



## Annex D

### Monitoring of controlled shooting of badgers – Necropsy protocol for badger carcasses submitted during the second year of the culls

#### 1. THE PROCEDURE

##### 1.1 Ear Tip Sampling

All carcasses eligible for necropsy will require ear tip sampling before proceeding with the necropsy.

##### 1.2 Personnel



The necropsy procedure involves two people:-

1. The veterinarian performing the necropsy.
2. The 'scribe' supporting the procedure. The 'scribe' should avoid contact with the carcass and any associated fluids. The main duties of the 'scribe' are:-
  - i. To complete the necropsy data capture sheets as instructed by the veterinarian conducting the necropsy.
  - ii. To take photographs as required.

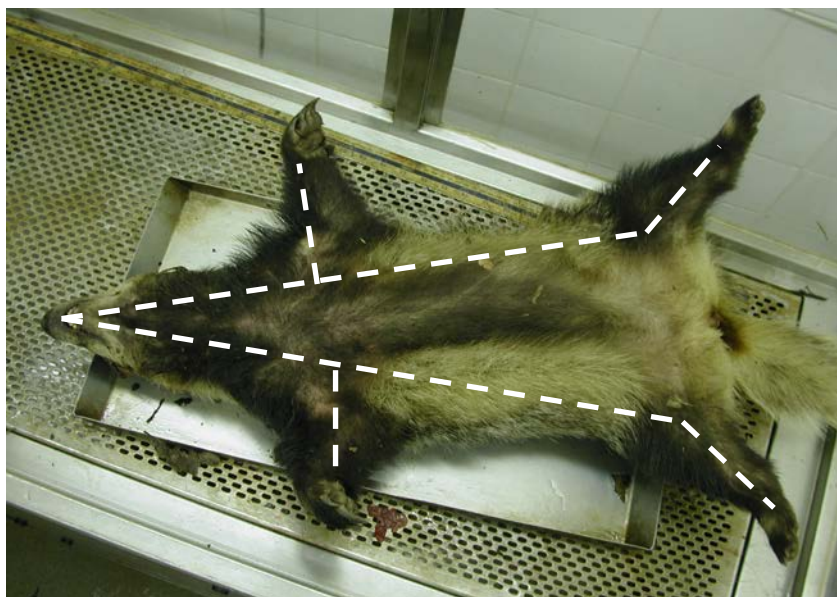
##### 1.3 Photography requirements

Photographs should be taken at the discretion of the examining veterinarian. Any photographs taken must include a label annotated with the badger's EID number, the date and the tissue/site being photographed; specific laminated labels (that can be written on with a permanent marker pen) are provided for this purpose.

##### 1.4 Details of the necropsy procedure

1. A clean set of instruments must be used for each carcass.
2.  **(manual handling hazard)** Place the bagged badger carcass on the draught table and remove the carcass from the bags. Locate the EID tag which will be present loose within the inner bag.
3. Dispose of the used carcass bags into the waste bags (an inner woven and an outer plastic bag) contained in the red bin (the red bin is located adjacent to the draught table). Immediately replace the lid on the red bin. If any contamination of the external surface of the red bin occurs, disinfect the outside of the bin with FAM30  **(chemical hazard)**.

