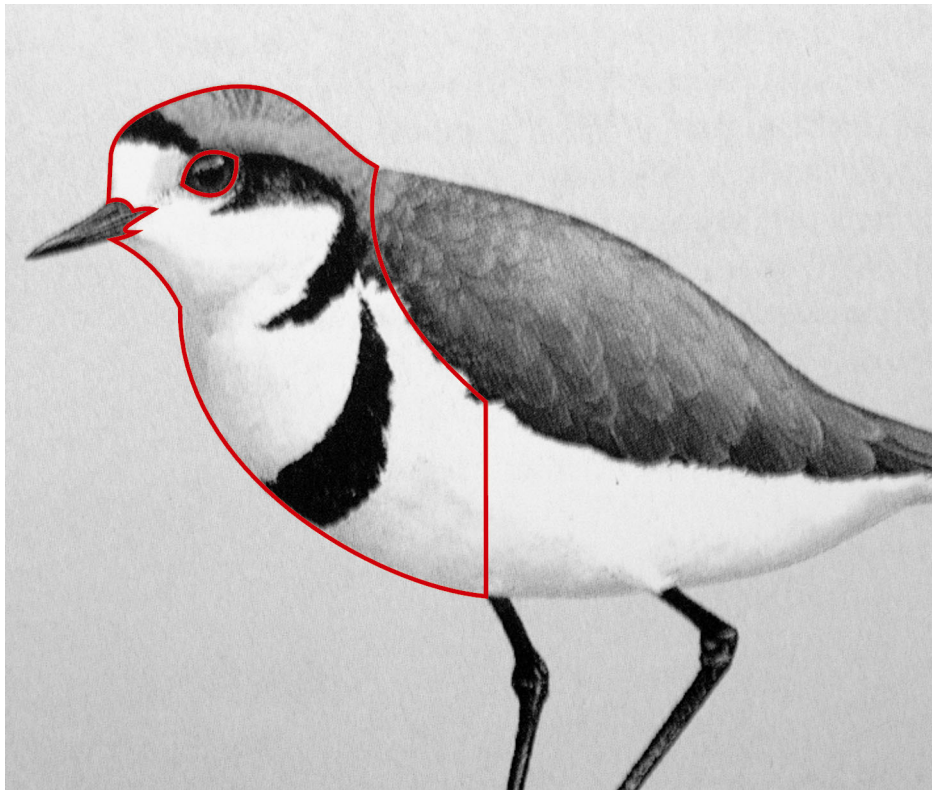


These are electronic appendices to the paper by Bókony *et al.* 2003 Melanin-based plumage colouration and flight displays in plovers and allies. *Proc. R. Soc. Lond. B* **270**, 2491–2497. (DOI 10.1098/rspb.2003.2506.)

Electronic appendices are refereed with the text. However, no attempt is made to impose a uniform editorial style on the electronic appendices.

Electronic Appendix A. Definition of the frontal body region on colour plate images and photographs. Melanisation was measured as the proportion of black area relative to the total area of the frontal body (i.e. head, neck and breast bordered by the lower edge of the wing and a vertical line drawn from the base of the leg; as indicated by the red line).



Electronic Appendix B. Data used in the analyses and data sources. See text for explanations of the scores of male display, breeding density, substrate colour and vegetation cover.

