

Supplementary Material

Long-term declines of wader populations at the Tagus estuary, Portugal: a response to global or local factors?

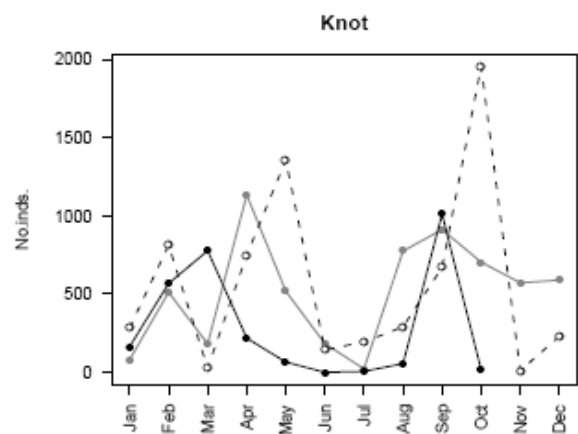
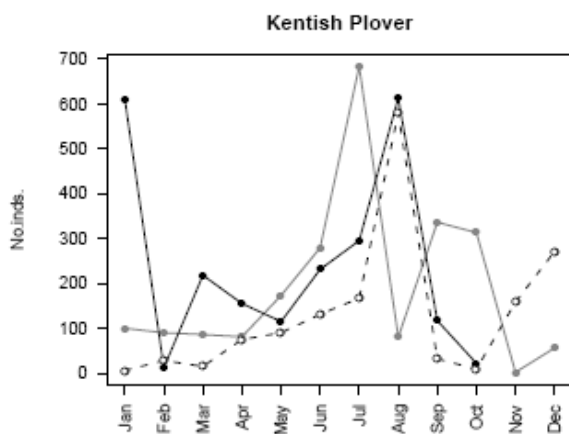
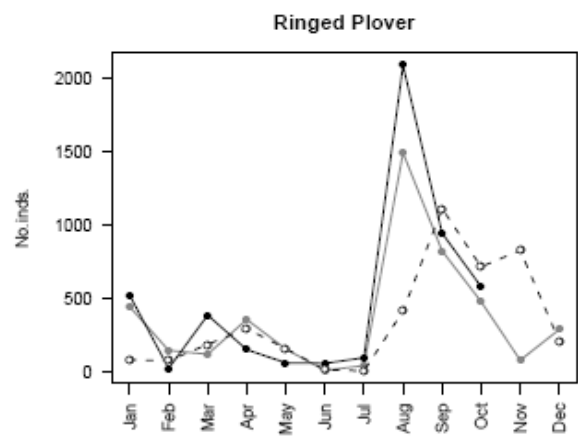
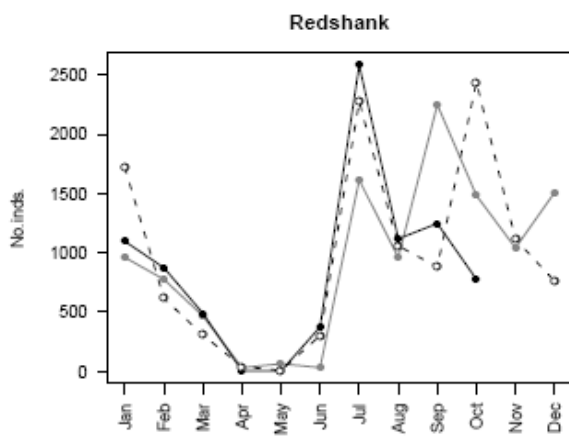
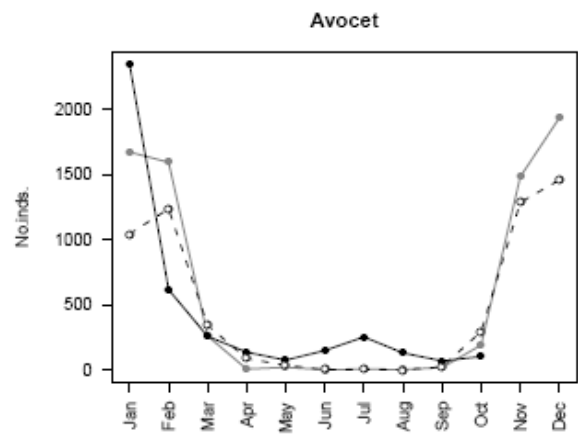
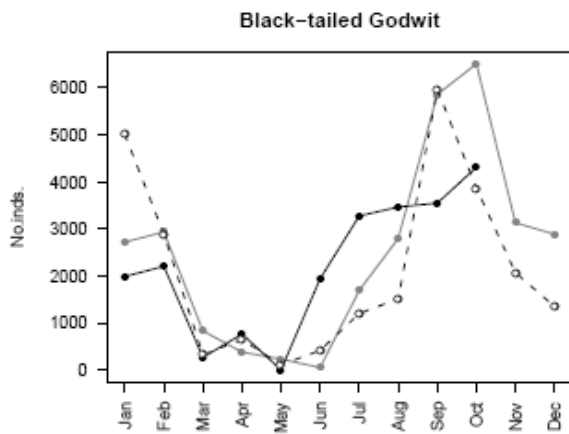
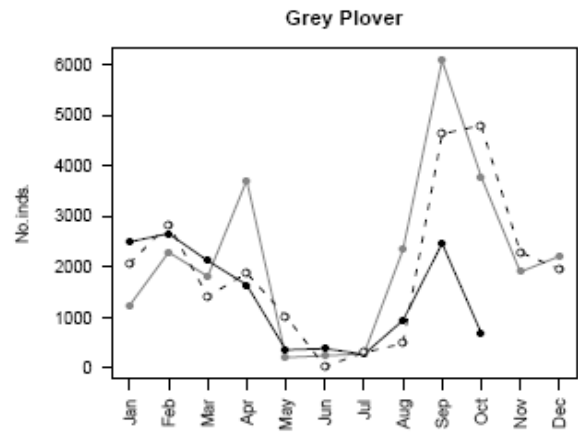
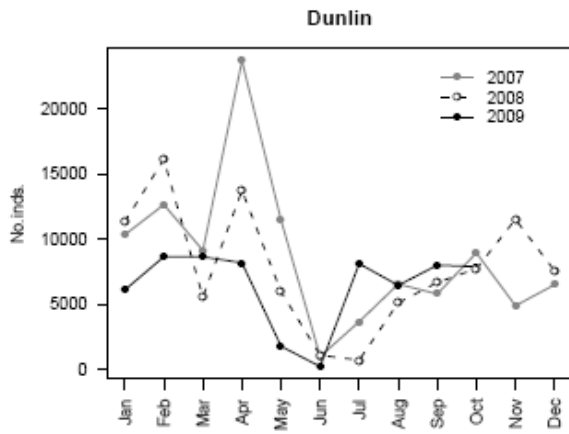
TERESA CATRY, JOSÉ A. ALVES, JOANA ANDRADE, HELDER COSTA, MARIA P. DIAS, PEDRO FERNANDES, ANA LEAL, PEDRO M. LOURENÇO, RICARDO C. MARTINS, FILIPE MONIZ, SARA PARDAL, AFONSO ROCHA, CARLOS D. SANTOS, VITOR ENCARNAÇÃO and JOSÉ P. GRANADEIRO

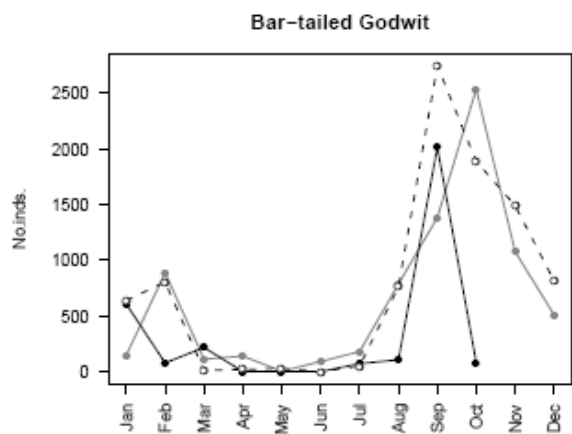
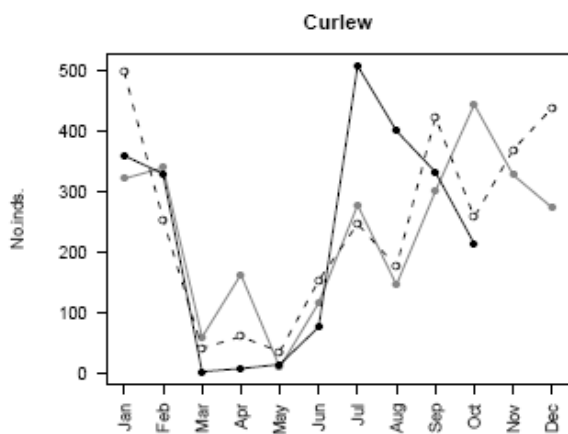
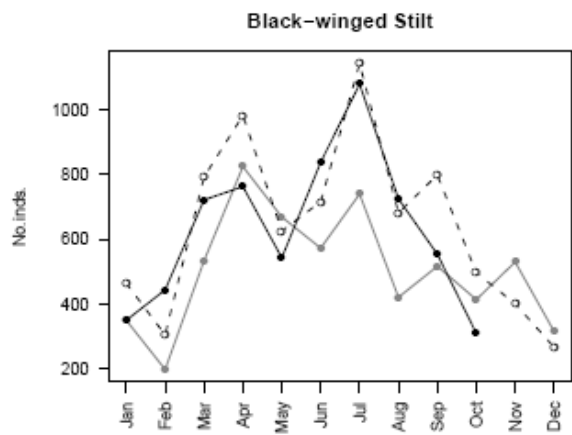
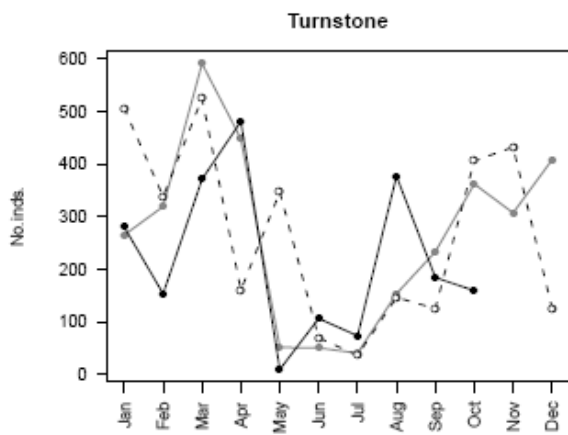
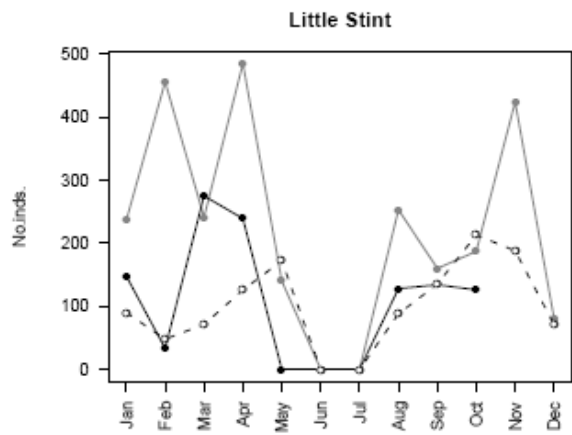
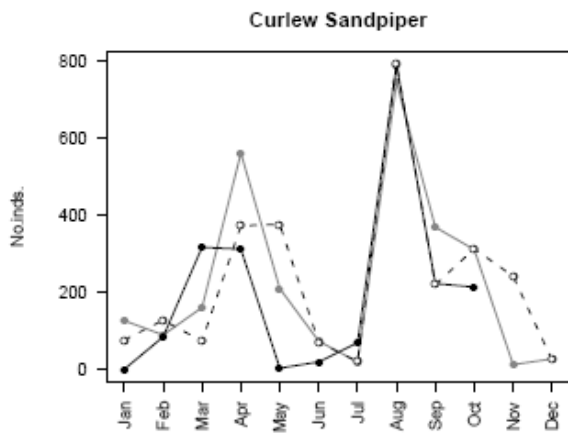