4. **⚠ (chemical hazard)** The carcass must be sprayed with Frontline. The veterinarian should manipulate the carcass to expose all areas of the hair coat; the 'scribe' sprays the carcass without making direct contact with the carcass.
5. Identify each badger carcass by its EID number. Ensure the EID number on the carcass matches that on the EID label on the necropsy data capture sheets.
6. All carcasses presented for necropsy should have been shot by rifle. If the necropsy findings suggest a different weapon has been used or that the badger was not shot, report this immediately to the lead PM room veterinarian. The lead PM room veterinarian will record any anomaly of this type in the comments box on the Badger Tracking Form.
7. Determine whether the badger is male or female. Record the sex of the badger on the necropsy data capture sheets.
8. Prepare the carcass for dissection. The carcass should initially be presented with its ventral surface uppermost.
9. **⚠ (sharps hazard)** Skin the ventral surface of the carcass. This skinning process is started by cutting the skin from the mandibular symphysis towards the left and right inguinal regions, to create a triangular flap of skin with the base of this triangle (still attached to the body surface) in the caudal region of the carcass. The skin cuts must be extended along the medial surface of each limb followed by further dissection of subcutaneous tissues and retraction of the skin from the entire ventral surface of the carcass and the medial surface of each limb. Retraction of the skin from the body surface should be extended as far as possible towards the dorsal/lateral surfaces of the carcass. This skinning of the ventral surface of the carcass should take into account that the ultimate aim is to remove the entire pelt in one piece. See the image below for the recommended incision lines. **During the skinning process, avoid cutting through any obvious skin wounds; cut around these wounds whenever possible – this will help with examination of these wounds later.** If a situation arises where the incision lines presented in the image below will cause unacceptable interference with any skin wounds present, then the examining veterinarian may use a single midline incision, followed by incisions along the medial surface of each limb, as an alternative approach



Examine the internal surface of the pelt that has been dissected away from the ventral surface of the body for any firearm-induced wounds. Also examine the skinned body surface for any firearm-induced wounds. Record any firearm-induced skin wounds on the necropsy data capture sheets.

Before opening the thoracic and abdominal cavities, invert the badger carcass so that the dorsal body surface is now facing upwards.

**⚠ (sharps hazard)** Skin the dorsal surface of the carcass. Start with an incision as far rostrally as possible on the dorsal surface of the head, then dissect the subcutaneous tissues and retract the skin, working towards (ultimately meeting) the incisions made when the ventral surface was skinned. The aim is to remove the entire pelt in one piece. **During the skinning process, avoid cutting through any obvious skin wounds; cut around these wounds whenever possible – this will help with examination of these wounds later.**

Examine the internal surface of the pelt that has been dissected away from the dorsal body surface for any firearm-induced wounds. Also examine the skinned body surface for any firearm-induced wounds. Record any firearm-induced skin wounds on the necropsy data capture sheets. Ensure that any wounds identified during the examination of the ventral and dorsal surfaces are not double-counted. Ensure that the entire internal surface of the pelt and the entire body surface are examined.

Table 3a on the necropsy data capture sheets must be used for recording **acute ante-mortem** (see the glossary in Appendix 2) firearm-induced wounds only; any 'non-acute' firearm-induced wounds identified or any firearm-induced wounds considered to have been inflicted post-mortem must not be recorded in table 3a, but instead recorded by making a free text comment in the 'Comments' box provided at 8 on the necropsy data capture sheets. A second opinion must be sought from the lead PM room veterinarian prior to recording any comments pertaining to 'non-acute' firearm-induced wounds or firearm-induced wounds considered to have been inflicted post-mortem.

When recording acute ante-mortem firearm-induced skin wounds in table 3a, there is a requirement to classify each wound identified as an entry (En) or exit (Ex) wound (an 'Uncertain' ('U') option is available for when this classification is not possible). A second opinion must be sought from the lead PM room veterinarian prior to recording a 'U' response in table 3a.

It is possible that there will be a small number of carcasses where an acute ante-mortem entry wound has been obliterated by exit wound events associated with the same shot. If this type of wound is identified, a second opinion must be sought from the lead PM room veterinarian and, if there is confident agreement that the wound under consideration represents an acute ante-mortem exit wound that has obliterated the entry wound associated with the same shot, then this wound should be recorded in table 3a as an entry (En) wound.

A second opinion on any skin wounds identified and how to record these can be obtained from the lead PM room veterinarian at any time. A second opinion must be sought from the lead PM room veterinarian if more than one acute ante-mortem entry (En) wound has been recorded in table 3a.

