The Condor
Volume 107, No. 3
August 2005 C.E.
Abstracts

FEATURE ARTICLES

SURVIVAL OF WESTERN SANDPIPER BROODS ON THE YUKON-KUSKOKWIM DELTA, ALASKA

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Abstract. The rate of chick growth in high-latitude breeding shorebirds is rapid, but little is known about the effect of chick mass, growth, and brood movements on subsequent brood survival. To address these topics, we monitored chick growth patterns, daily brood movements, and survival of Western Sandpipers (*Calidris mauri*) on the Yukon-Kuskokwim Delta, Alaska. We assessed the effect of chick age, mass, and hatch date on brood survival using Program MARK. We mapped brood locations daily, and compared brood movement patterns between successful and unsuccessful broods. Younger chicks survived at lower rates and moved shorter distances than older chicks. The overall probability of one or more chicks from a brood surviving to 15 days of age was 0.73 ± 0.05 SE. Brood survival declined seasonally, and broods with heavier chicks survived at higher rates than those with lighter chicks. On average, successful broods fledged 1.7 ± 0.1 SE chicks. Rate of chick growth was intermediate between those of high arctic and temperate-breeding shorebirds, and chick mass at hatching declined seasonally. Western Sandpiper brood survival was lowest when chicks were young, spatially clumped, and unable to maintain homeothermy, probably because young chicks were more vulnerable to both complete depredation events and extreme weather. Our data suggest that larger, older chicks are able to avoid predators by being spatially dispersed and highly mobile; thermal independence, achieved after approximately day five, enables chicks to better endure prolonged periods of cold and low food availability.

Key words: *Alaska, brood movement, brood survival,* Calidris mauri*, chick growth, chick mass, Western Sandpiper.*