

Safety of catching adult British birds at the nest

Table: Desertions of nest or chicks following capture of adults at the nest or with chicks

For each breeding stage the desertion rate (%), 0.95 confidence interval (% in brackets) and number of adults captured (italics) are given
 A - captive reported as safe, but no quantitative data available
 B - captive reported as extremely dangerous, but no quantitative data available

Species, catching method	Laying	Incubation			Breeding stages			
		1st half	2nd half	whole	hatching	early	middle	late
Red-throated Diver	-	-	33.3 (7.5-70.1) 9	-	16.8	-	-	-
Manx Shearwater	10.0 (2.1-26.6) 30	-	-	6.8 (1.9-16.5) 59	0.0 (0.0-12.0) 20	0.0 (0.0-7.1) 50	0.0 (0.0-3.6) 100	0.0 (0.0-7.1) 50
Storm Petrel	A	-	-	A?	-	-	-	-
Shag	0.0 (0.0-7.1) 50	1.8 (0.0-9.7) 55	0.0 (0.0-4.5) 80	-	0.0 (0.0-6.6) 54	0.0 (0.0-0.7) 535	0.0 (0.0-0.7) 520	0.0 (0.0-5.1) 71
Shelduck	-	-	33.3 (4.3-77.7) 6	-	-	-	-	-
Gadwall, total	-	-	14.9 (6.2-28.3) 47	-	-	-	-	-
Gadwall, trap	-	-	100.0 (47.8-100.0) 5	-	-	-	-	-
Mallard, total	-	42.9 (26.3-60.7) 35	5.9 (3.5-9.1) 323	-	1.2 (0.0-6.5) 83	-	-	-
Mallard, trap	-	88.9 (51.7-99.7) 9	60.0 (26.3-87.8) 31	67.7 (48.7-83.3) 31	-	-	-	-
Mallard, hand net	-	-	-	13.6 (5.2-27.3) 44	-	-	-	-
Mallard, in nest-box by hand	-	-	0.0 (0.0-1.8) 200	-	0.0 (0.0-7.1) 50	-	-	-
Garganey, bail trap	-	-	27.8 (14.2-45.2) 36	-	6.6 (3.2-11.8) 152	-	-	-
Garganey, hand net	-	5.3 (1.5-12.9) 76	0.0 (0.0-3.8) 96	-	0.0 (0.0-16.1) 21	-	-	-
Shoveler, bail trap	-	26.3 (9.1-51.2) 19	4.1 (1.7-8.4) 169	5.0 (2.7-8.3) 278	-	-	-	-
Shoveler, drop-door trap	-	-	-	0.0 (0.0-6.6) 34	-	-	-	-
Shoveler, hand net	-	0.0 (0.0-7.6) 47	0.0 (0.0-5.5) 65	-	-	-	-	-
Pochard, bail trap	-	15.6 (5.3-32.8) 32	10.2 (7.7-13.5) 441	7.1 (5.3-9.2) 708	1.5 (0.3-4.3) 202	-	-	-
Pochard, drop-door trap	-	-	-	4.0 (2.6-5.6) 707	-	-	-	-
Pochard, hand net	-	0.0 (0.0-26.5) 12	0.0 (0.0-21.8) 15	-	-	-	-	-
Tufted Duck, bail trap	-	24.8 (17.5-33.4) 125	10.8 (8.6-13.3) 659	-	4.0 (1.9-7.3) 247	-	-	-
Tufted Duck, drop-door trap	-	-	-	4.1 (3.5-4.9) 368	-	-	-	-
Tufted Duck, hand net	-	3.8 (1.2-3.7) 131	0.0 (0.0-3.9) 94	-	0.0 (0.0-37.0) 8	-	-	-
Eider	-	-	10.3 (6.5-15.3) 214	-	0.0 (0.0-10.0) 35	-	-	-
Goosander	66.7 (9.4-99.2) 3	-	7.7 (4.2-12.9) 168	-	-	-	-	-
Kestrel	-	0.0 (0.0-7.6) 47	-	-	-	-	2.4 (0.3-8.3) 85	0.3 (0.0-1.5) 368
Merlin	-	-	0.0 (0.0-5.3) 68	-	-	-	-	-
Willow Grouse	-	-	A	-	-	-	-	-
Oystercatcher	-	1.8 (0.7-3.9) 331	1.3 (0.4-3.0) 388	-	-	-	-	-
Avocet	-	-	0.0 (0.0-2.1) 178	-	-	-	-	-
Little Ringed Plover	-	-	-	0.2 (0.0-0.6) 1109	0.0 (0.0-10.3) 34	-	-	-
Ringed Plover	-	1.3 (0.2-4.6) 153	0.0 (0.0-1.2) 301	-	-	-	-	-
