

FEATURE ARTICLES

SURVIVAL OF FEMALE LESSER SCAUP: EFFECTS OF BODY SIZE, AGE, AND REPRODUCTIVE EFFORT

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Abstract. In birds, larger females generally have greater breeding propensity, reproductive investment, and success than do smaller females. However, optimal female body size also depends on how natural selection acts during other parts of the life cycle. Larger female Lesser Scaup (*Aythya affinis*) produce larger eggs than do smaller females, and ducklings from larger eggs survive better than those hatching from smaller eggs. Accordingly, we examined patterns of apparent annual survival for female scaup and tested whether natural selection on female body size primarily was stabilizing, a frequent assumption in studies of sexually dimorphic species in which males are the larger sex, or was directional, counteracting reproductive advantages of large size. We estimated survival using mark-recapture methods for individually marked females from two study sites in Canada (Erickson, Manitoba; St. Denis, Saskatchewan). Structurally larger (adults) and heavier (ducklings) females had lower survival than did smaller individuals in Manitoba; no relationship was detected in adults from Saskatchewan. Survival of adult females declined with indices of increasing reproductive effort at both sites; consequently, the cost of reproduction could explain age-related patterns of breeding propensity in scaup. Furthermore, if larger females are more likely to breed than are smaller females, then cost of reproduction also may help explain why survival was lower for larger females. Overall, we found that advantages of large body size of female scaup during breeding or as young ducklings apparently were counteracted by natural selection favoring lightweight juveniles and structurally smaller adult females through higher annual survival.

Key words: *Aythya affinis*, *body size*, *cost of reproduction*, *Lesser Scaup*, *reproductive effort*, *size-selective mortality*, *survival*.