Species	Melanisation		Male display	Breeding density	Substrate colour	Vegetation cover	References ¹	
	Male	Female					Image	Data
<i>Anarhynchus frontalis</i>	0.078	0.061	1	1	3	1	6	5, 6, 9
<i>Burhinus bistriatus</i>	0.040	0.040		1	2	4	5	5, 9
<i>Burhinus capensis</i>	0.000	0.000		1	2	4	9	5, 8, 9
<i>Burhinus giganteus</i>	0.107	0.107		1	2	2	9	5, 9
<i>Burhinus grallarius</i>	0.000	0.000	1	1	3	4	5	5, 6, 9, 11
<i>Burhinus oediconemus</i>	0.000	0.000	1	1	2	2	5	5, 9, 10
<i>Burhinus recurvirostris</i>	0.090	0.090		2	3	2	9	5, 9
<i>Burhinus senegalensis</i>	0.000	0.000	1	2	1	1	5	5, 9, 10
<i>Burhinus superciliaris</i>	0.016	0.016		1	4	2	9	5, 9
<i>Burhinus vermiculatus</i>	0.000	0.000		1	2	4	9	5, 8, 9
<i>Charadrius alexandrinus</i>	0.104	0.000	2	2	1	1	5	9, 10, 11
<i>Charadrius alticola</i>	0.076	0.026		1	2	2	5	5, 9
<i>Charadrius asiaticus</i>	0.015	0.000	2	2	2	2	5	9, 10
<i>Charadrius bicinctus</i>	0.101	0.057	2	1	3	2	5	5, 6, 9
<i>Charadrius collaris</i>	0.160	0.092			1	1	5	5, 9, 10, 11
<i>Charadrius dubius</i>	0.239	0.239	2	2	3	1	5	11
<i>Charadrius falklandicus</i>	0.212	0.155	3	1	2	2	5	5, 9
<i>Charadrius forbesi</i>	0.099	0.099		1	3	1	9	5, 9
<i>Charadrius hiaticula</i>	0.288	0.206	2	2	3	1	5	5, 7, 9, 10
<i>Charadrius javanicus</i>	0.014	0.000					9	10, 9
<i>Charadrius leschenaultii</i>	0.086	0.025	2	1	1	2	5	5, 8, 9
<i>Charadrius marginatus</i>	0.029	0.000		1	1	1	9	5, 9
<i>Charadrius melodus</i>	0.152	0.000		2	2	2	5	9
<i>Charadrius modestus</i>	0.093	0.093		1	3	2	5	9
<i>Charadrius mongolus</i>	0.143	0.000			3	1	5	5, 9
<i>Charadrius montanus</i>	0.024	0.024	1	2	3	2	5	2, 5, 7, 9
<i>Charadrius novaeseelandiae</i>	0.333	0.260	3		3	5	5	6, 9
<i>Charadrius obscurus</i>	0.000	0.000	1	1	2	2	5	5, 6, 9
<i>Charadrius pallidus</i>	0.026	0.000		1	1	1	5	9, 10
<i>Charadrius pecuarius</i>	0.110	0.110	1	2	2	1	5	5, 9
<i>Charadrius peronii</i>	0.108	0.000		1	1	1	9	5, 9
<i>Charadrius placidus</i>	0.126	0.126			3	1	5	5, 9
<i>Charadrius rubricollis</i>	0.383	0.383	1	1	2	1	5	5, 6
<i>Charadrius ruficapillus</i>	0.061	0.061	2	2	2	1	5	5, 6, 9
<i>Charadrius sanctaehelenae</i>	0.068	0.068		1	2	3	5	9, 10
<i>Charadrius semipalmatus</i>	0.294	0.293		2	3	1	5	5, 9
<i>Charadrius thoracicus</i>	0.161	0.161		2	2	2	9	5, 8, 9
<i>Charadrius tricollaris</i>	0.153	0.153		1	3	1	9	6, 9
<i>Charadrius veredus</i>	0.026	0.000		1	2	2	5	5, 9, 10
<i>Charadrius vociferus</i>	0.160	0.060			3	2	9	5, 9
<i>Charadrius wilsonia</i>	0.170	0.000		3	2	2	5	9
<i>Chionis alba</i>	0.000	0.000	1	1	2	5	9	6, 9, 11
<i>Chionis minor</i>	0.000	0.000	1	1	2	5	9	6, 9
<i>Cladorhynchus leucocephalus</i>	0.038	0.038	1	5	1	1	5	5, 6
<i>Dromas ardeola</i>	0.000	0.000	1	5	1	5	5	5, 9, 11
<i>Elseyornis melanops</i>	0.194	0.194	2	1	3	1	5	5, 6, 9

