

Supplementary material

Appendix 1

Mean values and number of individuals in reverse and forward migration for the different methods and variables. Test statistics and significances from univariate tests of if the factors considered differ between reverse migrants and forward migrants. Independent sample t-test of continuous variables and chi square tests of categorical variables.

Factor	Reverse			Forward			Test statistics	P-value
	Mean	sd	n	Mean	sd	n		
Radiotelemetry								
Fat score (1-9)	3.6	1.4	37	3.5	1.3	79	$t_{114} = 0.38$	NS
Temperature (°C)	12.3	3.5	37	12.8	2.9	79	$t_{114} = -0.75$	NS
North wind comp. (m/s)	-0.18	0.71	37	-0.22	0.61	79	$t_{114} = 0.28$	NS
East wind comp. (m/s)	-0.05	0.70	37	-0.30	0.71	79	$t_{114} = 1.72$	NS
Ringling of same species (log n)	0.84	0.72	37	1.02	0.63	79	$t_{114} = -1.37$	NS
Total ringling (log n)	2.11	0.83	37	2.21	0.87	79	$t_{114} = -0.58$	NS
Migrating sparrowhawks (log n)	2.47	0.60	37	2.65	0.67	79	$t_{114} = -1.35$	NS
Wind speed (m/s)	6.19	2.81	37	6.48	3.61	79	$t_{114} = -0.43$	NS
Cloud cover (1-8)	4.41	3.05	37	5.22	2.59	79	$t_{61} = -1.40$	NS
Species							$\chi^2_{(3, n=116)} = 5.82$	NS
<i>Song thrush</i>			6			27		
<i>Willow warbler</i>			9			22		
<i>Robin</i>			16			20		
<i>Garden warbler</i>			6			10		
Age							$\chi^2_{(1, n=116)} = 2.52$	NS
<i>Juveniles</i>			25			41		
<i>Adults</i>			12			38		
Strategy							$\chi^2_{(1, n=116)} = 2.23$	NS
<i>Immediate dep.</i>			20			54		
<i>Later dep.</i>			17			25		
Departure time group							$\chi^2_{(2, n=116)} = 4.91$	NS
<i>Day</i>			8			6		
<i>Sunset</i>			23			61		
<i>Night</i>			6			12		
Ringling recoveries								
Fat score (1-9)	3.4	2.1	35	5.3	1.4	81	$t_{47.7} = 4.89$	<0.000
Age							$\chi^2_{(1, N=192)} = 11.29$	0.001
<i>Juveniles</i>			77			86		
<i>Adults</i>			4			25		
Radar								
Altitude (m)	710.2	310.9	200	851.5	453.9	961	$t_{398.5} = 5.35$	<0.000
EQ. airspeed (m/s)	10.93	3.09	200	11.20	2.81	961	$t_{271.6} = 1.13$	NS
North wind comp. (m/s)	-0.17	0.63	200	0.27	0.55	961	$t_{267.2} = 9.14$	<0.000
East wind comp.(m/s)	-0.25	0.72	200	-0.50	0.61	961	$t_{262.1} = 4.48$	<0.000
Wind speed (m/s)	9.33	3.24	200	8.61	3.77	961	$t_{321.4} = 2.76$	0.006
Cloud cover (1-8)	4.1	2.8	200	3.6	2.7	961	$t_{1159.0} = 2.75$	0.006
Temperature (°C)	13.4	3.6	200	13.7	3.0	961	$t_{257.2} = 1.10$	NS
Air pressure (hPsc)	1020.2	6.0	200	1020.2	6.2	961	$t_{1159.0} = 0.05$	NS

Visibility (km)	3.76	2.01	197	4.44	1.90	917	$t_{276,3} = 4.36$	<0.000
Vertical speed (m/s)	0.05	0.76	200	0.07	0.70	961	$t_{1159,0} = 0.49$	NS
Time of night							$\chi^2_{(1, N=1161)} = 20.10$	<0.000
<i>Before midnight</i>			88			588		
<i>After midnight</i>			112			373		
Mig. distance							$\chi^2_{(1, N=1161)} = 6.54$	0.011
<i>Long</i>			82			304		
<i>Short-medium</i>			118			657		