

# How often do Arctic shorebirds lay replacement clutches?

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In temperate and low latitudes, shorebird species commonly lay multiple clutches in a single breeding season either as replacement clutches or because adults are able to sequentially raise two or more broods. In contrast, non-polyandrous Arctic-breeding shorebirds are generally believed to lay a single clutch per breeding season. We monitored breeding shorebirds in Barrow, Alaska between 2003 and 2006. Over the four years, we found 934 nests of 11 species. Of this total, we documented ten replacement clutches of Dunlin *Calidris alpina* ( $n = 5$ ), Pectoral Sandpiper *Calidris melanotos* ( $n = 1$ ), Semipalmated Sandpiper *Calidris pusilla* ( $n = 2$ ), Red Phalarope *Phalaropus fulicarius* ( $n = 1$ ), and American Golden Plover *Pluvialis dominica* ( $n = 1$ ). The identification of replacement clutches relies on observing individually marked birds at nests whose period of activity did not overlap. Finding nests and timely banding of birds, two essential steps in identifying replacement clutches, may be complicated by high rates of nest mortality, study plot size and shape, and movement of birds into and out of study plots between nesting attempts. Our results suggested that these factors led to underestimation of the rate of replacement clutch laying in this shorebird community. We discuss factors affecting the propensity of birds to lay replacement clutches, our ability to detect these clutches, and their potential ramifications for monitoring breeding shorebird populations.