

**Appendix A from V. Bókony et al., “Stress Response and the Value of Reproduction: Are Birds Prudent Parents?”**  
**(Am. Nat., vol. 173, no. 5, p. 000)**

**Data on Glucocorticoid Hormones and Life-History Variables and Their Sources**

**Table A1**  
 Data on corticosterone (CORT) and life-history variables used in the study

Species	Baseline CORT (ng mL <sup>-1</sup> )		Peak CORT (ng mL <sup>-1</sup> )		Brood value <sup>a</sup>	Sex difference in parental care (male – female)	Breeding body mass (g)	Breeding latitude (°)	References
	Male	Female	Male	Female					
<i>Aethia pusilla</i>	6.6 <sup>b</sup>		36.1 <sup>b</sup>		–.97	0	85.0	56.7	Poole 2005; Benowitz-Fredericks et al. 2008
<i>Amphispiza bilineata</i>	4.7	4.7	15.3	15.3	. . .	–5	13.6	33.3	Wingfield et al. 1992; Poole 2005
<i>Aphelocoma coerulescens</i>	3.9	4.6	31.3	28.0	–.68	–4	76.0	27.1	Schoech et al. 1997; Poole 2005
<i>Calcarius lapponicus</i>	9.2	9.5	38.3	32.5	–.26	–5	27.0	69.3	Wingfield et al. 1994a; Astheimer et al. 1995; Romero et al. 1998b; Romero and Romero 2002; Poole 2005
<i>Calcarius mccownii</i>	4.9	7.1	19.9	20.7	. . .	–3	25.2	47.3	Lynn et al. 2003; Poole 2005
<i>Calcarius ornatus</i>	5.4	5.4	20.9	21.2	. . .	–5	20.3	47.4	Lynn et al. 2003; Poole 2005
<i>Calcarius pictus</i>	8.2	4.0	15.5	32.4	. . .	–5	35.4	68.4	Meddle et al. 2003; Poole 2005
<i>Calidris canutus</i>	24.9	24.9	90.2	90.2	–.80	2	137.0	82.3	Reneerkens et al. 2002; Poole 2005
<i>Calidris mauri</i>	31.0	22.1	73.1	99.2	–.38	2	27.2	64.3	O’Reilly and Wingfield 2001; Poole 2005
<i>Calidris melanotos</i>	12.1	8.1	59.3	44.8	. . .	–6	81.4	71.2	O’Reilly and Wingfield 2001; Poole 2005
<i>Calidris pusilla</i>	21.1	22.4	70.0	74.0	–.38	2	26.0	68.5	O’Reilly and Wingfield 2001; Poole 2005
<i>Campylorhynchus brunneicapillus</i>	4.3	4.3	16.2	16.2	–.63	–6	37.2	33.3	Wingfield et al. 1992; Poole 2005
<i>Carduelis flammea</i>	14.3	6.6	40.3	28.4	–.51	–6	13.8	69.4	Wingfield et al. 1994b, 1995a; Romero et al. 1998c; Poole 2005
<i>Catharacta macormicki</i>	9.8	6.2	. . .	. . .	–1.22	0	1,349.0	–66.4	del Hoyo et al. 1996; O. Chastel and F. Angelier, unpublished data

Table A1 (Continued)

Species	Baseline CORT (ng mL <sup>-1</sup> )		Peak CORT (ng mL <sup>-1</sup> )		Brood value <sup>a</sup>	Sex difference in parental care (male – female)	Breeding body mass (g)	Breeding latitude (°)	References
	Male	Female	Male	Female					
<i>Cettia diphone</i>	52.2	. . .	86.9	. . .	. . .	–9	16.6	37.5	Wingfield et al. 1995b; Wada et al. 1999; Wada and Shimizu 2004; del Hoyo et al. 2006
<i>Dendroica petechia</i>	22.3	18.6	86.1	56.2	–.18	–6	9.8	48.8	Wilson and Holberton 2004; Poole 2005
<i>Diomedea chrysostoma</i>	9.3	9.3	. . .	. . .	–1.09	0	3,375.0	–54.0	Hector and Harvey 1986; del Hoyo et al. 1992; Warham 1996
<i>Diomedea exulans</i>	6.7	5.7	. . .	. . .	–.99	0	9,287.5	–46.0	del Hoyo et al. 1992; Warham 1996; Angelier et al. 2006, 2007c
<i>Diomedea melanophris</i>	4.3	4.5	. . .	. . .	–1.02	0	4,000.0	–52.0	Hector and Harvey 1986; del Hoyo et al. 1992; Warham 1996; Angelier et al. 2007a
<i>Empidonax oberholseri</i>	30.3	27.8	43.1	43.8	–.36	–6	20.7	38.0	Pereyra and Wingfield 2003; Poole 2005
<i>Ficedula hypoleuca</i>	21.4	28.4	26.3	28.7	–.30	–6	11.8	56.8	Silverin and Wingfield 1982, 1998; Silverin 1986, 1993, 1998; Perrins 1998, Eeva et al. 2005; Kern et al. 2007
<i>Fregata magnificens</i>	21.3	12.7	. . .	. . .	. . .	–4	1,579.3	–49.0	Poole 2005; O. Chastel, C. Barbraud, H. Lormée and H. Weimerskirch, unpublished data
<i>Halobaena caerulea</i>	19.8 <sup>b</sup>		. . .	. . .	–.98	0	200.0	–49.0	del Hoyo et al. 1992; O. Chastel and F. Angelier, unpublished data
<i>Histrionicus histrionicus</i>	10.2	6.4	45.4	30.5	–.65	–6	597.5	47.3	Perfito et al. 2002; Poole 2005
<i>Junco hyemalis</i>	15.4	9.7	47.9	26.6	–.60	–6	19.6	44.9	Schoech et al. 1999; Bears et al. 2003; Poole 2005
<i>Lagopus mutus</i>	23.0	9.9	68.9	35.7	–.26	–5	585.0	68.4	Wingfield et al. 1995a; Perrins 1998; Poole 2005
<i>Lichenostomus penicillatus</i>	15.0	. . .	49.6	. . .	. . .	. . .	19.4	–31.6	Buttemer and Astheimer 2000; Higgins et al. 2001
<i>Megadyptes antipodes</i>	.7	.7	14.7	14.7	–.87	0	5,200.0	–45.6	del Hoyo et al. 1992; Ellenberg et al. 2007
<i>Melospiza melodia</i>	18.5	. . .	103.6	. . .	–.68	–6	24.2	51.2	Wingfield 1984; Poole 2005