<i>Erythrogonys cinctus</i>	0.676	0.676	2	2	1	5	5	5, 6, 9
<i>Eudromias morinellus</i>	0.042	0.078		1	3	2	9	9, 10, 11
<i>Haematopus ater</i>	1.000	1.000			3	1	5	5, 9
<i>Haematopus bachmani</i>	1.000	1.000		2	5	1	5	5, 9
<i>Haematopus finschi</i>	0.639	0.639	3		3	2	5	5, 6
<i>Haematopus fuliginosus</i>	1.000	1.000	3		3	1	5	5, 6, 9
<i>Haematopus leucopodus</i>	0.635	0.635	1		2	2	5	5, 9
<i>Haematopus longirostris</i>	0.527	0.527	3		3	2	5	5, 6, 9
<i>Haematopus maedewaldoi</i>	1.000	1.000					5	5, 9
<i>Haematopus moquini</i>	1.000	1.000	3	5	3	1	5	5, 9
<i>Haematopus ostralegus</i>	0.681	0.681	3	1	3	2	5	5, 9, 10, 11
<i>Haematopus palliatus</i>	0.635	0.635			2	1	5	5, 9
<i>Haematopus unicolor</i>	1.000	1.000			2	1	9	5, 6, 9
<i>Himantopus himantopus</i>	0.000	0.010	2	3	2	2	5	5, 6, 9, 10, 11
<i>Himantopus leucocephalus</i>	0.060	0.060		3	2	2	9	9
<i>Himantopus melanurus</i>	0.122	0.186		3	2	2	5	9
<i>Himantopus mexicanus</i>	0.265	0.269		3	2	2	9	9
<i>Himantopus novaezelandiae</i>	1.000	1.000		1	3	4	9	5, 9
<i>Ibidorhyncha struthersii</i>	0.213	0.213	1	1	3	1	5	5, 9
<i>Oreopholus ruficollis</i>	0.012	0.012			1	1	5	6, 9
<i>Peltohyas australis</i>	0.155	0.155		2	2	2	5	6, 9
<i>Phegornis mitchellii</i>	0.410	0.410		1	3	3	5	6, 9
<i>Pluvialis apricaria</i>	0.263	0.064	2	1	3	3	9	4, 5, 10, 11
<i>Pluvialis dominica</i>	0.687	0.687			4	2	5	1, 9, 10
<i>Pluvialis fulva</i>	0.490	0.490			4	3	5	9, 10
<i>Pluvialis squatarola</i>	0.430	0.181	2	1	4	2	9	1, 9, 10
<i>Pluvianus aegyptius</i>	0.352	0.352		1	1	1	9	5, 9
<i>Recurvirostra americana</i>	0.000	0.000	1	4	3	2	5	9, 10
<i>Recurvirostra andina</i>	0.000	0.000			2	2	5	9
<i>Recurvirostra avosetta</i>	0.153	0.153	1	3	2	1	5	9, 10, 11
<i>Recurvirostra novaehollandiae</i>	0.000	0.000	1	2	2	2	5	6, 9
<i>Vanellus albiceps</i>	0.015	0.015		1	2	1	5	8, 9
<i>Vanellus armatus</i>	0.773	0.773	2	1	2	2	5	5, 9, 10
<i>Vanellus cayanus</i>	0.359	0.359			1	1	5	9
<i>Vanellus chilensis</i>	0.397	0.397		3	3	3	5	3, 5, 9
<i>Vanellus cinereus</i>	0.072	0.072			4	4	5	5, 9
<i>Vanellus coronatus</i>	0.153	0.153	3	3	3	4	5	5, 8, 9
<i>Vanellus crassirostris</i>	0.490	0.490		1	4	3	5	5, 8, 9
<i>Vanellus duvaucelii</i>	0.189	0.189			2	1	5	5
<i>Vanellus gregarius</i>	0.356	0.171		3	2	3	5	5, 9, 10
<i>Vanellus indicus</i>	0.436	0.436	3	1	4	4	5	5, 10
<i>Vanellus leucurus</i>	0.000	0.000		3	3	3	5	5, 9, 10
<i>Vanellus lugubris</i>	0.033	0.033	2	3	4	4	5	5, 8, 9
<i>Vanellus macropterus</i>	0.420	0.420					9	9
<i>Vanellus malabaricus</i>	0.145	0.145			2	3	5	5, 9
<i>Vanellus melanocephalus</i>	0.184	0.184			2	4	9	5, 9
<i>Vanellus melanopterus</i>	0.065	0.065		1	3	2	5	5, 8, 9
<i>Vanellus miles</i>	0.280	0.280	2	1	3	3	5	5, 6, 9
<i>Vanellus resplendens</i>	0.000	0.000			3	3	5	5, 9