Dotterel	-	B	-	-	-	-	-	-
Golden Plover	-	50.0 (6.8-93.2) 4	-	-	-	-	-	-
Lapwing	-	16.7 (2.1-48.4) 12	4.2 (1.6-9.0) 142	-	-	-	-	-
Dunlin	B	0.4 (0.0-2.2) 247	0.0 (0.0-0.8) 465	-	0.0 (0.0-10.0) 35	0.0 (0.0-4.5) 80	-	-
Ruff	-	-	-	4.6 (1.0-12.9) 65	2.0 (0.0-10.5) 51	-	-	-
Common Snipe	-	-	10.7 (2.3-28.2) 28	-	-	-	-	-
Woodcock	-	-	-	40.0 (5.3-85.3) 5	-	-	-	-
Redshank	-	2.3 (0.5-6.5) 131	0.6 (0.0-3.3) 168	-	0.0 (0.0-13.2) 26	-	-	-
Red-necked Phalarope	-	-	-	0.0 (0.0-4.4) 82	-	-	-	-
Black-headed Gull	-	25.0 (8.7-49.1) 20	1.2 (0.5-2.5) 567	-	0.0 (0.0-3.6) 100	-	-	-
Lesser Black-backed Gull	-	-	1.9 (0.2-6.8) 103	-	-	-	-	-
Great Black-backed Gull	-	30.0 (6.7-65.3) 10	-	-	-	-	-	-
Kittiwake	-	-	0.0 (0.0-2.0) 185	-	-	0.0 (0.0-0.9) 430	0.0 (0.0-1.4) 360	-
Common Tern	-	40.3 (28.0-53.4) 62	2.7 (1.5-4.4) 552	-	-	-	-	-
Arctic Tern	-	-	0.0 (0.0-5.4) 66	-	-	-	-	-
Little Tern	57.1 (18.4-90.1) 7	-	1.8 (0.6-4.1) 282	2.1 (0.8-4.5) 290	-	-	-	-
Guillemot*	-	100.0 (39.8-100.0) 4	0.0 (0.0-3.6) 100	-	0.0 (0.0-5.3) 68	0.0 (0.0-3.3) 111	0.0 (0.0-3.6) 100	-
Razorbill	-	-	0.0 (0.0-8.6) 41	-	0.0 (0.0-7.9) 45	0.0 (0.0-5.9) 61	0.0 (0.0-7.9) 45	-
Puffin	50.0 (27.2-72.8) 20	10.0 (3.3-21.8) 50	10.0 (3.3-21.8) 50	-	10.0 (3.3-21.8) 50	0.0 (0.0-3.6) 100	0.0 (0.0-3.6) 100	0.0 (0.0-7.1) 50
Stock Dove	-	100.0 (39.8-100.0) 4	20.0 (0.5-71.6) 5	-	40.0 (5.3-85.3) 5	23.1 (5.0-53.8) 13	-	-
Barn Owl	-	-	-	16.7 (3.6-41.4) 18	-	0.0 (0.0-9.8) 36	-	-
Little Owl	6.7 (0.8-22.1) 30	6.3 (0.8-20.8) 32	3.2 (0.1-16.7) 31	-	0.0 (0.0-11.6) 30	0.0 (0.0-11.2) 31	-	-
Tawny Owl	-	-	-	32.2 (22.7-42.9) 90	10.4 (5.1-18.3) 96	1.9 (1.0-3.3) 672	0.0 (0.0-0.8) 444	0.0 (0.0-3.9) 92
Nightjar	B	-	50.0 (6.8-93.2) 4	-	-	-	-	-
Swift	36.4 (10.9-69.2) 11	16.7 (4.7-37.4) 24	3.5 (0.4-12.1) 57	-	28.6 (11.3-52.2) 21	18.4 (8.7-32.0) 49	1.7 (0.6-3.7) 349	0.5 (0.1-1.9) 373
Wryneck	42.9 (9.9-81.6) 7	-	-	2.0 (0.1-10.8) 49	-	-	-	-
Woodlark	-	100.0 (29.2-100.0) 3	50.0 (6.8-93.2) 4	-	-	-	-	-
Sand Martin	-	0.0 (0.0-3.6) 100	0.0 (0.0-2.2) 164	-	2.9 (0.6-8.3) 103	0.0 (0.0-3.2) 113	0.0 (0.0-0.6) 602	-
Swallow	80.0 (28.4-99.5) 5	14.3 (4.0-32.7) 28	0.0 (0.0-9.0) 39	-	0.0 (0.0-9.5) 37	1.6 (0.0-8.5) 63	0.0 (0.0-9.5) 37	-
House Martin	-	-	2.8 (0.1-14.5) 36	-	0.0 (0.0-6.6) 54	0.7 (0.0-4.1) 134	0.0 (0.0-2.2) 163	-
Meadow Pipit	-	-	-	-	44.4 (13.7-78.8) 9	-	9.1 (0.2-41.2) 11	-
Grey Wagtail	-	100.0 (15.9-100.0) 2	-	-	-	-	-	-
Dipper	B	-	B	7.5 (3.3-14.2) 107	50.0 (6.8-93.2) 4	0.0 (0.0-15.4) 22	0.0 (0.0-5.9) 61	B
Wren	-	42.7 (31.4-54.8) 75	11.5 (4.3-23.5) 52	-	-	-	-	0.0 (0.0-7.6) 47
Robin	-	51.3 (34.7-67.2) 39	11.1 (1.4-34.7) 18	-	-	A	A	A

