

Electronic Supplemental Material (ESM)

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Table S1. Number of spoonbills ringed and resighted in winter, in total and per wintering region, specified per year of birth, and the number of different spoonbills resighted per wintering region during summer in *Etang des Impériaux, Camargue*, specified per year.

Year of birth	Ringed	Seen in winter	Resighted per wintering region					Summer Year	Seen in summer	No. of different birds resighted in <i>Etang des Impériaux</i> per wintering region				
			EAF LD	EAF SD	CEF LD	CEF SD	RES			EAF LD	EAF SD	CEF LD	CEF SD	RES
2008	30	4	4	0	0	0	0	2009	0	0	0	0	0	0
2009	55	24	10	11	1	2	0	2010	0	0	0	0	0	0
2010	140	35	19	12	3	1	0	2011	0	0	0	0	0	0
2011	240	57	31	10	12	1	3	2012	0	0	0	0	0	0
2012	224	67	40	6	12	3	6	2013	0	0	0	0	0	0
2013	262	101	80	14	1	4	2	2014	23	11	9	1	1	1
2014	542	114	45	12	23	14	20	2015	36	14	13	3	3	3
2015	401	133	78	18	16	7	14	2016	74	24	25	4	6	15
2016	454	53	30	8	7	3	5	2017	86	29	27	6	7	17
2017	370	44	24	5	10	3	2	2018	119	38	35	17	8	21
2018	73	32	12	4	9	4	3	2019	111	35	34	10	10	22
2019	421	54	30	5	12	4	3	2020	105	30	34	11	8	22
2020	228	24	19	0	2	0	3							

Abbreviations: East Atlantic Flyway long-distance – EAF LD; East Atlantic Flyway short-distance – EAF SD; Central European Flyway long-distance – CEF LD; Central European Flyway short-distance – CEF SD; resident – RES.

Table S2. Number of individual spoonbills seen for the first time at the wintering site by **age**.

Age	Number of different individuals seen for the first time
1 st winter (= 0.5 cy)	227
2 nd winter (= 1.5 cy)	90
3 rd winter (= 2.5 cy)	57
4 th winter (= 3.5 cy)	39
5 th winter (= 4+ cy)	33
>5 th winter (= 4+ cy)	38

Table S3. Stepwise approach, model selection results by step.

	Model	ϕ'	ϕ^{2+}	p	K	Deviance	ΔQAIC_c
Step 1 - Selection on p	1**		$dis*fly * t$	$dis*fly * t$	87	2116.4	690.9
	2	$2age * dis*fly * t$	$2age * dis*fly * t$	$dis * 3age * t$	167	1197.2	241.5
	3	$2age * dis*fly * t$	$2age * dis*fly * t$	$dis + 3age + t$	136	1235.0	178.8
	4	$2age * dis*fly * t$	$2age * dis*fly * t$	$dis + 3age + ct$	131	1255.4	179.7
	5	$2age * dis*fly * t$	$2age * dis*fly * t$	$dis + 2age + ct$	130	1267.9	186.0
	6	$2age * dis*fly * t$	$2age * dis*fly * t$	$dis + ct$	129	1370.8	258.0
	7	$2age * dis*fly * t$	$2age * dis*fly * t$	$ct + 3age$	129	1276.9	189.8
	8	$2age * dis*fly * t$	$2age * dis*fly * t$	ct	127	1384.3	262.4
	9	$2age * dis*fly * t$	$2age * dis*fly * t$	$3age$	133	1319.3	231.7
	10	$2age * dis*fly * t$	$2age * dis*fly * t$	c	131	1474.6	338.8
Step 2 - Selection on S	11	$2age + dis*fly + t$	$2age + dis*fly + t$	$dis + 3age + ct$	37	1357.5	23.6
	12	$2age + dis*fly + t$	$2age + dis + fly + t$	$dis + 3age + ct$	36	1357.8	21.7
	13	$2age + dis*fly + t$	$2age + fly + t$	$dis + 3age + ct$	35	1358.8	20.2
	14	$2age + dis*fly + t$	$2age + dis + t$	$dis + 3age + ct$	35	1358.2	19.8
	15	$2age + dis*fly + t$	$2age + t$	$dis + 3age + ct$	33	1359.6	16.5
	16	$2age + dis*fly + t$	$2age + dis*fly$	$dis + 3age + ct$	29	1365.1	11.9
	17	$2age + dis*fly + t$	$2age + fly + dis$	$dis + 3age + ct$	28	1365.5	10.0
	18	$2age + dis*fly + t$	$2age + fly$	$dis + 3age + ct$	27	1366.6	8.7
	19	$2age + dis*fly + t$	$2age + dis$	$dis + 3age + ct$	27	1366.0	8.2
	20	$2age + dis*fly + t$	$2age$	$dis + 3age + ct$	25	1367.3	4.9
	21	$2age + dis + fly + t$	$2age + dis*fly + t$	$dis + 3age + ct$	36	1362.7	25.2
	22	$2age + dis + fly + t$	$2age + dis + fly + t$	$dis + 3age + ct$	35	1362.9	23.1

