Annual Survivorship Varies Between the Sexes, But Not With Overwinter Latitude, in song sparrows

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Many animals display differential migration, where members of a population breed at the same site but overwinter at different sites. Despite interest in how individual variation in migration affects fitness, the relationship between overwinter latitude and survival has been difficult to study because only surviving individuals that return to the breeding site can be sampled to assess winter latitude. We used stable isotope analysis of winter-grown claw tissue (δ2Hc) as a proxy to examine the relationship between survival and overwinter latitude in differentially-migrating song sparrows (*Melospiza melodia*). We constructed encounter histories for 173 individuals from ten years of breeding-site capture records and fit a modified Cormack-Jolly-Seber model incorporating a hierarchical model of δ2Hc. Analysis was conducted in the Bayesian framework via MCMC sampling, estimating distributions of missing δ2Hc data based on the individual’s previous values, to assess how survival varies with δ2Hc. We found that both survival and capture probability varied by sex, but δ2Hc did not differ by sex and δ2Hc was not linked to survival. This finding may help to explain the maintenance of differential migration in this population of song sparrows.