Table A1 (Continued)

Species	Baseline CORT (ng mL <sup>-1</sup> )		Peak CORT (ng mL <sup>-1</sup> )		Brood value <sup>a</sup>	Sex difference in parental care (male – female)	Breeding body mass (g)	Breeding latitude (°)	References
	Male	Female	Male	Female					
<i>Mimus polyglottos</i>	4.0	4.0	29.4	29.4	. . .	–5	48.5	34.2	Sims and Holberton 2000; Poole 2005
<i>Pagodroma nivea</i>	6.0	6.0	52.5	52.5	–1.33	0	350.0	–66.4	del Hoyo et al. 1992; Warham 1996; Angelier 2007b; O. Chastel, unpublished data
<i>Parabuteo unicinctus</i>	. . .	. . .	33.8	32.9	–.92	–2	832.8	32.4	Mays et al. 1991; Poole 2005
<i>Parus caeruleus</i>	7.2	7.2	21.2	21.2	–.54	–6	10.6	42.9	Perrins 1998; Müller et al. 2006; Landys et al. 2007
<i>Parus major</i>	19.9	. . .	. . .	. . .	–.50	–6	18.5	51.1	Perrins 1998; Eeva et al. 2003; van Duyse et al. 2004
<i>Passer domesticus</i>	4.3	4.6	34.0	32.4	–.81	–2	28.5	37.1	Perrins 1998; Breuner and Orchinik 2001; Martin et al. 2005; Poole 2005; Romero et al. 2006; Lendvai et al. 2007; Lendvai and Chastel 2008
<i>Passerculus sandwichensis</i>	17.6	23.1	73.5	61.7	–.52	–7	19.5	68.4	Wingfield et al. 1995a; Poole 2005
<i>Passerina cyanea</i>	21.6	22.1	73.0	53.6	–.45	–8	14.5	37.8	Washburn et al. 2002; Poole 2005
<i>Petrochelidon pyrrhonota</i>	9.0	9.0	. . .	. . .	–.38	0	22.9	41.1	Brown et al. 2005; Poole 2005; Raouf et al. 2006
<i>Phaethon rubricauda</i>	4.9	5.5	33.7	33.3	–.84	0	717.5	–22.2	Lormée 2001; Poole 2005; H. Lormée and O. Chastel, unpublished data
<i>Phalacrocorax verrucosus</i>	16.7	9.3	53.6	46.3	. . .	0	1,970.0	–49.0	del Hoyo et al. 1992; T. Cook, C.-A. Bost, and O. Chastel, unpublished data
<i>Phalaropus fulicaria</i>	15.5	28.0	58.3	92.5	. . .	5	56.0	71.2	Wingfield et al. 1995a; Perrins 1998; O’Reilly and Wingfield 2001; Poole 2005
<i>Phylloscopus trochilus</i>	9.6	5.9	51.2	41.4	–.20	–6	9.2	60.5	Silverin et al. 1997; Perrins 1998
<i>Pipilo aberti</i>	4.8	7.2	31.7	27.1	. . .	–6	46.1	33.3	Wingfield et al. 1992; Poole 2005
<i>Plectrophenax nivalis</i>	8.7	9.8	31.1	21.2	–.43	–6	34.2	71.2	Wingfield et al. 1994a; Romero et al. 1998a; Poole 2005