23	$2age + dis + fly + t$	$2age + fly + t$	$dis + 3age + ct$	34	1363.9	21.7
24	$2age + dis + fly + t$	$2age + dis + t$	$dis + 3age + ct$	34	1363.1	21.1
25	$2age + dis + fly + t$	$2age + t$	$dis + 3age + ct$	32	1364.5	17.8
26	$2age + dis + fly + t$	$2age + dis*fly$	$dis + 3age + ct$	28	1369.7	13.0
27	$2age + dis + fly + t$	$2age + fly + dis$	$dis + 3age + ct$	27	1369.9	11.1
28	$2age + dis + fly + t$	$2age + fly$	$dis + 3age + ct$	26	1371.1	9.8
29	$2age + dis + fly + t$	$2age + dis$	$dis + 3age + ct$	26	1370.2	9.2
30	$2age + dis + fly + t$	$2age$	$dis + 3age + ct$	24	1371.8	6.1
31	$2age + fly + t$	$2age + dis*fly + t$	$dis + 3age + ct$	35	1376.1	32.8
32	$2age + fly + t$	$2age + dis + fly + t$	$dis + 3age + ct$	34	1376.9	31.2
33	$2age + fly + t$	$2age + fly + t$	$dis + 3age + ct$	33	1386.8	36.2
34	$2age + fly + t$	$2age + dis + t$	$dis + 3age + ct$	33	1378.6	30.2
35	$2age + fly + t$	$2age + t$	$dis + 3age + ct$	31	1388.4	33.0
36	$2age + fly + t$	$2age + dis*fly$	$dis + 3age + ct$	27	1382.1	19.9
37	$2age + fly + t$	$2age + fly + dis$	$dis + 3age + ct$	26	1382.5	18.0
38	$2age + fly + t$	$2age + fly$	$dis + 3age + ct$	25	1393.9	24.2
39	$2age + fly + t$	$2age + dis$	$dis + 3age + ct$	25	1382.6	16.0
40	$2age + fly + t$	$2age$	$dis + 3age + ct$	23	1394.7	20.6
41	$2age + dis + t$	$2age + dis*fly + t$	$dis + 3age + ct$	35	1363.3	23.5
42	$2age + dis + t$	$2age + dis + fly + t$	$dis + 3age + ct$	34	1363.5	21.4
43	$2age + dis + t$	$2age + fly + t$	$dis + 3age + ct$	33	1364.4	19.9
44	$2age + dis + t$	$2age + dis + t$	$dis + 3age + ct$	33	1364.5	20.0
45	$2age + dis + t$	$2age + t$	$dis + 3age + ct$	31	1365.8	16.6
46	$2age + dis + t$	$2age + dis*fly$	$dis + 3age + ct$	27	1370.0	11.1
47	$2age + dis + t$	$2age + fly + dis$	$dis + 3age + ct$	26	1370.2	9.1
48	$2age + dis + t$	$2age + fly$	$dis + 3age + ct$	25	1371.3	7.8
49	$2age + dis + t$	$2age + dis$	$dis + 3age + ct$	25	1371.2	7.8
50	$2age + dis + t$	$2age$	$dis + 3age + ct$	23	1372.8	4.7
51	$2age + t$	$2age + dis*fly + t$	$dis + 3age + ct$	33	1383.0	33.5
52	$2age + t$	$2age + dis + fly + t$	$dis + 3age + ct$	32	1383.9	31.9
53	$2age + t$	$2age + fly + t$	$dis + 3age + ct$	31	1394.8	37.7
54	$2age + t$	$2age + dis + t$	$dis + 3age + ct$	31	1385.1	30.7
55	$2age + t$	$2age + t$	$dis + 3age + ct$	29	1397.1	35.1
56	$2age + t$	$2age + dis*fly$	$dis + 3age + ct$	25	1389.5	21.0
57	$2age + t$	$2age + fly + dis$	$dis + 3age + ct$	24	1390.0	19.3
58	$2age + t$	$2age + fly$	$dis + 3age + ct$	23	1402.9	26.6
59	$2age + t$	$2age + dis$	$dis + 3age + ct$	23	1390.4	17.5
60	$2age + t$	$2age$	$dis + 3age + ct$	21	1404.4	23.5
61	$2age + dis*fly$	$2age + dis*fly + t$	$dis + 3age + ct$	28	1378.5	19.4
62	$2age + dis*fly$	$2age + dis + fly + t$	$dis + 3age + ct$	27	1378.6	17.3
63	$2age + dis*fly$	$2age + fly + t$	$dis + 3age + ct$	26	1379.7	16.1
64	$2age + dis*fly$	$2age + dis + t$	$dis + 3age + ct$	26	1378.6	15.2

