Breeding ecology of the Kentish Plover, *Charadrius alexandrinus*, in the Farasan Islands, Saudi Arabia

(Aves: Charadriiformes)

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Abstract. The breeding behaviour and ecology of the Kentish Plover, *Charadrius alexandrinus* Linnaeus, were investigated in three consecutive years in the Farasan Islands, Saudi Arabia, where the species breeds either under halophytic bushes or in exposed sites where ground temperatures may reach 60°C. Three aspects make the Farasan Island population distinct from most other Kentish Plover populations studied to date. First, incubating plovers appear to prefer nesting under halophytic bushes rather than in exposed sites, since 65.1% of nests were under bushes, whereas 34.9% of nests were in fully exposed sites. Second, both mate fidelity and nest-site fidelity were high, and pairs stayed within short distances from their previous nest sites. Third, brood desertion was very rare in the Farasan Islands – unlike most other populations where the female or the male deserts the brood shortly after hatching of the eggs – since in 95% of broods both parents attended the chick(s) (n = 153 broods). We suggest that these social traits are driven by the extreme hot environment that requires parental cooperation, although adaptation to island-dwelling and corresponding changes in life-history traits cannot be ruled out.

Key words. Parental cooperation, brood desertion, mate fidelity, nest-site fidelity.

Introduction

The Kentish Plover, *Charadrius alexandrinus* Linnaeus, is a small ground-nesting shorebird (body mass is about 42 g) which has a distinct diverse breeding system among birds (SZÉKELY et al. 2006). Both parents incubate the eggs, although after the eggs hatch one parent (usually the female) may desert the family and seek a new mate. Therefore, variation in both mating system (monogamy, polygyny and polyandry) and brood care (biparental, male-only and female-only) may all occur within a single population (LESSELLS 1984, SZÉKELY & CUTHILL 1999, KOSZTALÁNYI & SZÉKELY 2002, SZÉKELY et al. 2006, AMAT et al. 2008). In addition, breeding systems tend to vary between populations and this may be caused genetically (e.g. gene frequencies are different between populations) and/or in response to the local environment where the plovers breed. Recent studies have conjectured that several environmental factors can influence the distribution of care types in Kentish Plovers. It has been suggested that biparental care is associated with hot ambient temperatures, competition between plover families and a high predation risk on chicks (SZÉKELY & CUTHILL 1999, SZÉKELY et al. 1999, KOSZTOLÁNYI et al. 2006, AMAT et al. 2008, ALRASHIDI et al. 2010). Understanding the causes of this variation in breeding systems both across and within Kentish Plover populations is necessary to predict how breeding systems (*sensu* KOSZTOLÁNYI et al. 2006) may respond to environmental changes.

Kentish Plovers usually nest in open habitats, although in some populations they also uti-

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