FALL STOPOVER DURATION AND ENERGETIC CONDITION OF THREE SANDPIPER SPECIES IN WESTERN MINNESOTA AND EASTERN SOUTH DAKOTA

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ABSTRACT

Differences in body mass and plasma metabolites of shorebirds are associated with fattening during stopover at large and small coastal mudflats, suggesting that differences affecting stopover ecology may occur between large and small wetland sites. In this study, we investigated stopover duration and plasma metabolite levels in shorebirds at several small natural wetlands and a large managed wetland (Big Stone NWR) in eastern South Dakota and western Minnesota. Stopover duration for Least Sandpipers, as measured by radio-tracking, averaged 6.2 ± 0.8 (SE) days at natural wetlands and 9.7 ± 1.6 days at Big Stone NWR. For Pectoral Sandpipers, stopover duration averaged 5.3 ± 1.1 days at natural sites and 6.6 ± 1.1 days at Big Stone NWR. Stopover durations in natural and managed stopover sites did not vary significantly. Mass did not differ significantly for shorebirds in natural and managed sites for any species or age class, suggesting that both natural and managed sites provide similar stopover habitat quality. Analyses of blood metabolites in Least Sandpipers showed a significant positive relationship between plasma triglycerides and energetic condition (mass/wing chord) (n = 38, P < 0.001, R² = 0.48) and a significant negative relationship between plasma β-hydroxybutyrate and energetic condition (n = 28, P < 0.001, R² = 0.33). In addition, plasma creatine kinase activity approached significance with lower levels at higher energetic condition (n = 23, P = 0.20, R² = 0.08). These data suggest that Big Stone NWR and the surrounding natural wetlands serve equally well as stopover sites for sandpipers.