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FOOD AND ENERGY INTAKE RATES OF WINTERING WHOOPING CRANES FORAGING ON TWO SELECTED FOOD ITEMS

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Abstract: Number, mass, and potential energy of food items consumed by wintering whooping cranes (Grus americana) foraging on blue crab (Callinectes sapidus) and wolfberry (Lycium carolinianum) fruit were estimated and compared between 2 consecutive winter periods. Mass consumed was determined through field observations by quantifying the number of items taken per unit time and the average, or modal, weight of each food item determined from collections. Gross energy intake was determined by calculating the product of mass consumed times gross energy (kJ/g) of each food item. Potential energy retained was calculated by determining metabolizable energy coefficients for each food item determined in studies of captive whooping cranes. Energy retained varied with food item and between different winter seasons. Calculations of energy retained per hour from foraging on wolfberry fruit resulted in 118.4 and 196.8 kJ during winters 1992–93 and 1993–94, respectively. Energy retained per hour from feeding on blue crab was estimated at 843 and 396.8 kJ during the first and second season, respectively. The decrease in blue crab intake rates apparently resulted from a significant decrease in blue crab abundance from 1 year to the next, whereas the increase in wolfberry fruit appeared to be an adjustment to compensate for the decreased crab availability in salt marsh areas. Comparisons of overall energetic intake to energy expenditure (based on time activity budgets) during the 2 winters showed that whooping cranes were consistently in positive energy balance during winter 1992–93 but in energetic deficit during October–December of winter 1993–94.

Key words: Whooping crane, Grus americana, foraging, energy balance, winter, food items, blue crab, wolfberry.