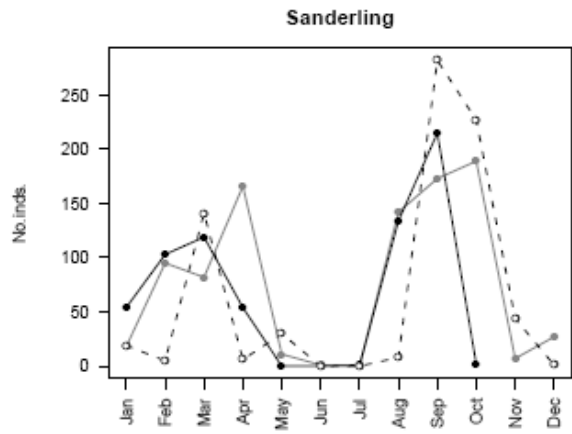
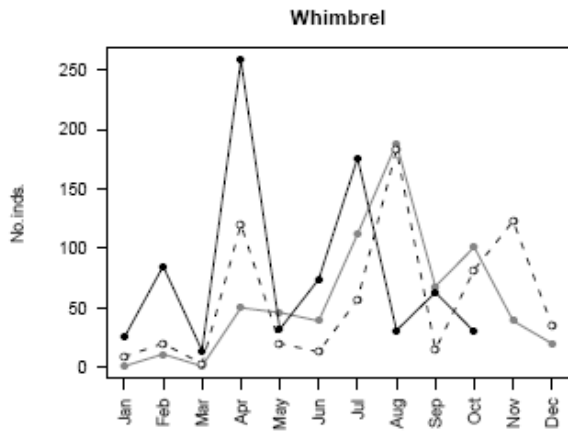
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Appendix S1. Phenology of the 16 most common wader species in the Tagus estuary in 2007, 2008 and 2009 showing distinct peaks of abundance.





Appendix S2. Mean abundance (\pm SD) of the five most common species in the monitored roosts of the Tagus estuary (2007–2009). Values of the three most important roosts for each species and season are presented in bold. ALV=Alverca, VS=Vasa Sacos, VF=Vale de Frades, B=Bela Vista, ATA=Atalaia, TAR=Tarouca, SAM=Samouco, SAR=Sarilhos, MOI=Moita, AV=Alhos Vedros, COI=Coina, SEI=Seixal and COR=Corroios (number of roost, linked with Figure 1, is presented in brackets). Roosts outside the boundaries of the Special Protection Area (SPA) of Tagus estuary include: Alverca, Moita, Alhos Vedros, Coina, Seixal, Corroios.

