The Condor
Volume 109, Number 2
May 2007 C.E.
Abstracts

SHORT COMMUNICATIONS

HEAT PRODUCTION FROM FORAGING ACTIVITY CONTRIBUTES TO THERMOREGULATION IN BLACK-CAPPED CHICKADEES

SHELDON J. COOPER[1] AND SARAH SONSTHAGEN
Department of Biology, University of Wisconsin Stevens Point, Stevens Point, WI 54481
Manuscript received 21 March 2006; accepted 29 November 2006.
[1] Present address: Department of Biology and Microbiology, University of Wisconsin Oshkosh, Oshkosh, WI 54901. E-mail: cooper@uwosh.edu

Abstract. We measured metabolic heat production ($\dot{H}_m$) of perching and foraging Black-capped Chickadees (*Poecile atricapillus*) to determine if the heat produced during foraging activity, or exercise thermogenesis, could replace thermoregulatory heat production requirements. $\dot{H}_m$ and activity of chickadees in winter were measured at ambient temperatures (T_a) ranging from –11.5º to 15.5ºC. Mean activity amplitude recorded with an activity detector was significantly higher in foraging birds than perching birds. $\dot{H}_m$ did not vary significantly between perching and foraging birds, indicating that heat produced during foraging does substitute for heat produced by shivering for thermoregulation. Evaporative water loss and dry thermal conductance did not vary significantly between perching and foraging chickadees. These results suggest that heat produced from locomotor muscles during foraging activity substitutes for thermoregulatory requirements in glean-and-hang foraging species, such as chickadees, as well as in ground-foraging birds.

Key words: *activity metabolism, Black-capped Chickadee*, *foraging, heat production, oxygen consumption*, Poecile atricapillus.