65	$2age + dis*fly$	$2age + t$	$dis + 3age + ct$	24	1380.7	12.5
66	$2age + dis*fly$	$2age + dis*fly$	$dis + 3age + ct$	18	1391.5	7.8
67	$2age + dis*fly$	$2age + fly + dis$	$dis + 3age + ct$	17	1391.8	5.9
68	$2age + dis*fly$	$2age + fly$	$dis + 3age + ct$	16	1392.2	4.1
69	$2age + dis*fly$	$2age + dis$	$dis + 3age + ct$	16	1392.2	4.1
70	$2age + dis*fly$	$2age$	$dis + 3age + ct$	14	1392.7	0.3
71	$2age + fly + dis$	$2age + dis*fly + t$	$dis + 3age + ct$	27	1382.5	20.2
72	$2age + fly + dis$	$2age + dis + fly + t$	$dis + 3age + ct$	26	1383.0	18.4
73	$2age + fly + dis$	$2age + fly + t$	$dis + 3age + ct$	25	1384.3	17.3
74	$2age + fly + dis$	$2age + dis + t$	$dis + 3age + ct$	25	1383.0	16.3
75	$2age + fly + dis$	$2age + t$	$dis + 3age + ct$	23	1385.3	13.7
76	$2age + fly + dis$	$2age + dis*fly$	$dis + 3age + ct$	17	1396.2	9.1
77	$2age + fly + dis$	$2age + fly + dis$	$dis + 3age + ct$	16	1396.4	7.2
78	$2age + fly + dis$	$2age + fly$	$dis + 3age + ct$	15	1396.7	5.3
79	$2age + fly + dis$	$2age + dis$	$dis + 3age + ct$	15	1396.8	5.4
80	$2age + fly + dis$	$2age$	$dis + 3age + ct$	13	1397.4	1.7
81	$2age + fly$	$2age + dis*fly + t$	$dis + 3age + ct$	26	1394.4	26.7
82	$2age + fly$	$2age + dis + fly + t$	$dis + 3age + ct$	25	1394.7	24.9
83	$2age + fly$	$2age + fly + t$	$dis + 3age + ct$	24	1403.5	29.1
84	$2age + fly$	$2age + dis + t$	$dis + 3age + ct$	24	1394.8	22.7
85	$2age + fly$	$2age + t$	$dis + 3age + ct$	22	1404.9	25.9
86	$2age + fly$	$2age + dis*fly$	$dis + 3age + ct$	16	1407.1	14.9
87	$2age + fly$	$2age + fly + dis$	$dis + 3age + ct$	15	1407.5	13.2
88	$2age + fly$	$2age + fly$	$dis + 3age + ct$	14	1415.9	17.2
89	$2age + fly$	$2age + dis$	$dis + 3age + ct$	14	1407.5	11.1
90	$2age + fly$	$2age$	$dis + 3age + ct$	12	1416.1	13.2
91	$2age + dis$	$2age + dis*fly + t$	$dis + 3age + ct$	26	1383.3	18.7
92	$2age + dis$	$2age + dis + fly + t$	$dis + 3age + ct$	25	1383.6	16.7
93	$2age + dis$	$2age + fly + t$	$dis + 3age + ct$	24	1384.8	15.5
94	$2age + dis$	$2age + dis + t$	$dis + 3age + ct$	24	1384.0	14.9
95	$2age + dis$	$2age + t$	$dis + 3age + ct$	22	1386.0	12.2
96	$2age + dis$	$2age + dis*fly$	$dis + 3age + ct$	16	1396.4	7.1
97	$2age + dis$	$2age + fly + dis$	$dis + 3age + ct$	15	1396.5	5.2
98	$2age + dis$	$2age + fly$	$dis + 3age + ct$	14	1396.8	3.3
99	$2age + dis$	$2age + dis$	$dis + 3age + ct$	14	1397.4	3.8
100	$2age + dis$	$2age$	$dis + 3age + ct$	12	1397.9	0*
101	$2age$	$2age + dis*fly + t$	$dis + 3age + ct$	24	1398.1	25.2
102	$2age$	$2age + dis + fly + t$	$dis + 3age + ct$	23	1398.5	23.3
103	$2age$	$2age + fly + t$	$dis + 3age + ct$	22	1408.3	28.4
104	$2age$	$2age + dis + t$	$dis + 3age + ct$	22	1398.6	21.3
105	$2age$	$2age + t$	$dis + 3age + ct$	20	1410.7	25.9
106	$2age$	$2age + dis*fly$	$dis + 3age + ct$	14	1410.5	13.3

