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MASS LOSS BY BREEDING FEMALE SONGBIRDS: FOOD SUPPLEMENTATION SUPPORTS ENERGETIC STRESS HYPOTHESIS IN BLACK-THROATED BLUE WARBLERS

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Abstract. Reproduction is physiologically stressful for many animals. Female birds often lose body mass after their young hatch, which has been commonly attributed either to an energetic deficit incurred while breeding (the energetic stress hypothesis) or to an adaptive reduction in wing-loading to save energy during flight (the wing-loading hypothesis). We tested these two hypotheses for an open-cup nesting passerine, the Black-throated Blue Warbler (*Dendroica caerulescens*), using a food-supplementation experiment. We found that females provided with extra food lost less body mass between the incubation and nestling periods than did control females and that mass loss varied seasonally, with females in both treatments that nested earlier in the season losing more mass. We conclude that greater mass loss in control females supports the energetic stress hypothesis in Black-throated Blue Warblers.

Key words: *Dendroica caerulescens*, *energetic stress*, *food limitation*, *reproductive stress*, *wing-loading hypothesis*.