<i>Vanellus senegallus</i>	0.039	0.039		1	2	3	5	8, 9
<i>Vanellus spinosus</i>	0.645	0.645	2	2	2	2	5	5, 9, 10, 11
<i>Vanellus superciliosus</i>	0.053	0.053	1		3	2	5	5, 9
<i>Vanellus tectus</i>	0.311	0.311		2	2	4	5	9, 10
<i>Vanellus tricolor</i>	0.486	0.486	2	1	2	3	5	5, 6, 9
<i>Vanellus vanellus</i>	0.402	0.323	3	3	3	3	9	9, 10, 11

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Electronic Appendix C. Taxon-pairs that differ in (a) male display, (b) breeding density, (c) substrate colouration, and (d) vegetation cover of the nest site.

(a)	Ground display	Aerial display
	<i>Charadrius obscurus</i>	<i>Charadrius leschenaultii</i>
	<i>Charadrius pecuarius</i>	<i>Charadrius hiaticula</i>
	<i>Charadrius montanus</i>	<i>Charadrius falklandicus</i>
	<i>Charadrius rubricollis</i>	<i>Charadrius dubius</i>
	<i>Anarhynchus frontalis</i>	<i>Pluvialis apricaria, P. squatarola</i>
	<i>Vanellus superciliosus</i>	<i>Erythrogonys cinctus</i>
	<i>Cladorhynchus leucocephalus</i>	<i>Himantopus himantopus</i>
	<i>Haematopus leucopus</i>	<i>Haematopus fuliginosus</i>
	<i>Ibidorhyncha struthersii</i>	<i>Haematopus longirostris</i>
	<i>Chionis alba, Chionis minor</i>	<i>Charadrius novaeseelandiae</i>

(b)	Less colonial	More colonial
	<i>Charadrius falklandicus</i>	<i>Charadrius montanus</i>
	<i>Charadrius bicinctus</i>	<i>Charadrius asiaticus</i>
	<i>Charadrius veredus, C. alticola, C. palliatus</i>	<i>Peltohyas australis</i>
	<i>Charadrius tricollaris</i>	<i>Charadrius hiaticula</i>
	<i>Charadrius rubricollis</i>	<i>Charadrius pecuarius</i>
	<i>Charadrius peronii</i>	<i>Charadrius dubius</i>
	<i>Charadrius modestus</i>	<i>Charadrius wilsonia</i>
	<i>Anarhynchus frontalis</i>	<i>Erythrogonys cinctus</i>
	<i>Vanellus armatus</i>	<i>Vanellus spinosus</i>
	<i>Vanellus indicus</i>	<i>Vanellus leucurus</i>
	<i>Vanellus albiceps</i>	<i>Vanellus vanellus</i>
	<i>Vanellus senegallus</i>	<i>Vanellus coronatus</i>
	<i>Vanellus tricolor</i>	<i>Vanellus tectus</i>
	<i>Recurvirostra novaehollandiae</i>	<i>Recurvirostra avocetta</i>
	<i>Recurvirostra americana</i>	<i>Cladorhynchus leucocephalus</i>
	<i>Ibidorhyncha struthersii</i>	<i>Himantopus mexicanus</i>
	<i>Haematopus ostralegus</i>	<i>Haematopus moquini</i>
	<i>Burhinus oedicephalus</i>	<i>Burhinus senegalensis</i>
	<i>Himantopus novaezelandiae</i>	<i>Himantopus himantopus</i>
	<i>Burhinus capensis</i>	<i>Burhinus recurvirostris</i>
	<i>Chionis alba, Chionis minor</i>	<i>Dromas ardeola</i>

