting shorebirds to predation. Shorebirds are declining globally, and by linking nest predation and anti-predatory strategies to population declines, we are addressing a major knowledge gap in shorebird conservation.

Using published articles and unpublished datasets, we extracted data on daily nest predation rate of 36,634 nests of 238 populations in 111 shorebirds species from 149 localities worldwide. We focus on three research hypotheses:

1) Do life-history traits (body size, incubation care, breeding habitat selection and migration distance) predict nest predation rate? We suppose that shorebirds with (i) larger body size, (ii) more biparental incubation experience lower nest predation, and (iii) shorebirds that breed in Polar regions experience lower nest predation than shorebirds in temperate or tropical sites.

2) Is more aggressive behaviour associated with lower nest predation?

3) Does high nest predation rate precipitate into population decline?

Taken together, our phylogenetic analyses are the most comprehensive assessment of the causes and consequences of wader nest predation up to date, and we anticipate that our results will lead to conservation actions that will benefit shorebirds.

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