On the initiative of EURING information on safety of catching adult birds at the nest was collected from 250 ringers representing 10 ringing schemes. Data on 57,000 captures of 177 species were gathered. Half of the material was provided by 95 British ringers. Several thousand captures described in the literature were included as well. The full report, containing a list of contributors, was published elsewhere (Kania 1992). Here I summarise the published results, supplemented with data received recently from Wader Study Group members: M. Engelmoer, H.-U. Rosner and O. Thorup.

The table shows the desertion rate for species breeding in the UK, resulting from captures of those species throughout Europe. It includes data not in table 3 of the original publication, but mentioned in adjoining species comments. Also some numbers published in table 3 have been excluded as explanations received later showed that the catching circumstances were unusual (eg Redshank).

The information received is a mixture of field observations and estimates made at a later date and sometimes based on impressions gained through many years. Serious differences between these two kinds of data were found only for Great Tit.

Desertion rate is given as percentage of captures resulting in nest desertion which were probably caused by catching and/or handling. To show how big the difference between calculated and real desertion rates may be the 95% confidence interval was computed. Please note however that these confidence limits assume that catching circumstances are always similar, and this is not the case. The confidence interval was computed using the method given by Zar (Biostatistical Analysis 1984) - thus it is different from the original publication.

In some species which generally demonstrated high sensitivity to disturbance, catching in some places or using particular methods proved to be quite safe. The opposite was also found. Thus it should be kept in mind, that the data are a summary of experiences gained by some ringers and cannot be substituted for any full description of the influence of catching adults at the nest on clutch/brood fate.

As a rule data concerning a small number of captures are omitted. Exceptions were made when calculated desertion rates concerned some adjacent breeding stages, thus giving some idea on real desertion rate in spite of small number of captures reported for each of those stages. For calculated desertion rate of 0 only cases with at least 31 captures are shown.

