

FEATURE ARTICLES

THE EFFECTS OF AGE AND SEX ON THE APPARENT SURVIVAL OF KENTISH PLOVERS BREEDING IN SOUTHERN TURKEY

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Abstract. Accurate estimates of annual survival are necessary for conservation of threatened species of migratory birds. We studied a large, stable population of Kentish Plovers (*Charadrius alexandrinus*) breeding in southern Turkey (36°43'N, 35°03'E) for five breeding seasons (1996-2000). Kentish Plovers of Eurasia and the conspecific Snowy Plover of North America are a species of conservation concern. We captured 2077 birds, and used time since marking models to estimate apparent survival (ϕ) and encounter rates (p) for juvenile and adult plovers. Return rates of young banded in their natal year were low (4%, 52 of 1176) and most philopatric young were recaptured as yearlings (69%, 36 of 52). Low return rates of shorebird young can be attributed to post-hatching mortality if apparent survival rates are ranked: chicks < fledglings = adults. We were unable to separate mortality from dispersal because apparent survival was ranked: chicks ($\phi^1 = 0.08$) < fledglings ($\phi^1 = 0.15$) < adults after banding ($\phi^1 = 0.59$) < adults in later intervals ($\phi^{2+} = 0.64$). Time since marking models gave improved estimates of the apparent survival of adults that were higher than return rates in other populations of Kentish Plovers, but lower than estimates of apparent survival for other *Charadrius* plovers. Sex-biased mating opportunities in Kentish Plovers were not explained by biased sex ratios at hatching or differential apparent survival among adults. Instead, male-biased adult sex ratios were explained, in part, by differential survival of juveniles and by higher encounter rates among adult males ($p = 0.84$) than females ($p = 0.74$). Our baseline estimates of apparent survival will assist assessments of population viability for Kentish and Snowy Plovers throughout their geographic range.

Key words: age at maturity, *Charadrius alexandrinus*, demography, mark-recapture, sex ratio, Snowy Plover.