

Nest site selection in arctic-breeding shorebirds: Effects of habitat, social factors, and experience

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Abstract

Nest site selection in birds is driven by proximate and ultimate factors that maximize fitness, including a location and structure that offers safety from predators, a favorable nest microclimate, proximity to food resources for adults and young, and social organizations with neighboring con- and heterospecifics. Furthermore, individual birds can learn from experience and modify nest site selection over their lifetimes. We investigated how these factors influenced nest site selection in six shorebird species that breed on the Arctic tundra around Barrow, Alaska. First, we developed models to examine nest site selection patterns as they relate to habitat and social variables for each species. In a second analysis, we developed models explaining breeding dispersal by male and female Dunlin (*Calidris alpina*), and related hatching success to mate and site fidelity. Results indicated that shorebird nest site selection is not random, and all species studied select nest sites on the basis of both habitat and social cues. We also found that divorce influences breeding dispersal in female Dunlin, and territory-faithful males experience greater hatching success than those that change territories. We provide habitat models that may be used to predict probability of nest site selection in other locations of the Arctic Coastal Plain of Alaska, and offer insights of how shorebirds may be affected by climate change.