The location of any acute ante-mortem entry (En) wound recorded in table 3a must

be recorded by plotting its location on one of the diagrams in the 'Plot of entry wound location' data capture sheet (Appendix 1). Use a cross to indicate where on the body the entry wound was detected and label the cross with the appropriate wound identification letter from table 3a (for example a cross labelled A to indicate where on the body entry (En) wound A was detected). Give the location for each entry (En) wound once only, and only on one of the three diagrams.


If any entry wounds are identified in the head or neck regions of the carcase, this observation must be recorded as a free text comment in the 'Comments' box provided at 8 on the necropsy data capture sheets. For any acute ante-mortem entry (En) wounds recorded in table 3a that are present in the head or neck regions, the free text comment should include the wound ID e.g. 'En wound A was located in the head region'.

Once all acute ante-mortem firearm-induced skin wounds have been recorded in table 3a, the total number of confirmed entry (En) wounds recorded in table 3a must be entered in the box at 3b. The number entered in the box at 3b must be an integer and 0 should be entered if no confirmed entry (En) wounds have been recorded in table 3a.

10. **⚠ (sharps hazard)** Open the thoracic and abdominal cavities. This is achieved by using instruments to cut through the ribs and abdominal muscles on each side, starting at the cranial aspect of the sternum and making a cut on each side in a caudal direction towards the inguinal region. The recommended cuts for opening the thoracic and abdominal cavities are shown in the photograph below.



**⚠ (sharps hazard)** Examine the thoracic spine, the rest of the thoracic wall (including the ribs, sternum and intercostal muscles), the diaphragm and the thoracic contents for evidence of firearm-induced tissue damage. The pluck must be freed from its attachments by transecting the trachea and oesophagus (level of transection to be informed by any injuries present) and then dissecting the pleural/mediastinal tissues so the pluck remains entire, but can be manipulated within the thoracic cavity. The pluck must then be examined on all surfaces. Use scissors to make a longitudinal cut along the wall of the thoracic aorta (along its

dorsal surface and starting at the transected 'diaphragmatic' end of the blood vessel) to facilitate examination of the inner surface of this blood vessel. Examine the bones of the thoracic cage through a combination of visual inspection of exposed surfaces and palpation (to detect any obvious bone crepitus arising as a result of bone fracture and taking care to remain vigilant for sharp bone ends  **(sharps hazard)**). It is accepted that more subtle skeletal injuries may be missed due to the absence of radiographs.

Record the thoracic tissue damage considered to be attributable to firearm injury in section 4 of the necropsy data capture sheets, in accordance with the instructions on the sheets and the guidance in this protocol. Tables 4a and 4b on the necropsy data capture sheets must be used for recording **acute ante-mortem** (see the glossary in Appendix 2) firearm injuries only; any 'non-acute' firearm injuries identified or any firearm injuries considered to have been inflicted post-mortem must not be recorded in tables 4a and 4b, but instead recorded by making a free text comment in the 'Comments' box provided at 8 on the necropsy data capture sheets. A second opinion must be sought from the lead PM room veterinarian prior to recording any comments pertaining to 'non-acute' firearms injuries or firearms injuries considered to have been inflicted post-mortem.


In the absence of radiographs, there may be some difficulty in determining with certainty whether certain injuries have been caused by firearm related injury; careful veterinary judgement must be exercised with respect to this issue and a second opinion sought from the lead PM room veterinarian as required. A second opinion must be sought from the lead PM room veterinarian prior to recording any 'Uncertain' ('U') responses in tables 4a and 4b. As described in the glossary in Appendix 2, an 'Uncertain' response should only be recorded in cases of genuine uncertainty; every effort should be made to provide one of the alternative responses, provided there is reasonable certainty that the alternative response is correct.

Record any additional points arising from the examination of the thoracic region (not captured in tables 4a and 4b), including a description of any thoracic pathology unrelated to firearm injury that is identified e.g. TB-like lesions, in the free text 'Comments' box provided at 8 on the necropsy data capture sheets.