In the original publication additional detailed information and comments are given for many species. Here only the most important, which can also apply to other species, are summarised.

At least in some species sensitivity to disturbance is greatest during and just before nest building as well as after nest building, but before egg laying. Catching birds then (eg lured with tape recorder) can result in them deserting the territory. In general, as breeding advances the probability of the adults deserting falls. However, catching the adults in the last days before fledging often causes nestlings to "explode", which in turn, can reduce their survival. In waders capture of adults brooding

chicks can be more dangerous for their progeny than trapping during incubation.

The desertion rate depends on the method of capture (see eg ducks in the table) and behaviour of the ringer. Catching with a net put even a metre or so from the nest is less risky than catching with a nest-trap or by hand. In many cases sensitive birds proved to be less prone to abandon the nest when trapped by devices that did not frighten them and allowed them to incubate inside the trap (eg walk-in trap, sometimes drop-door traps).

Of "frightening" traps those which diminish the anxiety of a captured bird should be chosen eg bail traps covered with dark fabric in some species keep a trapped bird more quietly than bow traps covered with netting. However it should be mentioned that often safer traps are less efficient. If an individual is agitated rapid extraction is crucial to reduce stress, preventing the bird from injuring the pulli and the eggs from breaking. It is especially important for traps made of thin wire, which can easily wound the base of the bill of a bird trying to escape. In some situations eggs can be replaced by dummy eggs during the catching attempt. Genuine eggs should be then kept at the proper temperature.

The length of time spent trapping and handling should be kept to a minimum. In some waders 40 minutes in usual circumstances and one hour in good, warm weather was suggested to be the maximum safe time to keep a trap set.

Catching the same bird more than once in one day can lead to abandonment of the nest even in quite insensitive species. Also catching both parents in one session can result in an extended period when the nest is not attended, exposing it to predators and cooling. The threat increases when the level of predation (also intraspecific, in a colony) is high, when trapped birds do not return to nest for a long time and if both parents are not caught in quick succession.

Manipulations at the nest should be performed without damaging any plant cover and without treading a path to the nest. Ringers also need to avoid leaving too strong a scent-trail, by staying at the nest a short time and minimizing contact between their hands and the nest and its surroundings. This is particularly important in ground and scrub breeding birds. In ground colonies care must be taken not to move nestlings into neighbouring territories where they are often killed by territory owners. In wetland colonies escaping chicks can drown in water or get soaked.

Desertion rate can depend greatly on the abundance of predators and can be higher in late and replacement broods, in lower quality habitat, and in the marginal parts of a colony.

Negative effects of catching increase when the weather is bad, as eggs and nestlings cool more quickly, the demand for energy needed to maintain body temperature increases, food availability decreases and frightened parents additionally stop feeding for some time. Supplying adults with additional food or giving food to nestlings can sometimes be helpful.

The time of day can have pronounced influence on the probability of a nest being abandoned. In the Great Tit desertion rate of

incubating females increased from 6.5% before noon (confidence interval = 1.4-17.9, n = 46) through 21.0% between 12 and 17 hrs (c.i = 11.7-33.2, n = 62) to 42.6% later (c.i = 28.3-57.9, n = 47). For capture on small nestlings (with wing length up to 12 mm, ie in first 5-6 days of life) performed before noon desertion rate was 6.5% (c.i = 1.4-17.9, n = 46), whereas 29.0% (c.i = 20.5-38.7, n = 107) later. In colonial birds catching can be safer when both parents are present in the colony.

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Reference

Kania, K. (1992) Safety of catching adult European birds at the nest. Ringers' opinions. *The Ring* 14, 1-2: 5-50

If ringers would like a copy of Wojciech's full paper please write to Nicki Read at the Ringing Unit including an A5 envelope with stamps to the value of 31p (second class). Ed.