		ALV (1)	VS (2)	VF (3)	BV (4)	ATA (5)	TAR (6)	SAM (7)	SAR (8)	MOI (9)	AV (10)	COI (11)	SEI (12)	COR (13)
 Dunlin	Autumn	0	399.7 (491.6)	238.0 (270.4)	2.4 (3.6)	12.2 (19.8)	0.2 (0.4)	6,452.2 (884.8)	140 (149.1)	0.6 (1.3)	437.2 (723.1)	x	46.7 (97.8)	0
	Winter	0	2351.5 (1005.0)	337.2 (505.4)	0.4 (0.9)	12.8 (28.6)	9.4 (12.9)	4,575.5 (3208.7)	498.2 (791.9)	6.8 (13.4)	2808.2 (1476.7)	0	423.3 (440.9)	259.6 (255.0)
	Spring	0.2 (0.4)	740.0 (568.5)	146.5 (164.0)	0.7 (1.3)	20.7 (53.0)	0	8220.3 (6340.5)	262.2 (345.8)	0	785.3 (834.2)	0.3 (0.6)	174.3 (261.1)	30.7 (66.8)
	Summer	0.2 (0.4)	737.0 (568.5)	151.7 (374.2)	0.1 (0.3)	22.8 (45.2)	66.8 (200.0)	2999.4 (2565.5)	57.4 (98.2)	0.1 (0.3)	108.7 (182.1)	70 (99.0)	28.6 (65.8)	8.3 (15.4)
 Grey Plover	Autumn	0	88.0 (110.9)	629.8 (1081.1)	0	0.2 (0.4)	0	2685.7 (1437.1)	28.7 (52.2)	0	179.5 (223.1)	66.5 (94.0)	64.7 (89.0)	252 (187.7)
	Winter	0	859.3 (475.4)	198.5 (236.9)	0	0	3.6 (5.3)	690.9 (357.2)	147.3 (230.7)	0	158.0 (114.8)	x	228.0 (89.8)	474.6 (177.7)
