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Impact of Nest Temperature Fluctuations on the Growth and Survival of Bird and Reptile Embryos

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Abstract: *Nests of reptiles and birds that lay eggs show significant temperature variability at various geographical and temporal scales. Temperature affects embryonic growth rates and trajectories, favoring embryo adaptability. Thermal fluctuation may be large inside a nest, between nearby nests, across populations in various climates, and between species with distinct climates and nest characteristics. Temporal thermal regime variation affects nests within a population, between populations, and across species. This temporal and regional temperature variation is increased by human activity. Research on embryos' temporal and spatial nest temperature adaptation is examined. Our study shows multiple cases where natural selection seems to have modified embryogenesis to local heat regimes, despite just a few species having been fully explored and the proximate mechanisms remaining unclear. Developmental rates vary across populations from cooler or warmer regions, between early and late-season eggs, and between the highest and lowest eggs in a nest. We identify early life cycle thermal adaption knowledge gaps and suggest possible research directions.*

Keywords: Adaptive Responses, Bird Embryos, Reptile Embryos, Nest Temperature

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