11. Point 5 on the necropsy data capture sheets deals with the classification of the severity of any acute ante-mortem firearm-induced thoracic tissue damage. In all carcasses, the severity of any acute ante-mortem firearm-induced tissue damage identified in thoracic structures (thoracic wall and thoracic contents) must be classified as 'Minor/Moderate', 'Major' or 'Uncertain'. For the purpose of this classification, any tissue damage present outside the thorax must be ignored, whatever its severity. This classification must be carried out in accordance with the guidance in Appendix 3. A second opinion on this classification should be sought from the lead PM room veterinarian as required and must be sought prior to recording an 'Uncertain' response. As described in the glossary in Appendix 2, an 'Uncertain' response should only be recorded in cases of genuine uncertainty; every effort should be made to provide one of the alternative responses, provided there is reasonable certainty that the alternative response is correct.

Point 5 on the necropsy data capture sheets also has a 'Not applicable' option, which must be selected when all the responses in tables 4a and 4b are 'No' ('N').

12.  **(sharps hazard)** Examine, in a systematic manner, the head, the neck, the front

legs, the abdominal/pelvic region, the hind legs and the tail. All of these regions must be explored by a thorough visual inspection of all surfaces. Palpation should be used (taking care to remain vigilant for sharp bone ends  (**sharps hazard**)) to detect any obvious bone crepitus arising as a result of bone fractures. It is accepted that more subtle skeletal injuries may be missed due to the absence of radiographs. In these extra-thoracic regions, visual examination of all surfaces combined with careful palpation is the baseline approach required for the examination. If this baseline examination reveals evidence of firearm-induced injury in these extra-thoracic regions, then further dissection and examination can be carried out at the examining veterinarian's discretion. The aim of examination of these extra-thoracic regions is to ascertain with reasonable confidence whether acute ante-mortem firearm injuries are present (or not) in these regions. A detailed description of any acute ante-mortem firearm injuries present in these regions is not required.

Record the extra-thoracic tissue damage considered to be attributable to firearm injury in section 6 of the necropsy data capture sheets (in accordance with the instructions on the sheets and the guidance). Table 6 on the necropsy data capture sheets must be used for recording **acute ante-mortem** (see the glossary in Appendix 2) firearm injuries only; any 'non-acute' firearm injuries identified or any firearm injuries considered to have been inflicted post-mortem must not be recorded in table 6, but instead recorded by making a free text comment in the 'Comments' box provided at 8 on the necropsy data capture sheets. A second opinion must be sought from the lead PM room veterinarian prior to recording any comments pertaining to 'non-acute' firearms injuries or firearms injuries considered to have been inflicted post-mortem.

In the absence of radiographs, there may be some difficulty in determining with certainty whether certain injuries have been caused by firearm related injury; careful veterinary judgement must be exercised with respect to this issue and a second opinion sought from the lead PM room veterinarian as required. A second opinion must be sought from the lead PM room veterinarian prior to recording any 'Uncertain' ('U') responses in table 6. As described in the glossary in Appendix 2, an 'Uncertain' response should only be recorded in cases of genuine uncertainty; every effort should be made to provide one of the alternative responses, provided there is reasonable certainty that the alternative response is correct.

A second opinion must be sought from the lead PM room veterinarian if the firearm injuries detected are confined to the head and neck regions.


Record any additional points arising from the examination of the carcass (not captured in tables 3a, 4a, 4b and 6), including a description of any pathology unrelated to firearm injury that is identified e.g. TB-like lesions or bite wounds, in the free text 'Comments' box provided at 8 on the necropsy data capture sheets.

At any stage during the examination of the carcass, photographs may be taken at the discretion of the examining veterinarian.



Answer question 7 on the necropsy data capture sheets. A 'Yes' response to question 7 must not be recorded unless a second opinion on the state of autolysis of the carcass has been sought from the lead PM room veterinarian.