(c)	Lighter substrate	Darker substrate
	<i>Charadrius alexandrinus</i>	<i>Charadrius ruficapillus</i>
	<i>Charadrius asiaticus</i>	<i>Charadrius bicinctus</i>
	<i>Charadrius collaris</i>	<i>Charadrius rubricollis</i>
	<i>Charadrius falklandicus</i>	<i>Charadrius montanus</i>
	<i>Charadrius leschenaultii</i>	<i>Charadrius obscurus</i>

Charadrius marginatus
Charadrius melodus
Charadrius palliatus
Charadrius thoracicus
Charadrius sanctahelenae
Charadrius peronii
Charadrius wilsonia
Erythrogonys cinctus
Oreopholus ruficollis
Peltohyas australis
Pluvialis apricaria
Vanellus albiceps
Vanellus armatus, V. spinosus
Vanellus cayanus
Vanellus gregarius
Vanellus malabricus
Vanellus miles
Vanellus senegallus
Burhinus giganteus
Burhinus bistratus
Burhinus senegalensis
Haematopus ater
Haematopus leucopodus
Haematopus palliatus
Haematopus unicolor
Himantopus mexicanus
Recurvirostra andina
Himantopus himantopus
Dromas ardeola

Charadrius tricollaris
Charadrius semipalmatus
Charadrius alticola
Charadrius hiaticula
Charadrius vociferus
Charadrius dubius
Charadrius modestus
Anarhynchus frontalis
Elsayornis melanops
Charadrius forbesi
Pluvialis squatarola
Vanellus vanellus
Vanellus cinereus
Vanellus superciliosus
Vanellus lugubris
Vanellus melanopterus
Vanellus crassirostris
Vanellus coronatus
Burhinus superciliaris
Burhinus recurvirostris
Burhinus oedicephalus
Haematopus bachmani
Haematopus fuliginosus
Haematopus finschi
Haematopus ostralegus
Ibidorhyncha struthersii
Recurvirostra americana
Himantopus novaeseelandiae
Chionis alba, Chionis minor

(d) More open nest site

More covered nest site

Charadrius mongolus
Charadrius alexandrinus, C. ruficapillus
Charadrius palliatus
Charadrius placidus
Charadrius marginatus
Charadrius hiaticula
Charadrius vociferus
Charadrius semipalmatus
Charadrius dubius
Eudromias morinellus
Anarhynchus frontalis
Oreopholus ruficollis
Vanellus melanopterus

Charadrius bicinctus
Charadrius falklandicus, C. montanus
Charadrius veredus
Charadrius obscurus
Charadrius leschenaultii
Charadrius thoracicus
Charadrius sanctahelenae
Charadrius melodus
Charadrius wilsonia
Phegornis mitchelli
Charadrius modestus
Erythrogonys cinctus
Vanellus malabricus

Vanellus gregarius
Vanellus armatus, V. spinosus
Vanellus leucurus
Vanellus albiceps
Vanellus senegallus
Vanellus tricolor
Vanellus cayanus
Pluvialis dominica
Pluvialis squatarola
Elseyornis melanops
Himantopus himantopus
Recurvirostra avocetta
Himantopus mexicanus
Ibidorhyncha struthersii
Haematopus unicolor
Haematopus palliatus
Haematopus fuliginosus
Burhinus senegalensis
Burhinus recurvirostris
Burhinus superciliaris, B. giganteus
Pluvianus aegyptius

Vanellus lugubris
Vanellus cinereus
Vanellus indicus
Vanellus vanellus
Vanellus coronatus
Vanellus tectus
Vanellus superciliosus
Pluvialis fulva
Pluvialis apricaria
Charadrius novaeseelandiae
Himantopus novaezelandiae
Recurvirostra novaehollandiae
Cladorhynchus leucocephalus
Haematopus longirostris
Haematopus ostralegus
Haematopus finschi
Haematopus leucopodus
Burhinus oedicephalus
Burhinus capensis
Burhinus bistriatus
Chionis alba, Chionis minor
