

Table S1. Mean vectors of individual birds, autumn experiments

2006	G			RpeR			2007	G			RpeR		
	Bird	n	$\alpha_b$	$r_b$	n	$\alpha_b$		$r_b$	Bird	n	$\alpha_b$	$r_b$	n
06-2	3	220°	0.56	3	125°	0.77	07-2	3	180°	0.90	3	15°	0.99 <sup>A</sup>
06-3	3	94°	0.83	3	73°	0.52	07-5	3	144°	0.94	3	190°	1.00 <sup>A</sup>
06-6	3	128°	0.50	3	168°	0.50	07-6	3	210°	0.97	3	13°	0.95 <sup>A</sup>
06-7	2	75°	0.97	3	101°	0.85	07-11	3	209°	0.94	3	349°	0.81 <sup>A</sup>
06-8	3	65°	0.96	2	202°	0.98	07-22	3	182°	0.58 <sup>A</sup>	3	30°	1.00
06-9	3	288°	0.63	3	164°	0.50	07-32	3	160°	0.85	3	13°	0.99
06-10	3	228°	0.92	3	76°	0.75	07-33	3	176°	0.75 <sup>A</sup>	3	337°	0.86
06-11	3	197°	0.83	3	68°	0.49	07-36	3	191°	0.88 <sup>A</sup>	3	19°	0.91
06-13	3	360°	0.98 <sup>A</sup>	3	213°	0.73 <sup>A</sup>	07-39	3	185°	0.95 <sup>A</sup>	3	189°	0.95
06-15	3	184°	0.48	3	171°	0.97 <sup>A</sup>	07-41	3	172°	0.96 <sup>A</sup>	3	9°	0.68 <sup>A</sup>
06-16	3	194°	0.87	3	229°	0.45 <sup>A</sup>	07-44	3	179°	0.98	3	178°	0.95 <sup>A</sup>
06-17	3	182°	0.68 <sup>A</sup>	3	3°	0.99 <sup>A</sup>	07-46	3	151°	0.97	3	171°	0.37 <sup>A</sup>
06-18	3	227°	0.54	3	219°	0.62	07-47	3	334°	0.97 <sup>A</sup>	3	37°	0.77 <sup>A</sup>
06-19	3	246°	0.89	3	145°	0.98	07-48	3	213°	0.99	3	6°	0.43
06-22	3	257°	0.58	2	171°	0.87	07-49	3	120°	1.00	3	226°	0.23 <sup>A</sup>
06-23	3	110°	0.47	3	122°	0.26 <sup>A</sup>	07-50	3	164°	0.72	3	195°	0.38 <sup>A</sup>

2010	G			YpeY		
	Bird	n	$\alpha_b$	$r_b$	n	$\alpha_b$
10-1	3	229°	0.82	3	349°	0.69
10-2	3	262°	0.53	3	13°	0.55 <sup>A</sup>
10-3	3	184°	0.90	3	45°	0.61 <sup>A</sup>
10-4	2	204°	0.75	3	97°	0.77 <sup>A</sup>
10-5	3	162°	0.97 <sup>A</sup>	3	283°	0.92
10-6	3	178°	0.81	3	347°	0.67
10-7	3	192°	0.57	3	191°	0.93 <sup>A</sup>
10-8	3	235°	0.59 <sup>A</sup>	3	181°	0.92 <sup>A</sup>
10-9	3	291°	0.56 <sup>A</sup>	3	9°	0.71 <sup>A</sup>
10-10	3	197°	0.68 <sup>A</sup>	3	334°	0.39
10-14	3	292°	0.60 <sup>A</sup>	3	348°	0.97 <sup>A</sup>
10-15	3	186°	0.67	3	349°	0.63
10-16	3	343°	0.52 <sup>A</sup>	2	348°	0.97
10-17	3	97°	0.27 <sup>A</sup>	3	34°	0.54 <sup>A</sup>
10-18	3	332°	0.79 <sup>A</sup>	3	68°	0.35
10-19	3	215°	0.86	3	312°	0.87

n, number of recordings  
 $\alpha_b$ ,  $r_b$ , direction and length of the birds' mean vectors, with <sup>A</sup> indicating the preferred end of an axis (see text)

*Test conditions:*

All experiments took place in the local geomagnetic field

G 565 nm green light (Control)

RpeR 645 nm red light, after 1 h pre-exposure to red light

YpeY 582 nm yellow light, 1.8 mW/m<sup>2</sup> after 1 h pre-exposure to yellow light