**Table A1 (Continued)**

Species	Baseline CORT (ng mL <sup>-1</sup> )		Peak CORT (ng mL <sup>-1</sup> )		Brood value <sup>a</sup>	Sex difference in parental care (male – female)	Breeding body mass (g)	Breeding latitude (°)	References
	Male	Female	Male	Female					
<i>Pterodroma macroptera gouldi</i>	10.1	15.0	67.2	67.2	–1.22	0	570.0	–36.5	del Hoyo et al. 1992; Warham 1996; Adams et al. 2005
<i>Pygoscelis adeliae</i>	13.4	10.6	. . .	. . .	–.96	0	4,800.0	–69.0	del Hoyo et al. 1992; McQueen et al. 1999; Vleck et al. 2000; Vleck and Van Hook 2002; Vleck and Vleck 2002; Cockrem et al. 2006; Angelier et al. 2008
<i>Rissa brevirostris</i>	2.7 <sup>b</sup>		32.5 <sup>b</sup>		. . .	0	377.1	55.1	Kitaysky et al. 2002; Poole 2005
<i>Rissa tridactyla</i>	9.9	11.7	60.8	55.8	–.71	0	418.0	65.8	Kitaysky et al. 1999, 2001, 2002; Lanctot et al. 2003; Chastel et al. 2005; Poole 2005; Angelier 2007 <i>d</i> , 2007 <i>e</i> ; Buck et al. 2007
<i>Saxicola torquata axillaris</i>	13.7	6.5	35.5	. . .	. . .	–6	14.8	–3.1	Perrins 1998; Scheuerlein et al. 2001; Goymann et al. 2006
<i>Scardafella inca</i>	4.3	5.6	32.4	27.9	–.80	0	44.0	33.3	Wingfield et al. 1992; Poole 2005
<i>Somateria mollissima</i>	. . .	20.4	. . .	52.6	–.60	–6	1,905.0	76.5	Perrins 1998; Wayland et al. 2003; Criscuolo et al. 2005, 2006; Poole 2005; Bourgeon and Raclot 2006, 2007; Bourgeon et al. 2006 <i>a</i> , 2006 <i>b</i>
<i>Spheniscus magellanicus</i>	2.1	3.3	28.4	37.8	. . .	0	3,800.0	–44.0	del Hoyo et al. 1992; Hood et al. 1998; Fowler 1999; Walker et al. 2004, 2006
<i>Spizella arborea</i>	17.8	15.0	44.6	30.1	. . .	–6	17.9	68.4	Holberton and Wingfield 2003; Poole 2005
<i>Sterna hirundo</i>	10.0	10.0	31.6	31.6	–1.05	–5	125.1	41.4	Poole 2005; Breuner et al. 2006; Heidinger et al. 2006
<i>Sturnus vulgaris</i>	4.4	7.9	. . .	43.5	–.41	–4	79.1	45.6	Perrins 1998; Love et al. 2004; Poole 2005; Cyr and Romero 2007
<i>Sula nebowxii</i>	18.2	14.0	41.7	33.7	–1.00	0	1,542.0	21.5	del Hoyo et al. 1992; Wingfield et al. 1999
<i>Sula sula</i>	28.5	25.3	. . .	. . .	–1.00	0	1,091.0	–22.2	del Hoyo et al. 1992; Lormée et al. 2003; Poole 2005

**Table A1 (Continued)**

Species	Baseline CORT (ng mL <sup>-1</sup> )		Peak CORT (ng mL <sup>-1</sup> )		Brood value <sup>a</sup>	Sex difference in parental care (male – female)	Breeding body mass (g)	Breeding latitude (°)	References
	Male	Female	Male	Female					
<i>Taeniopygia guttata</i>	4.3	4.3	22.2	22.2	–.38	0	12.3	–36.1	Zann 1996; Perfito et al. 2007
<i>Toxostoma curvirostre</i>	2.4	2.4	12.5	12.5	–.98	–5	78.4	33.3	Wingfield et al. 1992; Poole 2005
<i>Turdus merula</i>	8.0	10.0	. . .	. . .	–.85	–5	104.2	47.5	Schwabl et al. 1980; Perrins 1998
<i>Uria aalge</i>	6.8	6.8	. . .	. . .	–1.09	2	976.8	61.8	Perrins 1998; Kitaysky et al. 2002, 2007; Tremblay et al. 2003; Poole 2005
<i>Uria lomvia</i>	4.5 <sup>b</sup>		46.0 <sup>b</sup>		–.92	2	1,132.5	55.9	Perrins 1998; Kitaysky et al. 2002; Poole 2005; Benowitz-Fredericks et al. 2008
<i>Zonotrichia capensis</i>	31.5	16.8	54.5	48.3	. . .	–6	20.3	–.2	Moore et al. 2004; Wada et al. 2006
<i>Zonotrichia leucophrys gambelii</i>	20.0	18.5	68.0	61.8	. . .	–6	24.5	53.8	Wingfield et al. 1982; Romero et al. 1997; Holberton and Wingfield 2003; Breuner et al. 2003; Poole 2005

<sup>a</sup> Brood value expresses the importance of current reproduction as  $\log_{10}(\text{clutch size}/[\text{clutch size} \times \text{broods per year} \times \text{average reproductive life span}])$

<sup>b</sup> No available information on the sex differences in CORT.

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