Species, catching method	Laying	Incubation		Breeding stages				
		1st half	2nd half	whole	hatching	early	middle	late
Black Redstart	-	-	-	5.0 (3.2-65.1) 8	-	-	-	-
Redstart	-	15.0 (3.2-37.9) 20	7.9 (3.0-16.4) 76	-	-	1.9 (0.0-10.3) 52	0.9 (0.0-5.1) 106	0.0 (0.0-4.8) 76
Whinchat	-	-	-	-	-	-	0.0 (0.0-6.1) 59	0.0 (0.0-4.9) 74
Wheatear	B	-	-	-	-	-	0.0 (0.0-1.5) 250	-
Blackbird	-	66.7 (9.4-99.2) 3	25.0 (3.2-65.1) 8	-	-	-	A	A
Song Thrush	-	-	-	-	-	-	B	-
Redwing	-	-	-	-	-	A	1.4 (0.2-5.1) 138	1.5 (0.2-5.3) 134
Sedge Warbler	0.0 (0.0-52.2) 5	0.0 (0.0-52.2) 5	0.0 (0.0-13.7) 20	-	-	0.0 (0.0-16.8) 20	0.0 (0.0-7.6) 31	0.0 (0.0-6.9) 33
Garden Warbler, some m off nest	-	A	A	-	-	-	-	-
Willow Warbler	-	-	-	-	-	0.0 (0.0-5.8) 62	0.0 (0.0-5.9) 61	0.0 (0.0-6.0) 60
Pied Flycatcher	5.2 (3.5-7.3) 543	2.1 (1.7-2.7) 3099	0.5 (0.3-0.8) 3145	-	1.7 (0.7-3.3) 475	0.6 (0.4-0.9) 4281	0.3 (0.1-0.5) 4282	0.3 (0.1-0.7) 2390
Marsh Tit	-	-	-	-	-	-	0.0 (0.0-7.8) 46	-
Willow Tit	-	36.4 (10.9-69.2) 11	40.9 (20.7-63.7) 22	-	-	12.1 (5.0-23.3) 58	4.7 (1.9-9.4) 150	0.4 (0.0-1.3) 542
Crested Tit	-	-	-	2: 0 (7.3-52.4) 16	16.7 (2.1-48.4) 12	4.5 (0.1-22.9) 22	0.0 (0.0-6.7) 53	2.2 (0.3-7.8) 90
Coal Tit	-	21.7 (7.4-43.7) 23	2.5 (0.1-13.1) 40	-	-	0.0 (0.0-1.2) 299	0.0 (0.0-3.3) 109	0.0 (0.0-2.2) 163
Blue Tit	29.2 (12.6-50.9) 24	8.4 (5.4-12.3) 285	3.4 (1.5-6.5) 237	-	2.6 (0.3-9.1) 77	3.8 (1.6-7.3) 213	1.8 (0.4-5.2) 167	0.0 (0.0-0.9) 395
Great Tit, exact data only	24.7 (15.5-37.9) 77	17.8 (13.9-21.8) 432	13.5 (10.0-17.5) 384	-	6.7 (2.2-14.9) 75	16.0 (12.2-20.4) 356	4.6 (2.5-7.5) 329	1.5 (0.5-3.6) 323
Treecreeper	68.0 (46.8-85.1) 25	28.3 (16.8-42.4) 53	4.2 (2.7-6.1) 574	-	0.0 (0.0-6.5) 55	3.1 (0.6-8.8) 97	1.5 (0.5-3.1) 407	0.0 (0.0-1.9) 196
Red-backed Shrike	-	-	-	-	-	0.0 (0.0-9.2) 38	0.0 (0.0-3.8) 96	-
Starling	42.4 (20.4-54.8) 33	-	-	8: 1 (4.6-14.2) 154	3.7 (0.5-12.8) 54	14.8 (4.2-33.7) 27	0.0 (0.0-6.6) 54	-
House Sparrow	-	-	-	B	-	35.3 (24.1-47.8) 68	-	A
Tree Sparrow	28.6 (3.7-70.9) 7	66.7 (34.9-90.1) 12	23.1 (5.0-53.8) 13	B	B	B	-	-

* catching adult in the colony Guillemots result in eggs and chicks falling from cliffs, especially when the latter are more than 10 days old.