	Spring	0.3 (0.8)	162.7 (178.7)	38.5 (54.0)	0	0.2 (0.4)	0	1003.9 (910.2)	7.2 (6.8)	0	116.4 (105.3)	74.5 (105.4)	117.0 (121.5)	229.7 (191.8)
	Summer	0	492.7 (302.2)	8.1 (13.9)	0	0	0	410.3 (730.1)	0.2 (0.4)	0	1.1 (3.3)	0	0	0
 Black-tailed Godwit	Autumn	0	1366 (1348.6)	1961.8 (1701.1)	0.6 (1.3)	20.2 (30.6)	0.2 (0.4)	656.3 (454.6)	190 (219.2)	0.2 (0.4)	690.3 (512.3)	133 (7.1)	221.5 (146.2)	656 (202.3)
	Winter	6.3 (13.5)	312.8 (337.5)	453.8 (547.7)	0	0.4 (0.5)	16.6 (29.9)	910.9 (679.9)	329.9 (177.0)	67.8 (189.4)	210.3 (361.2)	x	259.7 (195.4)	335.3 (196.0)
	Spring	13.5 (23.8)	0	106 (200.8)	0.2 (0.4)	3 (6.1)	0.2 (0.7)	224.9 (146.9)	16.7 (25.9)	0	8.7 (26)	0	12.7 (23.3)	24.9 (56.8)
	Summer	0.6 (1.3)	1182.7 (1054.3)	333.1 (170.1)	1.6 (2.6)	5.9 (10.1)	0.1 (0.3)	339.7 (326.2)	33.1 (95.6)	0	329.3 (319.2)	3 (5.2)	24.3 (45.9)	391.8 (479.0)
 Avocet	Autumn	0	10.3 (7.6)	2.8 (5.2)	0.6 (1.3)	8 (17.3)	0	36.8 (35.6)	22.5 (41.8)	0	11.5 (12.2)	2.0 (2.8)	16.3 (24.8)	15.8 (22.3)