107	<i>2age</i>	<i>2age + fly + dis</i>	<i>dis + 3age + ct</i>	13	1411.0	11.6
108	<i>2age</i>	<i>2age + fly</i>	<i>dis + 3age + ct</i>	12	1420.5	16.4
109	<i>2age</i>	<i>2age + dis</i>	<i>dis + 3age + ct</i>	12	1411.1	9.6
110	<i>2age</i>	<i>2age</i>	<i>dis + 3age + ct</i>	10	1421.2	12.8

Abbreviations: Φ^1 = apparent survival first half year Φ^{2+} = apparent survival subsequent full years; p = resighting; K = number of parameters; *dis*fly* = wintering region; t = annual variation; *dis* = distance; *2age* = 2 age classes; *3age* = 3 age classes; *ct* = camera trap; c = constant; *fly* = migratory flyway.

Notes: The selected model in step one and step two is highlighted in bold and corresponds to the most parsimonious model with a $\Delta QAIC_c < 2$.; *QAIC_c = 1040.35; **Model 1 corresponds to the **GOF model which did not distinguish Φ^1 and Φ^{2+} , nor included age effects.**

Table S4. Reverse stepwise approach, model selection results by step.

	Model	ϕ^1	ϕ^{2+}	p	K	Deviance	$\Delta QAIC_c$
Step 1 - Selection on S	1**		<i>dis*fly * t</i>	<i>dis*fly * t</i>	87	2116.4	690.9
	2	<i>2age * dis*fly * t</i>	<i>2age * dis*fly * t</i>	<i>dis * 3age * t</i>	167	1197.2	241.5
	3	<i>2age + dis*fly + t</i>	<i>2age + dis*fly + t</i>	<i>dis * 3age * t</i>	86	1297.4	93.2
	4	<i>2age + dis*fly + t</i>	<i>2age + dis + fly + t</i>	<i>dis * 3age * t</i>	85	1297.4	90.8
	5	<i>2age + dis*fly + t</i>	<i>2age + fly + t</i>	<i>dis * 3age * t</i>	84	1298.2	88.9
	6	<i>2age + dis*fly + t</i>	<i>2age + dis + t</i>	<i>dis * 3age * t</i>	84	1297.6	88.5
	7	<i>2age + dis*fly + t</i>	<i>2age + t</i>	<i>dis * 3age * t</i>	82	1299.3	84.9
	8	<i>2age + dis*fly + t</i>	<i>2age + dis*fly</i>	<i>dis * 3age * t</i>	78	1307.0	80.8
	9	<i>2age + dis*fly + t</i>	<i>2age + fly + dis</i>	<i>dis * 3age * t</i>	77	1307.1	78.5
	10	<i>2age + dis*fly + t</i>	<i>2age + fly</i>	<i>dis * 3age * t</i>	76	1308.7	77.2
	11	<i>2age + dis*fly + t</i>	<i>2age + dis</i>	<i>dis * 3age * t</i>	76	1307.4	76.3
	12	<i>2age + dis*fly + t</i>	<i>2age</i>	<i>dis * 3age * t</i>	74	1309.2	72.8
	13	<i>2age + dis + fly + t</i>	<i>2age + dis*fly + t</i>	<i>dis * 3age * t</i>	73	1314.2	74.1
	14	<i>2age + dis + fly + t</i>	<i>2age + dis + fly + t</i>	<i>dis * 3age * t</i>	84	1302.8	92.3
	15	<i>2age + dis + fly + t</i>	<i>2age + fly + t</i>	<i>dis * 3age * t</i>	83	1303.6	90.4
	16	<i>2age + dis + fly + t</i>	<i>2age + dis + t</i>	<i>dis * 3age * t</i>	83	1303.0	90.0
	17	<i>2age + dis + fly + t</i>	<i>2age + t</i>	<i>dis * 3age * t</i>	81	1304.6	86.3
	18	<i>2age + dis + fly + t</i>	<i>2age + dis*fly</i>	<i>dis * 3age * t</i>	77	1317.9	86.3
	19	<i>2age + dis + fly + t</i>	<i>2age + fly + dis</i>	<i>dis * 3age * t</i>	76	1311.9	79.6
	20	<i>2age + dis + fly + t</i>	<i>2age + fly</i>	<i>dis * 3age * t</i>	75	1313.7	78.5
	21	<i>2age + dis + fly + t</i>	<i>2age + dis</i>	<i>dis * 3age * t</i>	75	1312.0	77.2
	22	<i>2age + dis + fly + t</i>	<i>2age</i>	<i>dis * 3age * t</i>	73	1314.2	74.1
	23	<i>2age + fly + t</i>	<i>2age + dis*fly + t</i>	<i>dis * 3age * t</i>	84	1315.8	101.7
	24	<i>2age + fly + t</i>	<i>2age + dis + fly + t</i>	<i>dis * 3age * t</i>	83	1316.6	99.8
	25	<i>2age + fly + t</i>	<i>2age + fly + t</i>	<i>dis * 3age * t</i>	82	1325.1	103.6

