Annex B

Natural England compliance monitoring summary of controlled shooting during the 2015 badger control licences

Natural England report to Defra & the Chief Veterinary Officer

Introduction

In August 2013, licensed culling of badgers commenced in two locations (West Somerset (WS) and West Gloucestershire (WG)) for a minimum of four years as part of Government's policy on bovine TB and badger control in England (published in December 2011). Two culling methods were permitted, namely controlled shooting and cage trapping and dispatch. Following the completion of two years of culling in WS and WG, the Secretary of State announced on 28 August 2015 that the policy would be extended to a third area within the High Risk Area, namely Dorset.

The Chief Veterinary Officer (CVO) reiterated the importance of monitoring the control licences to ensure compliance with licence conditions and Best Practice Guides and to keep a check on the humaneness of controlled shooting. To enable a direct comparison with last year's results on the outcome of controlled shooting, the CVO requested that Natural England report the findings of a similar number of shooting events of badgers in the field to last year's. It was agreed that compliance monitoring would be conducted on a proportionate scale with the main focus being on Dorset, it being in its first year.

To assess the shooting accuracy of contractors in the Dorset area, Defra requested that Post Mortem Examinations (PMEs) be conducted on approximately 20 carcasses and that at least 50% of these be obtained from shooting events that had been observed by Natural England monitors (to provide a field-based narrative to PMEs).

All new contractors received appropriate training and all returning contractors received refresher training. Prior to Year 1 in Dorset, this training was further improved by the use of 3D badger targets during field based simulations to test whether contractors could select the correct shot placement on animals presented at different angles.

Methods

Field monitoring

Natural England deployed nine monitors to conduct compliance monitoring of

contractors licensed to carry out controlled shooting in the WS, WG and Dorset badger control licence areas. Two were assigned to WS, two to WG and three to Dorset; the remaining two alternated between the areas.

Monitors were equipped with suitable viewing equipment to observe events, remaining close enough to the contractor to enable a clear view of the target species prior to and post shot. Observations that were recorded in the field included numbers of badgers shot at and retrieved, numbers of badgers shot at but missed and number of shots taken for each badger.

Where monitors observed a shot, and regardless of its outcome, they recorded badger reaction to the shot.

Results

Monitoring events

Natural England monitors conducted a total of 101 controlled shooting visits across all three areas (25 in WG, 12 in WS and 64 in Dorset) during each six week period.

Of the 105 contractors who participated in controlled shooting (39 in WG, 28 in WS and 38 in Dorset), Natural England conducted compliance monitoring visits on 60 (19 in WG, nine in WS and 32 in Dorset). This represented 57.1% of the controlled shooting contractors for all three areas (48.7% in WG, 32.1% in WS and 84.2% in Dorset). The aim was to conduct compliance monitoring of as many contractors as possible during the six weeks (with an emphasis on Dorset) but not all.

Shooting events

Natural England monitors recorded data on 63 shooting events (three in WG, seven in WS and 53 in Dorset) during the six week period, which required 1.6 visits per shooting event. The outcome of shooting events for the three areas combined is presented in Table 1. 57 badgers were shot at and retrieved, with 49 of these receiving a single shot and eight receiving multiple shots. Six badgers were shot at and missed.

Total number of shooting events for all areas		**63**
Number of badgers shot and retrieved		57
i. number of badgers receiving single shots	49	
ii. number of badgers receiving multiple shots	8	
Number of badgers shot at but missed		6

Table 1. Number of shooting events and their outcomes for all areas

The outcome of shooting events for WG is presented in Table 2. A total of three shooting events was recorded. Three badgers were shot at and retrieved, with all three of these receiving a single shot.

Total number of shooting events for WG	**3**

Number of badgers shot and retrieved		3
i. number of badgers receiving single shots	3	
ii. number of badgers receiving multiple shots	0	
Number of badgers shot at but missed		0

Table 2. Number of shooting events and their outcomes for WG

The outcome of shooting events for WS is presented in Table 3. A total of seven shooting events was recorded. Seven badgers were shot at and retrieved, with six of these receiving a single shot and one receiving multiple shots.

Total number of shooting events for WS		**7**
Number of badgers shot and retrieved		7
i. number of badgers receiving single shots	6	
ii. number of badgers receiving multiple shots	1	
Number of badgers shot at but missed		0

Table 3. Number of shooting events and their outcomes for WS

The outcome of shooting events for Dorset is presented in Table 4. A total of 53 shooting events was recorded. 47 badgers were shot at and retrieved, with 40 of these receiving a single shot and seven receiving multiple shots. Six badgers were shot at but missed.

Total number of shooting events for Dorset		**53**
Number of badgers shot and retrieved		47
i. number of badgers receiving single shots	40	
ii. number of badgers receiving multiple shots	7	
Number of badgers shot at but missed		6

Table 4. Number of shooting events and their outcomes for Dorset

Badgers shot at and retrieved

For those badgers that were shot at and retrieved, Natural England monitors recorded badger reaction to the shot into four distinct categories, namely 'Dropped to the shot', 'Reacted to the shot, moved a short distance and dropped', 'Reacted to shot, follow-up shot/s taken and dropped' and 'Reacted to the shot, moved a short distance, follow-up shot/s taken and dropped to shot/s'. Table 5 presents these results and shows that of the 57 badgers shot at and retrieved, 43 (75%) dropped instantly to the shot, eight (14%) moved a short distance after the shot and dropped and six (11%) reacted to the shot in such a way that follow-up shots were deemed necessary.

