

SHORT COMMUNICATIONS

HYPOXIA PROBABLY DOES NOT EXPLAIN SHORT INCUBATION PERIODS OF WOODPECKERS

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Abstract. I tested the hypothesis that hypoxia in tree cavities causes the unusually short incubation periods characteristic of woodpeckers. I compared saturated O₂ levels in ambient air to O₂ levels in 13 unoccupied and 14 occupied nest cavities of the Northern Flicker (*Colaptes auratus*). Oxygen in unoccupied cavities did not differ from ambient levels, whereas O₂ in cavities with an incubating adult was 2.2% lower than in saturated air. However, the magnitude of the decrease (20.5% oxygen in occupied cavities compared to 21.0% O₂ in saturated air) is small compared to variation in the partial pressure of O₂ caused by altitude. This suggests that O₂ depletion is not a major selective force on embryonic development times for birds nesting in tree cavities. Alternative hypotheses for short incubation periods of woodpeckers include sexual selection on females and sibling competition.

Key words: hypoxia, incubation period, nest cavity, Northern Flicker, woodpecker.