26	$2age + fly + t$	$2age + dis + t$	$dis * 3age * t$	82	1317.3	97.9
27	$2age + fly + t$	$2age + t$	$dis * 3age * t$	80	1326.5	99.8
28	$2age + fly + t$	$2age + dis*fly$	$dis * 3age * t$	76	1321.3	86.4
29	$2age + fly + t$	$2age + fly + dis$	$dis * 3age * t$	75	1321.8	84.3
30	$2age + fly + t$	$2age + fly$	$dis * 3age * t$	74	1332.9	90.1
31	$2age + fly + t$	$2age + dis$	$dis * 3age * t$	74	1321.8	82.0
32	$2age + fly + t$	$2age$	$dis * 3age * t$	72	1333.6	85.8
33	$2age + dis + t$	$2age + dis*fly + t$	$dis * 3age * t$	84	1303.7	92.9
34	$2age + dis + t$	$2age + dis + fly + t$	$dis * 3age * t$	83	1303.9	90.6
35	$2age + dis + t$	$2age + fly + t$	$dis * 3age * t$	82	1304.5	88.6
36	$2age + dis + t$	$2age + dis + t$	$dis * 3age * t$	82	1304.8	88.8
37	$2age + dis + t$	$2age + t$	$dis * 3age * t$	80	1306.0	84.9
38	$2age + dis + t$	$2age + dis*fly$	$dis * 3age * t$	76	1312.1	79.7
39	$2age + dis + t$	$2age + fly + dis$	$dis * 3age * t$	75	1312.5	77.6
40	$2age + dis + t$	$2age + fly$	$dis * 3age * t$	74	1326.4	85.3
41	$2age + dis + t$	$2age + dis$	$dis * 3age * t$	74	1313.2	75.7
42	$2age + dis + t$	$2age$	$dis * 3age * t$	72	1315.3	72.5
43	$2age + t$	$2age + dis*fly + t$	$dis * 3age * t$	82	1321.3	100.9
44	$2age + t$	$2age + dis + fly + t$	$dis * 3age * t$	81	1322.2	99.1
45	$2age + t$	$2age + fly + t$	$dis * 3age * t$	80	1331.5	103.4
46	$2age + t$	$2age + dis + t$	$dis * 3age * t$	80	1323.4	97.6
47	$2age + t$	$2age + t$	$dis * 3age * t$	78	1334.4	100.7
48	$2age + t$	$2age + dis*fly$	$dis * 3age * t$	74	1328.8	87.1
49	$2age + t$	$2age + fly + dis$	$dis * 3age * t$	73	1329.5	85.2
50	$2age + t$	$2age + fly$	$dis * 3age * t$	72	1341.3	91.4
51	$2age + t$	$2age + dis$	$dis * 3age * t$	72	1329.8	83.0
52	$2age + t$	$2age$	$dis * 3age * t$	70	1342.7	87.6
53	$2age + dis*fly$	$2age + dis*fly + t$	$dis * 3age * t$	77	1317.9	86.3
54	$2age + dis*fly$	$2age + dis + fly + t$	$dis * 3age * t$	76	1317.9	83.9
55	$2age + dis*fly$	$2age + fly + t$	$dis * 3age * t$	75	1318.6	82.0
56	$2age + dis*fly$	$2age + dis + t$	$dis * 3age * t$	75	1317.9	81.5
57	$2age + dis*fly$	$2age + t$	$dis * 3age * t$	73	1333.3	88.0
58	$2age + dis*fly$	$2age + dis*fly$	$dis * 3age * t$	67	1332.1	72.9
59	$2age + dis*fly$	$2age + fly + dis$	$dis * 3age * t$	66	1332.3	70.7
60	$2age + dis*fly$	$2age + fly$	$dis * 3age * t$	65	1332.7	68.7
61	$2age + dis*fly$	$2age + dis$	$dis * 3age * t$	65	1332.5	68.6
62	$2age + dis*fly$	$2age$	$dis * 3age * t$	63	1333.0	64.3
63	$2age + fly + dis$	$2age + dis*fly + t$	$dis * 3age * t$	76	1321.6	86.6
64	$2age + fly + dis$	$2age + dis + fly + t$	$dis * 3age * t$	75	1322.2	84.6
65	$2age + fly + dis$	$2age + fly + t$	$dis * 3age * t$	74	1323.1	82.9
66	$2age + fly + dis$	$2age + dis + t$	$dis * 3age * t$	74	1322.2	82.3
67	$2age + fly + dis$	$2age + t$	$dis * 3age * t$	72	1324.1	78.9

