

# Camouflage efficiency in a colour-polymorphic predator is dependent on environmental variation and snow presence in the wild

Charlotte Perrault<sup>1</sup>, Chiara Morosinotto<sup>2</sup>, Jon Brommer<sup>1</sup>, and Patrik Karell<sup>3</sup>

<sup>1</sup>University of Turku

<sup>2</sup>Novia University of Applied Sciences - Campus Raseborg

<sup>3</sup>Yrkeshogskolan Novia Raseborg Campus

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## Abstract

Colour polymorphism can be maintained by colour morph-specific benefits across environmental conditions. Currently, the amount and duration of snow cover during winter decreases especially in northern latitudes, which can alter the potential for camouflage of animals with light and dark morphs. Tawny owls, *Strix aluco*, are colour polymorphic avian predators with dark (brown) and light (grey) colour morphs, where the grey morph is presumed to enjoy camouflage benefits under snowy conditions. We studied the two tawny owls' morphs' camouflage potential using passerines' probability to detect and mob in the wild during spring, autumn, and winter with and without snow. We find that grey tawny owls are both less likely to be detected and have a lower probability of being mobbed compared to brown tawny owls only during snowy winters. The two colour morphs therefore experience differential benefits across snow conditions, which may help to maintain colour morphs in the population, although further warming of winter climate will reduce the potential for camouflage for grey tawny owls in northern latitudes.

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