

Natural England

Updating minimum and maximum numbers during badger control operations

Annex A1

December 2018

Background

In 2018, as in previous years, it became apparent from daily data collected through the course of badger control operations and actual circumstances being observed in the field, that there was a wider range of badger abundance across the control areas in 2018 than initially estimated. Specifically, some badger control companies were removing more badgers than expected and some were removing fewer despite equivalent amounts of effort deployed by similarly trained contractors.

This necessitated updating of the minimum and maximum numbers for 28¹ control areas following the advice published by Defra in September 2018 (Section D)².

Updating numbers in Areas 4 to 31

The method used to update the minimum and maximum numbers has not been changed from 2017, but has been improved to take into account data from effective first year control areas³ and effective second and third year control areas in previous years⁴.

For an area that had deployed sufficient effort, the minimum and maximum numbers were recalculated using an historical comparator. Taking data from the previous years' effective control areas, the proportion of the Day 42 cull total that was achieved on each day in each area is calculated, then averaged across areas to generate the historical comparator. This allows the prediction of the expected Day 42 total for any area, from any given day. The minimum and maximum numbers are then set equidistant around the expected cull total.

¹ Of the two remaining areas, one (Area 3 – Dorset) did not have their minimum and maximum numbers updated owing to insufficient historical data on which to base calculations for areas in their fourth year of operations, and the other (Area 32 – Cumbria) did not have minimum and maximum numbers.

² <https://www.gov.uk/government/publications/advice-to-natural-england-on-setting-minimum-and-maximum-numbers-of-badgers-to-be-controlled-in-2018>.

³ In 2015 this was Area 3, in 2016 this was Areas 4 to 10, and in 2017 this was Areas 11 to 21.

⁴ In 2016 this was Area 3 (Year 2), and in 2017 this was Area 3 (Year 3) and Areas 4 to 10 (Year 2).

The updated minimum and maximum numbers in seven areas⁵ were further increased by 1.5% per operational day as an additional precautionary measure given continuation in those areas beyond 42 days in order to maximise disease control.

The updated minimum and maximum numbers for one area (Area 8 – Dorset) were based on an assessment of the data on Day 38. Natural England considered it appropriate to further adjust the numbers upwards on the basis of careful consideration of evidence, which showed an increase in the numbers of badgers removed following the initial decision to adjust numbers based on data from Day 28.

In the first week of the operations it became apparent that there were considerably more badgers in Area 15 – Devon than the initial sett survey population estimate had suggested. The numbers were therefore updated to a minimum number of 323 and a maximum number of 559 using the methodology explained above. These numbers were updated again based on data from Day 28.

Between 18 and 21 September 2018, Natural England adjusted the minimum and maximum numbers in five areas⁶ in order to take account of a change to their control areas. These numbers were updated again based on data from Day 28.

The data used to calculate the minimum and maximum numbers and the resulting updated numbers are presented in Table 1.

Table 1: Data for updating minimum and maximum numbers in Areas 4 to 31 during badger control operations.

Area	Day	Effort ⁷	Badgers removed to date	Updated minimum number	Updated maximum number
Area 4 – Cornwall	28	49.5	129	174	236
Area 5 – Cornwall	28	69.8	225	264	358
Area 6 – Devon	28	100.3	472	553	750
Area 7 – Devon	28	51.9	125	164	223
Area 8 – Dorset	38	90.8	993	921	1250
Area 9 – Gloucestershire	28	79.0	705	826	1121
Area 10 – Herefordshire	28	80.9	224	262	356
Area 11 – Cheshire	28	122.8	367	426	578
Area 12 – Devon	28	128.5	893	1037	1407

⁵ Areas 4, 6, 12, 13, 18, 30, and 31. The minimum and maximum numbers presented in Table 1 exclude the further increase by 1.5% per operational day.

⁶ Areas 13, 15, 17, 19, and 20.

Table 1: Data for updating minimum and maximum numbers in Areas 4 to 31 during badger control operations (continued).

Area	Day	Effort ⁷	Badgers removed to date	Updated minimum number	Updated maximum number
Area 13 – Devon	28	104.9	629	730	991
Area 14 – Devon	28	119.2	351	408	553
Area 15 – Devon	28	147.3	400	464	630
Area 16 – Dorset	28	100.0	2106	2446	3319
Area 17 – Somerset	28	124.5	667	775	1051
Area 18 – Somerset	28	117.0	385	447	607
Area 19 – Wiltshire	28	105.2	1203	1397	1896
Area 20 – Wiltshire	28	105.3	690	801	1087
Area 21 – Wiltshire	28	137.8	841	977	1325
Area 22 – Cornwall	28	134.2	2718	3063	4157
Area 23 – Devon	28	151.1	1727	1946	2642
Area 24 – Devon	28	117.5	638	719	976
Area 25 – Devon	28	148.1	636	717	973
Area 26 – Devon	28	130.5	673	759	1029
Area 27 – Devon	28	124.4	223	251	341
Area 28 – Devon	28	141.1	382	431	584
Area 29 – Gloucestershire	28	118.3	1168	1316	1787
Area 30 – Somerset	28	132.6	2036	2295	3114
Area 31 – Staffordshire	28	141.7	2818	3176	4310

⁷ All areas expended an appropriate level of targeted effort across their control area. For first year control areas this was a minimum of 112.7 effort units per 100km² per night. For second, third and fourth year control areas this was relative to the abundance of badgers reported in the area, with a recommended target of 64 effort units per 100km² per night.



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