13. Once the examination is complete, proceed to the 'Comments' box at 8 to record any other information (not already recorded) arising from the examination carried out. If the examination has revealed any animal welfare concerns, this information

should be recorded at 8. A second opinion must be sought from the lead PM room veterinarian prior to recording any comments pertaining to animal welfare concerns. Any animal welfare concerns must be reported promptly to the lead PM room veterinarian who will alert the Project Leader to these concerns.

14.  **(biological hazard)** Immediately after the necropsy has been completed, the examining veterinarian must check and sign off the necropsy data capture sheets. If any photographs were taken during the examination, this must be indicated by ticking the box at point 9 on the necropsy data capture sheets. The examining veterinarian must clean and disinfect his/her outer layers of protective clothing before checking and signing off the sheets at point 10. The sheets must then be handed to the Data Quality Supervisor in the PM room, for a final check that all relevant data fields on the sheets have been completed. The Data Quality Supervisor will countersign the sheets once he/she is satisfied that all relevant fields have been completed. The necropsy procedure is complete once the Data Quality Supervisor has countersigned the sheets and carcase disposal may then proceed.

## 2. CARCASE DISPOSAL

1.  **(manual handling hazard)** Move the carcase remains into the two bags (an inner woven and an outer plastic bag) contained in the red bin located adjacent to the draught table. The red bin (containing the two bags) must be moved towards the edge of the draught table to facilitate this. Immediately seal the bags with cable ties.
2.  **(manual handling hazard)** Remove the double bagged carcase remains from the red bin. If any contamination of the external surface of the outer bag occurs, wash the outside of the bag down with FAM30. Place the bagged carcase remains in one of the lidded disposal bins.
3. If any contamination of the red bin occurs, wash the bin down with FAM30.

## 3. REFERENCES

Munro, R, Munro, H M C: Animal Abuse and Unlawful Killing: Forensic Veterinary Pathology. Chapter 8: Firearms injuries (pp. 55-64). Elsevier, Edinburgh. 2008.

Controlled shooting of badgers in the field under licence to prevent the spread of bovine TB in cattle – *Best Practice Guide*

Defra

Weighed by (Initials)	Ear tip collected (✓)	'Scribe' (Initials)
--------------------------	--------------------------	---------------------

AHVLA

### Appendix 1 to Annex D Necropsy Data Capture Sheets for Rifle Shot Carcasses

EID  
NUMBER

1. Date of necropsy

**2. Animal Details**

Sex (✓) Male  Female  Weight  kg

**3. Acute ante-mortem firearm-induced skin wounds**

**Table 3a.**

Wound ID	(✓) ND <input type="checkbox"/>	Entry/Exit (Circle one answer only)
Wound A	ND <input type="checkbox"/>	En / Ex / U
Wound B	ND <input type="checkbox"/>	En / Ex / U
Wound C	ND <input type="checkbox"/>	En / Ex / U
Wound D	ND <input type="checkbox"/>	En / Ex / U
Wound E	ND <input type="checkbox"/>	En / Ex / U
Wound F	ND <input type="checkbox"/>	En / Ex / U
Wound G	ND <input type="checkbox"/>	En / Ex / U
Wound H	ND <input type="checkbox"/>	En / Ex / U
Wound I	ND <input type="checkbox"/>	En / Ex / U
Wound J	ND <input type="checkbox"/>	En / Ex / U

**Complete one row in table 3a for each acute ante-mortem firearm-induced skin wound identified.**

**Entry/Exit:** if possible, determine if wound is an entry (En) or exit (Ex) wound. U = Uncertain.

**ND:** not detected – once all skin wounds have been identified and recorded, tick this box in any remaining unused rows in table 3a.

**3b. Number of En wounds recorded in table 3a:**



EID NUMBER

**4. Examination of the thorax for evidence of firearm-induced tissue damage**

**Evidence of acute ante-mortem firearm injury:** Y = Yes, N = No, U = Uncertain – circle one answer. This column must be completed for all anatomical regions listed. If yes circled for heart or lung, tick (✓) one box to indicate approximate percentage of damaged tissue.