	68	$2age + fly + dis$	$2age + dis*fly$	$dis * 3age * t$	66	1337.1	74.2
	69	$2age + fly + dis$	$2age + fly + dis$	$dis * 3age * t$	65	1337.4	72.1
	70	$2age + fly + dis$	$2age + fly$	$dis * 3age * t$	64	1337.8	70.0
	71	$2age + fly + dis$	$2age + dis$	$dis * 3age * t$	64	1337.6	69.9
	72	$2age + fly + dis$	$2age$	$dis * 3age * t$	62	1338.1	65.7
	73	$2age + fly$	$2age + dis*fly + t$	$dis * 3age * t$	75	1332.5	92.1
	74	$2age + fly$	$2age + dis + fly + t$	$dis * 3age * t$	74	1332.8	90.0
	75	$2age + fly$	$2age + fly + t$	$dis * 3age * t$	73	1340.2	92.9
	76	$2age + fly$	$2age + dis + t$	$dis * 3age * t$	73	1333.0	87.7
	77	$2age + fly$	$2age + t$	$dis * 3age * t$	71	1340.4	89.1
	78	$2age + fly$	$2age + dis*fly$	$dis * 3age * t$	65	1345.6	78.0
	79	$2age + fly$	$2age + fly + dis$	$dis * 3age * t$	64	1346.0	76.0
	80	$2age + fly$	$2age + fly$	$dis * 3age * t$	63	1353.3	79.0
	81	$2age + fly$	$2age + dis$	$dis * 3age * t$	63	1346.0	73.7
	82	$2age + fly$	$2age$	$dis * 3age * t$	61	1353.4	74.5
	83	$2age + dis$	$2age + dis*fly + t$	$dis * 3age * t$	75	1322.8	85.1
	84	$2age + dis$	$2age + dis + fly + t$	$dis * 3age * t$	74	1323.3	83.0
	85	$2age + dis$	$2age + fly + t$	$dis * 3age * t$	73	1323.9	81.1
	86	$2age + dis$	$2age + dis + t$	$dis * 3age * t$	73	1323.5	80.8
	87	$2age + dis$	$2age + t$	$dis * 3age * t$	71	1325.0	77.2
	88	$2age + dis$	$2age + dis*fly$	$dis * 3age * t$	65	1337.4	72.1
	89	$2age + dis$	$2age + fly + dis$	$dis * 3age * t$	64	1337.7	70.0
	90	$2age + dis$	$2age + fly$	$dis * 3age * t$	63	1337.9	67.8
	91	$2age + dis$	$2age + dis$	$dis * 3age * t$	63	1338.3	68.1
	92	$2age + dis$	$2age$	$dis * 3age * t$	61	1338.8	63.8