Badger Reaction to Shot	**WG**	**WS**	**Dorset**	**Total**
Dropped to the shot	3	6	34	43
Reacted to shot, moved a short distance and dropped	0	1	7	8
Reacted to shot, follow-up shot/s taken and dropped	0	0	3	3
Reacted to shot, moved a short distance, follow-up shot/s taken and dropped to shot/s	0	0	3	3
Total	**3**	**7**	**47**	**57**

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Table 5. Monitor observations of badger reaction to shot

There were eight incidences (13%) over two of the three areas where Natural England monitors recorded multiple shots on badgers from those that were shot at and retrieved. Two of these received three shots, with the remainder receiving two. Table 6 below categorises these multiple shots:

Multiple (follow-up) shots	WG	WS	Dorset	Total
Animal dropped to shot – precautionary follow-up shot taken	0	1	1	2
Animal reacted to shot – follow-up shot/s taken	0	0	3	3
Animal moved a certain distance following first shot – follow-up shot/s necessary	0	0	3	3
Total	**0**	**1**	**7**	**8**

Table 6. Categorisation of follow-up shots on badgers

Badgers shot at but missed

Of the 63 shooting events observed by Natural England monitors over the three badger control licensed areas in 2015, six were recorded as 'misses'. These were all in Dorset. This equates to 9.52% and is consistent with the number of 'shot at but not retrieved' recorded during the 2014 control licences.

Misses will occur on occasion in any wildlife management control programme where firearms are involved. The contractor has control over the condition of his firearm, the ammunition used, the zeroing of the rifle and his shooting technique. Once the trigger is released, external parameters outside of the contractor's control come into play. The most common reason for misses outside of the contractor's control is movement of the target species simultaneously with trigger release.

As Dorset is within its first year of control, its contractors will not have previous experience of shooting badgers. This inexperience can be addressed by learning more about badger behaviour and anticipating the movement of these animals when they are engaged in particular activities.

To ensure that a monitor can differentiate between a 'miss' and 'a wounded and lost' event, the following information is gathered on the circumstances of the shot:

- Distance of badger when shot taken? – this will have an influence on where the bullet actually strikes relative to the Point of Aim (POA). For example, if the badger is within close proximity to the contractor, the bullet strike will be slightly low of the POA on a rifle that is zeroed at 70 metres.
- Any audible bullet strike? – if a bullet is on target, there will be an audible noise consistent with hitting something solid, e.g. a thump. A bullet that cleanly misses its target will have very little (if any) audible strike (over and above the 'crack' of the report) when entering an earth backstop.
- Any reaction to the shot? – a badger that has been hit will exhibit some

sort of reaction, whether this is dropping to the ground, jumping forward or into the air, or spinning round.

- Gait of badger when it left the site? – a badger that has been hit will usually exhibit an abnormal gait when leaving the site.
- Any blood, hair or bone at the strike site? – an absence of any of these signs suggests that the shot was a miss.
- Any blood along the exit trail of the badger? – an absence of blood suggests a miss.
- Any badgers shot immediately prior to and/or post the miss? – this will give an indication as to zero of the rifle i.e. its accuracy.

	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6
Date	03/09/2015	04/09/2015	10/09/2015	17/09/2015	23/09/2015	23/09/2015
Distance of badger	40m	60m	50m	40m	50m	40m
Audible bullet strike	No	No	No	No	No	No
Reaction to shot	Paused, looked in direction of contractor then ran downhill 50m into cover	Paused for 5 seconds then ran 60m up a steep slope into cover	Ran immediately for 80m into cover	Ran immediately for 100m into hedgerow	Ran immediately for 300m until out of sight	Ran immediately for 60m in one direction, then 100m in the opposite direction into cover
Gait of fleeing badger	Normal	Normal	Normal	Normal	Normal	Normal
Blood, hair or bone at strike site	None	None	None	None	None	None
Blood along flight line	None	None	None	None	None	None
Animals shot prior to and/or post miss	Prior to and post – no issues	Prior to – no issues	None	Prior to – no issues	Post – no issues	Prior to – no issues

Table 7. Monitor observations of shooting events where badgers were shot at and missed

Monitor observations and post-mortem data

In 22 cases where a monitor recorded a shooting event in Dorset of 'shot at and retrieved', an accompanying PME of the resultant carcass was conducted by APHA. Table 8 below presents the summary of the data for monitor observations and corresponding PME findings for Dorset. Of the 22 shooting events, 21 badgers (95%) were found to have major firearm injury to the thorax on PME. One badger carcass (5%) had no firearm injury to the thorax on PME. On the 13 occasions (59%) where monitors observed badgers dropping to the shot (with no precautionary or necessary follow-up shot taken), 12 (92%) of the carcasses revealed major firearm injury to the thorax at PME, with the remaining one (8%) having no injury to the thorax (however, the PME revealed major firearm injury to the abdominal aorta). Four badgers were observed to react to the shot and move a short

distance before dropping. All four had major firearm injury to the thorax on PME. Of the badgers (four) that received follow-up shots (whether precautionary or required), all four had major firearm injury to the thorax on PME.

Full details of monitor observations and corresponding PMEs can be viewed at Annex C.

Monitor observations	Corresponding PME	Dorset
Dropped to the shot	Major firearm injury identified in thorax	13
Dropped to the shot	No firearm injury identified in thorax	1
Reacted to shot, moved a short distance and dropped	Major firearm injury identified in thorax	4
Reacted to shot, follow-up shot/s taken and dropped	Major firearm injury identified in thorax	3
Reacted to shot, moved a short distance, follow-up shot/s taken and dropped to shot/s	Major firearm injury identified in thorax	1
	Total	**22**

Table 8. Monitor observations of shooting events and corresponding post-mortem findings