

Supplementary material

Appendix 1

Sites

Costa Rica sites (Tropics) included sandy beaches in Esterillos ($9^{\circ} 31' 44''$ N, $84^{\circ} 28' 25''$ W), a fish farm in Chomes ($10^{\circ} 02' 14''$ N, $84^{\circ} 54' 21''$ W), and salt ponds and fish farms in Colorado de Abangares ($10^{\circ} 10' 39''$ N, $85^{\circ} 06' 17''$ W). Sites in southern Spain (Mediterranean) included salt ponds in Odiel ($37^{\circ} 08' 20''$ N, $6^{\circ} 52' 22''$ W) and Bahía de Cádiz ($36^{\circ} 30' 39''$ N, $6^{\circ} 09' 22''$ W), a fish farm and natural wetlands in Doñana Natural Space ($36^{\circ} 58' 41''$ N, $6^{\circ} 20' 27''$ W), Fuente de Piedra lake ($37^{\circ} 06' 50''$ N, $4^{\circ} 46' 07''$ W) and the mouth of Guadalhorce river ($36^{\circ} 40' 21''$ N, $4^{\circ} 27' 02''$ W).

Table A1. Maximum temperatures (mean \pm SD) reached by dark (n = 5) and light quail eggs (n= 6) in natural shorebird nests (n = 138), exposed to direct solar radiation during 5-min periods in tropical and mediterranean sites.

	Quail egg colour	Mediterranean (n=92)	Tropics (n=46)
Max.Egg. Temp. (°C)	Light	33.60 \pm 5.05	38.35 \pm 2.88
	Dark	34.54 \pm 4.93	38.69 \pm 3.00
	Mean	34.07 \pm 4.98	38.52 \pm 2.92
Max. Env. Temp. (°C)		33.60 \pm 5.08	36.74 \pm 2.64

Table A2. GLMM summary table of the effect of maximum environmental temperature (Max. Env. Temp.), egg colour (Type, dark or light) and region (Mediterranean or Tropics) on maximum temperature reached by the quail eggs when exposed to direct sunlight during 5-min periods in shorebird nests. In the model (Max. Egg Temp. ~ Max. Env. Temp + Region + Type) the nest was taken as a random factor. R^2 marginal = 0.81; R^2 conditional = 0.97

	Value	Std. Error	DF	t- value	p-value
(Intercept)	4.40	1.92	68	2.29	0.0249
Max. Env. Temp.	0.87	0.06	66	15.47	<0.001
Type	0.74	0.13	68	5.55	<0.001
Region	1.71	0.55	66	3.10	0.0028

Figure A1. Pictures of Kentish plover nests, of our dataset, showing the lowest (A) and highest (B) eggs in terms of proportion of spottiness.



Figure A2. Pictures illustrating differences in eggshell colour between Kentish and Wilson's plovers.



Figure A3. Differences in RGB values (mean \pm SE) between the background and the spots ($\Delta\text{RGB}_{\text{BACK-SPOT}}$) in eggshells of plovers and stilts. Differences were lower for mediterranean (Kentish plover and black-winged stilt, black dots) than for tropical shorebirds (Wilson's plover and black-necked stilt, grey dots).

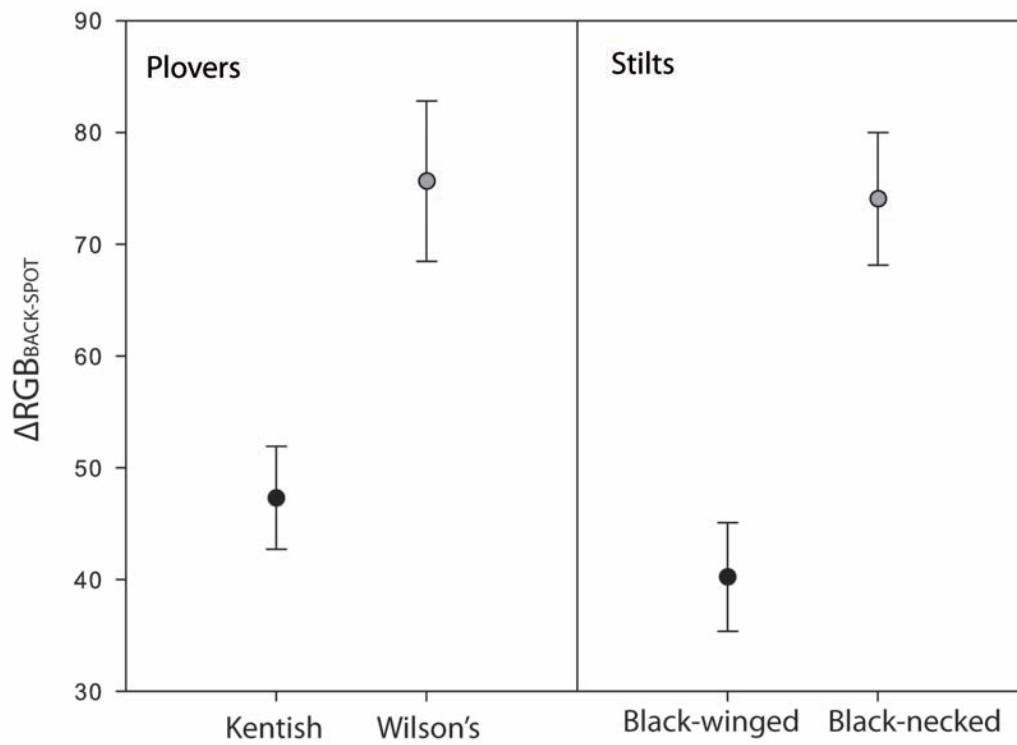


Figure A4. RGB values of the eggshell spots and background, and proportion of spottiness (expressed as proportion of the eggshell surface covered by spots), of light (n = 6) and dark (n = 5) quail eggs used to record egg temperatures in natural shorebird nests.

