

FEATURE ARTICLES

**BLOOD METABOLITE AND CORTICOSTERONE LEVELS IN BREEDING ADULT
PIED FLYCATCHERS**

MICHAEL KERN^{1,4}, WAYNE BACON², DAVID LONG², AND RICHARD J. COWIE³

¹*Biology Department, The College of Wooster, Wooster, OH 44691*

²*Department of Animal Sciences, Ohio Agricultural Research and Development Center, The Ohio State University, Wooster, OH 44691*

³*School of Biosciences, Cardiff University, P.O. Box 915, Cardiff CF1 3TL, United Kingdom*

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⁴E-mail: mkern@wooster.edu

Abstract. We describe how levels of glucose, triglyceride, fatty acids, glycerol, β -hydroxybutyrate, uric acid, and corticosterone varied in the blood of Pied Flycatchers (*Ficedula hypoleuca*) during three breeding cycles. Data are for egg-laying and incubating females, and adults of both sexes that were caring for nestlings. Egg-laying females had high blood levels of triglyceride, fatty acids, and uric acid. Triglyceride and fatty acids decreased steadily with the laying of each new egg, whereas uric acid increased. This pattern of change in blood lipids would be expected as the number of ovarian follicles that are loaded with yolk precursors and subsequently ovulated diminishes. The rising uric acid level probably reflects increased consumption and subsequent catabolism of dietary proteins. Corticosterone levels were low suggesting that food was readily available for the production of eggs. Incubating females used fat as fuel, most of which was probably of dietary origin given their low blood triglyceride coupled with high fatty acid, glycerol, and corticosterone levels, and stable, high body weight. None of the birds' plasma constituents varied with clutch size or the length of time the females had been incubating. Females rearing broods exhibited low triglyceride and high β -hydroxybutyrate and corticosterone levels. Blood glycerol and free fatty acids rose steadily as a function of nestling age, while glucose and body weight declined. Such a picture suggests that females underwent transient bouts of fasting while providing their chicks with food. Meanwhile males were lighter than their mates and had lower blood metabolite levels, but their blood corticosterone was elevated and correlated with uric acid levels, suggesting that they took more time to forage for themselves than females. Nonetheless, they too lost weight during this stage of the breeding cycle.

Key words: blood metabolites, breeding cycle, corticosterone, *Ficedula hypoleuca*, Pied Flycatcher.