		<b>Evidence of acute ante-mortem firearm injury</b>
<b>Table 4a Thorax</b>	Heart  (✓)	Y / N / U If yes, ≤ ~5% <input type="checkbox"/> > ~5% to ≤ ~20% <input type="checkbox"/> > ~20% to ≤ 100% <input type="checkbox"/>
	Lungs  (✓)	Y / N / U If yes, ≤ ~33% <input type="checkbox"/> > ~33% to ≤ 66% <input type="checkbox"/> > ~66% to ≤ 100% <input type="checkbox"/>
	Thoracic aorta	Y / N / U
	Diaphragm	Y / N / U
	Intercostal muscles	Y / N / U
	Ribs/sternum	Y / N / U
	Thoracic spine	Y / N / U

EID NUMBER

<b>Table 4b Thorax - Additional findings</b>	Was free blood present in the thoracic cavity as a result of acute ante-mortem firearm injury? (√)	Y / N / U If yes, ≤ ~25ml <input type="checkbox"/> > ~25ml <input type="checkbox"/>
	Was a hemopericardium present as a result of acute ante-mortem firearm injury?	Y / N / U
	Was there evidence of pulmonary emphysema due to acute ante-mortem firearm injury?	Y / N / U

**5. Please classify the severity of the acute ante-mortem firearm-induced tissue damage identified in thoracic structures (the thoracic wall and the contents of the thorax) by ticking one box below. For the purpose of this classification, you must ignore any tissue damage present outside the thorax, whatever its severity.**

(√) tick one box

Not applicable (All responses in tables 4a and 4b are 'N')

Minor/Moderate

Major

Uncertain

EID NUMBER

**6. Examination of extra-thoracic structures for evidence of firearm-induced tissue damage**

**Evidence of acute ante-mortem firearm injury:** Y = Yes, N = No, U = Uncertain – circle one answer. This column must be completed for all anatomical regions listed. For the legs, circle 'Left' or 'Right' if unilateral; circle left and right (one large 'circle') if bilateral.

Table 6		Evidence of acute ante-mortem firearm injury
Head	Facial region	Y / N / U
	Cranial region	Y / N / U
Neck	Cervical spine	Y / N / U
	Soft tissues	Y / N / U
Abdomen/pelvis	Liver	Y / N / U
	Spleen	Y / N / U
	Stomach/intestine	Y / N / U
	Kidneys	One / Both / N / U
	Lumbar spine	Y / N / U
	Sacrum/pelvis	Y / N / U
Front legs	All regions except foot	Left / Right / N / U
	Foot (manus)	Left / Right / N / U
Hind legs	All regions except foot	Left / Right / N / U
	Foot (pes)	Left / Right / N / U
Tail	Tail	Y / N / U
Abdomen - Additional findings	Was free blood present in the abdominal cavity as a result of acute ante-mortem firearm injury (√)	Y / N / U If yes, ≤ ~25ml <input type="checkbox"/> > ~25ml <input type="checkbox"/>

**7. Is there evidence of significant post mortem change, to the degree that examination of the carcass is uninterpretable with respect to the aims of the examination? (√) tick one box**

Yes  No

EID NUMBER

**8. Comments**

**Include details of any pathology observed that has not been captured in tables 3a, 4a, 4b and 6.**

Continuation sheet used (✓)

**9. Photography**

(✓) tick if photo taken

**10. Sign off**

Signature of  
examining vet

Name of  
examining vet

Date

Signature of 'data  
quality supervisor'

Name of 'data  
quality supervisor'

Date

The Animal Health and Veterinary Laboratories Agency is an Executive Agency of the Department for Environment, Food and Rural Affairs working across Great Britain on behalf of Defra, the Scottish Government and Welsh Government