	93	$2age$	$2age + dis*fly + t$	$dis * 3age * t$	73	1336.6	90.4
	94	$2age$	$2age + dis + fly + t$	$dis * 3age * t$	72	1337.0	88.2
	95	$2age$	$2age + fly + t$	$dis * 3age * t$	71	1344.7	91.5
	96	$2age$	$2age + dis + t$	$dis * 3age * t$	71	1337.0	85.9
	97	$2age$	$2age + t$	$dis * 3age * t$	69	1346.9	88.4
	98	$2age$	$2age + dis*fly$	$dis * 3age * t$	63	1348.9	75.8
	99	$2age$	$2age + fly + dis$	$dis * 3age * t$	62	1349.1	73.9
	100	$2age$	$2age + fly$	$dis * 3age * t$	61	1357.3	77.3
	101	$2age$	$2age + dis$	$dis * 3age * t$	61	1349.4	71.6
	102	$2age$	$2age$	$dis * 3age * t$	59	1357.8	73.0
Step 2 - Selection on P	103	$2age + dis$	$2age$	$dis + 3age + t$	18	1390.5	7.1
	104	$2age + dis$	$2age$	$dis + 3age + ct$	12	1397.9	0.0*
	105	$2age + dis$	$2age$	$dis + 2age + ct$	11	1411.4	7.8
	106	$2age + dis$	$2age$	$dis + ct$	10	1510.0	77.4
	107	$2age + dis$	$2age$	$ct + 3age$	10	1420.7	12.5
	108	$2age + dis$	$2age$	ct	8	1523.4	83.0
	109	$2age + dis$	$2age$	$3age$	9	1457.7	37.3

110	<i>2age + dis</i>	<i>2age</i>	<i>c</i>	7	1597.1	134.6
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Abbreviations: Φ^1 = apparent survival first half year Φ^{2+} = apparent survival subsequent full years; p = resighting; K = number of parameters; $dis*fly$ = wintering region; t = annual variation; dis = distance; $2age$ = 2 age classes; $3age$ = 3 age classes; ct = camera trap; c = constant; fly = migratory flyway.

Notes: The selected model in step one and step two is highlighted in bold and corresponds to the most parsimonious model with a $\Delta QAIC_c < 2$. * $QAIC_c = 1040.35$; **Model 1 corresponds to the **GOF model which did not distinguish Φ^1 and Φ^{2+} , nor included age effects.**