DOI: 10.17242/MVvK_3.37

TIME AND ENERGY CONSTRAINTS IN TUFTED DUCKS (*AYTHYA FULIGULA*) FEEDING ON ZEBRA MUSSELS (DREISSENA POLYMORPHA)

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Diving ducks, like Tufted Duck (*Aythya fuligula*) and Scaup (*A. marila*) are well-known for wintering in large numbers (over 300.000 birds) in freshwater lakes in western Europe while feeding mainly in Zebra Mussels (Dreissena polymorpha). The feeding behaviour and energetic costs were studied in mussel feeding ducks diving under semi-natural conditions. Diving ducks swallow whole mussels, thereby ingesting large amounts of shell and water ('bulk-feeding'). Consequently, the daily mussel consumption was about 3 times the body mass of the birds to meet their daily energy demands. Crushing the shells in the muscular gizzard and probably recovering from heat loss after diving and ingesting cold food masses constrained food intake rates. Typically, the ducks were resting (i.e. not diving) for 15 minutes between foraging bouts of ca. 10 dives to process the ingested food mass. The energetic expenditure of ducks diving for mussels, as measured by the technique of doubly labeled water turnover, was 4 to 5 times their basal metabolic rate (BMR), as opposed to a level of 2 times BMR when resting on the water surface. In conclusion, feeding on Zebra Mussels is extremely time and energy consuming.