**FAIR PROCESSING NOTICE**

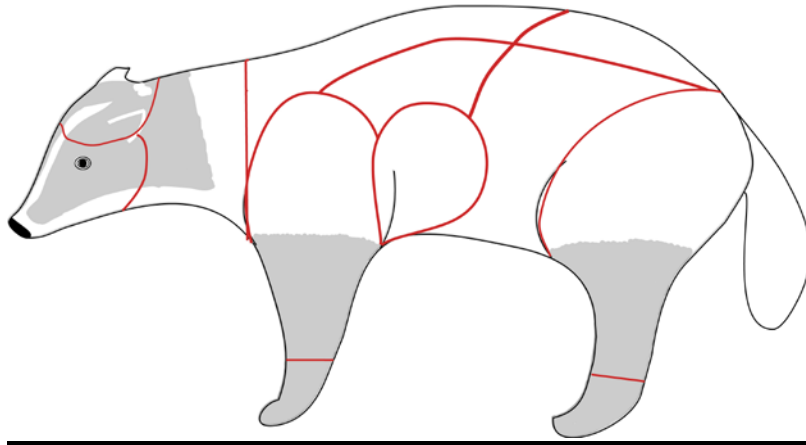
Defra, the Scottish Government, the Welsh Government and the Food Standards Agency are data controllers in common in respect of relevant personal data processed by the Animal Health and Veterinary Laboratories Agency (AHVLA). For the purposes and usage of the data and the data sharing arrangements, please see the full Data Protection Statement on the AHVLA website. A hard copy of this information can be provided if required; please contact your local AHVLA Office/Laboratory. AHVLA will not permit any unwarranted breach of confidentiality or act in contravention of their obligations under the Data Protection Act 1998.

EID Number

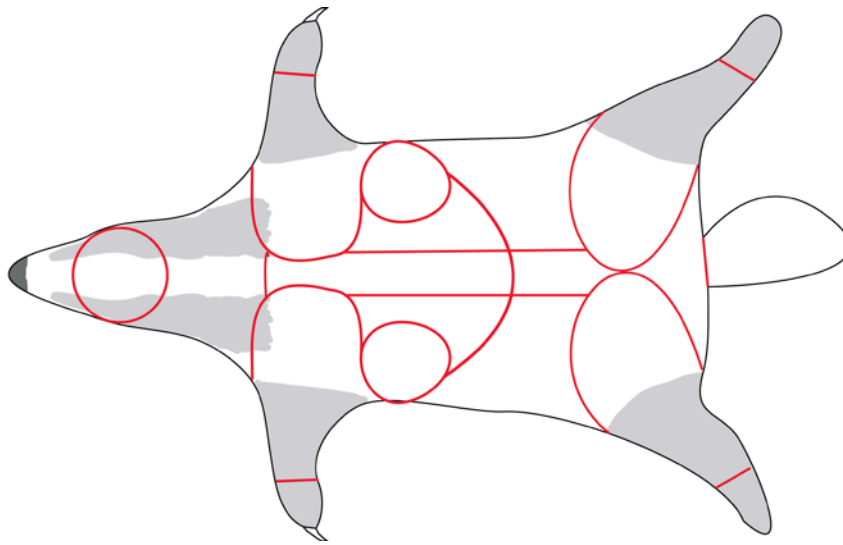
### PLOT OF ENTRY WOUND LOCATION

Plot the acute ante-mortem ENTRY (En) wounds recorded in table 3a of the necropsy data capture sheets on the diagrams below. Use a cross to indicate where on the body the entry wound was detected; label the cross with the appropriate wound identification letter from table 3a (for example a cross labelled A to indicate where on the body entry (En) wound A was detected). **Give the location for each entry (En) wound once only, and only on one of the three diagrams.**

