

Addendum to ISG 1632 - Levels of Interference with Trapping Operations

The numbers of traps, the trapping success and levels of interference (through anti-trial activity or capture of non-target species) are here described per night of the cull (Figure 1, 2). As expected, the proportion of badgers taken per trap decreased on successive nights of the cull. Anti-trial activity appeared to decrease as culling progressed as did the rate of capture of non-target species (although to a lesser extent). Linear regression analyses of the proportion of traps lost to anti-trial activity or non-target species verified ($p < 0.01$) that both of these incidents decreased with each successive day of culling.

In the light of the apparent relationship between interference and night of the cull, a more accurate representation of the impact of interference might be obtained by weighting trapping effort (and any associated interference) by the expectation of catching badgers on each night of the cull. Hence, traps set earlier in the cull were deemed to be more 'valuable' as the expectation of catching badgers was higher. If interference was uniform throughout the culling period then weighted interference estimates would be similar to unweighted estimates however, if interference was targeted at the more 'valuable' traps then the impact of interference on trapping effort will be higher than unweighted interference estimates would indicate.

To calculate the weights applied to traps on each day, the cumulative frequency distribution of the numbers badgers taken was used. A correction for any badgers that were missed due to interference was calculated. The number of missed badgers was calculated for each night of each cull by multiplying the number of interfered traps by the rate of badger capture among all remaining traps on the same night and rounded to the nearest whole badger. Weights were calculated as $1/(\text{cumulative frequency of corrected badgers taken})$. Numbers of weighted traps set and interfered with were totalled within each cull.

The weighted interference estimate among in proactive operations was 10.1% resulting in an estimated 877 badgers being missed across the 42 operations carried out and having appropriate data (Table 1). Interference with reactive operations was lower (6.0%) and resulted in an estimated 108 badgers being missed from the 62 operation included (Table 1). The majority of interference was due to anti-trial activity as opposed to the capture of non-target species and as a consequence, more missed badgers can be attributed to anti-trial activity (Table 2).

Table 1 – Not weighted and weighted levels of interference across all Proactive and Reactive operations. 42 of the 51 proactive operations and 62 of 77 reactive operations had appropriate data to be included.

Treatment	Days of trapping	Potential trapping opportunities	Badgers culled	Badgers missed	NTS‡ trapped	Badgers released	Traps Interfered with	Total lost opportunities	Proportion of opportunities lost
Proactive Not Weighted	416	109956	6862	877	960	226	9075	10261	0.093
Proactive Weighted	416	155974.67	6862	877	1432.25	410.98	13918.85	15762.08	0.101
Reactive Not Weighted	495	21109	1748	108	234	29	943	1206	0.057
Reactive Weighted	495	28926.24	1748	108	370.3393	46.10543	1319.435	1735.88	0.060

† calculated for each cull day as the number of interfered traps multiplied by the number of badgers taken per available trap

‡ NTS = Non-target species

Table 2 – Proportions of trapping opportunities lost and estimated numbers of badgers missed due to either anti-trial activity or capture of non-target species

		Proportion of traps lost to:		Estimated numbers of badgers missed due to:	
		Anti-trial activity	Capture of Non-target species	Anti-trial activity	Capture of Non-target species
Proactive	Not weighted	0.085	0.0087	794	63
	Weighted	0.092	0.0092		
Reactive	Not weighted	0.046	0.011	99	7
	Weighted	0.047	0.013		