

ABSTRACTS FOR *CONDOR* 103(3) AUGUST 2001

FEATURE ARTICLES

COVARIATION OF CLUTCH SIZE, LAYING DATE, AND INCUBATION TENDENCY IN THE AMERICAN KESTREL

KEITH W. SOCKMAN¹ AND HUBERT SCHWABL

School of Biological Sciences, Center for Reproductive Biology, Washington State University, Pullman, Washington, 99164-4236

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¹Present address: Department of Psychology, Johns Hopkins University, Baltimore, MD 21218, e-mail: sockman@jhu.edu

Abstract. Seasonal decline in clutch size is common in birds, but the proximate mechanisms for this phenomenon have not been elucidated. The most credible model to date posits that late-laying females lay fewer eggs due to a seasonal increase in the tendency to incubate during laying, which inhibits egg production. We tested this model with free-living and laboratory American Kestrels (*Falco sparverius*) by quantifying changes in clutch size and incubation tendency during laying over the course of the breeding phase. Consistent with the model, clutch size in free-living kestrels decreased while incubation increased with progress of the 74-day breeding phase. Inconsistent with the model, variation in incubation tendency during laying was not associated with clutch size in either the field or the laboratory. In the laboratory, incubation increased but clutch size did not decrease over the course of the 77-day breeding phase. In the laboratory, females that nested early in one breeding phase renested more quickly and nested in a second breeding phase more quickly than females nesting late in the first breeding phase. This indicates that timing of laying is, in part, a property of individual females, independent of environmental factors. Together, our findings suggest that both clutch size and timing of laying are inherent, correlated properties of particular females. Although incubation tendency may influence clutch size, other factors appear to override its influence.

Key words: *Falco sparverius*, *incubation behavior*, *proximate control*, *reproductive effort*, *reproductive optimization*, *seasonal breeding*.

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