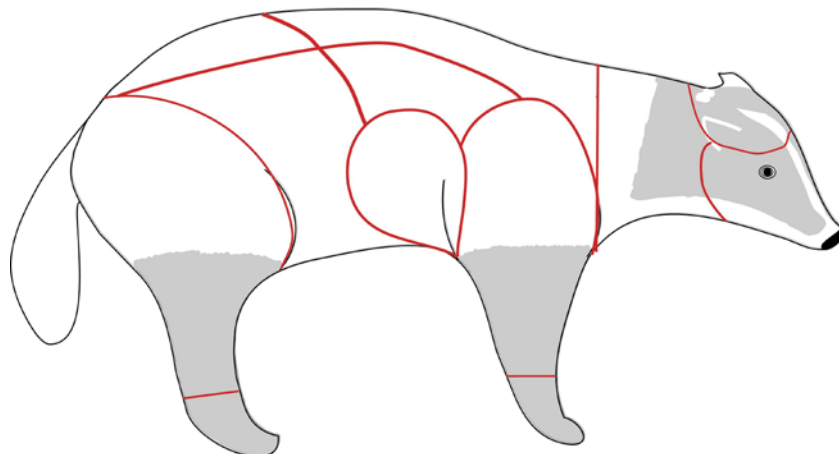
left



dorsal



right



## Appendix 2: Necropsy Data Capture Sheets – Glossary

	Term	Subject	Criteria/comments/explanation
1	EID (Electronic identification device) – the ear tag number		The definitive means of identification of the badger carcass.
2	Weight		Bagged weight.
3	Acute ante-mortem	Acute ante-mortem firearms injury	In the context of this necropsy, this refers to injuries inflicted ante-mortem (before death) that are of rapid onset and short duration. The appearance of these injuries is likely to be as follows: Haematoma or free red blood (liquid or clotted blood) +/- gelatinous white or pink material present. Margins sharp, jagged and well-defined. The term 'non-acute' therefore describes injuries that are of longer duration (sub-acute or chronic).
4.	Approximate percentage of damaged tissue	Heart/Lungs	If evidence of firearm injury is observed in the heart or lungs, there is a requirement to tick a box to indicate the approximate percentage of damaged tissue. The <u>total</u> damage present in the organ should be recorded.
5.	Pulmonary emphysema due to firearms injury (Table 3b)		See the image in the embedded file for an example of pulmonary emphysema induced by rifle bullet injury to lung tissue.
6.	Comments	'Comments' box 8	Use free text to record additional observations – to include information not captured elsewhere on the sheets, unusual features, reasons for uncertainty etc.
7.	Uncertain (U)	Multiple fields	The Uncertain (U) response is for use <u>only</u> when there is genuine uncertainty. Every effort should be made to provide one of the alternative responses, provided there is reasonable certainty that the alternative response is correct. A second opinion is required prior to recording a 'U' response.



### Appendix 3: Guidance on severity classification - THORAX

Severity	Example	Classification on necropsy data capture sheets
Minor	Injuries restricted to a small area of the thoracic wall in the absence of full thickness penetration of the thoracic wall.	Minor/Moderate
Moderate	Injuries include full thickness penetration of the thoracic wall, but in the absence of significant damage to the heart and/or thoracic major blood vessels.	Minor/Moderate
Severe	Significant damage to the heart <b>and/or</b> thoracic major blood vessels consistent with significant intra-thoracic haemorrhage.	Major
Maximal	Multiple penetrating lacerations of the heart and/or severance of the thoracic aorta.	Major



**Necropsy procedure for badgers submitted during year 2 of the pilot culls****Appendix to Annex D****Appendix 4: Information on characteristics of rifle bullet entry and exit wounds**

Rifle bullet entry wounds are usually small (size varies depending on the size of bullet) and are usually associated with an 'abrasion ring' (the abrasion ring occurs when the bullet abrades ('rubs raw') the edges of the hole as it indents and pierces the skin).

Rifle bullet entry wounds usually have a 'punched-out' (well-demarcated/sharply defined) appearance.

Rifle bullet entry wounds are usually circular to oval in shape, depending on the angle of entry through the skin.

Rifle bullet exit wounds are often larger than the entry wounds, but not invariably so (some carcasses will show multiple small (smaller than entry) exit wounds as a result of bullet fragmentation).

Rifle bullet exit wounds usually have more irregular margins and lack an 'abrasion ring'.