	Winter	0	94.5 (74.7)	3.6 (7.7)	0.25 (0.5)	0	4.2 (9.4)	378.7 (215.2)	471.9 (209.6)	76.9 (111.1)	122.5 (130.0)	x	47.8 (44.7)	325.6 (132.0)
	Spring	0	18.3 (28.3)	7.8 (21.5)	5.1 (15.3)	6.2 (11.1)	0.1 (0.3)	96.2 (102.0)	10.3 (23.9)	0	0.9 (2.7)	0	0.3 (1.0)	3.2 (7.6)
	Summer	0	168.7 (72.5)	0.1 (0.4)	2.4 (7.3)	0.3 (1.0)	0	1.6 (1.5)	0.1 (0.3)	0	0	0	0	0
 Redshank	Autumn	0	24.0 (13.9)	129.8 (272.8)	0.8 (0.8)	2.8 (3.9)	1.2 (2.2)	458 (250.5)	195 (172.6)	0	286 (346.2)	272 (117.4)	115.5 (137.6)	266 (160.9)
	Winter	6.3 (14.1)	15.5 (19.3)	71.2 (110.0)	6.4 (4.3)	21.2 (30.8)	24.0 (22.4)	396.4 (99.9)	168.3 (78.2)	6.4 (12.7)	35.8 (28.7)	x	178.6 (120.7)	153.3 (140.9)
	Spring	7.3 (13.3)	1.0 (1.0)	3.1 (8.8)	0	0.7 (1.7)	0	89.3 (127.7)	17.3 (24.0)	0	1.1 (3.3)	0.5 (0.7)	18.6 (28.2)	22.2 (49.0)
	Summer	0	93 (73.7)	2.6 (3.6)	0.5 (1.3)	2.6 (5.2)	53.3 (160)	284.8 (180.3)	78.8 (77.6)	0.1 (0.3)	442.3 (527.8)	110 (126.3)	43.6 (77.0)	170.7 (155.3)

