



Animal &  
Plant Health  
Agency



# Great Britain miscellaneous and exotic farmed species quarterly report

## Disease surveillance and emerging threats

### Volume 36: Quarter 3 of 2023 (July to September)

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Editor: David Jorge, APHA (Animal and Plant Health Agency) Bury St Edmunds

Phone: + 44 (0)3000 600018

Email: [david.jorge@apha.gov.uk](mailto:david.jorge@apha.gov.uk)

## Introduction and overview

This quarterly report reviews disease trends and disease threats for the third Quarter of 2023 (July to September).

It contains analyses carried out on disease data gathered from the Animal and Plant Health Agency (APHA), Veterinary Services division of Scotland's Rural College (SRUC) and partner postmortem providers and intelligence gathered through the Miscellaneous and Exotic Farmed Species Expert Group networks.

In addition, links to other sources of information including reports from other parts of the APHA and Defra agencies are included. A full explanation of how data is analysed is provided [on the APHA species disease surveillance reports: data analyses page on GOV.UK](#).

## Issues and trends

Nothing to report this quarter.

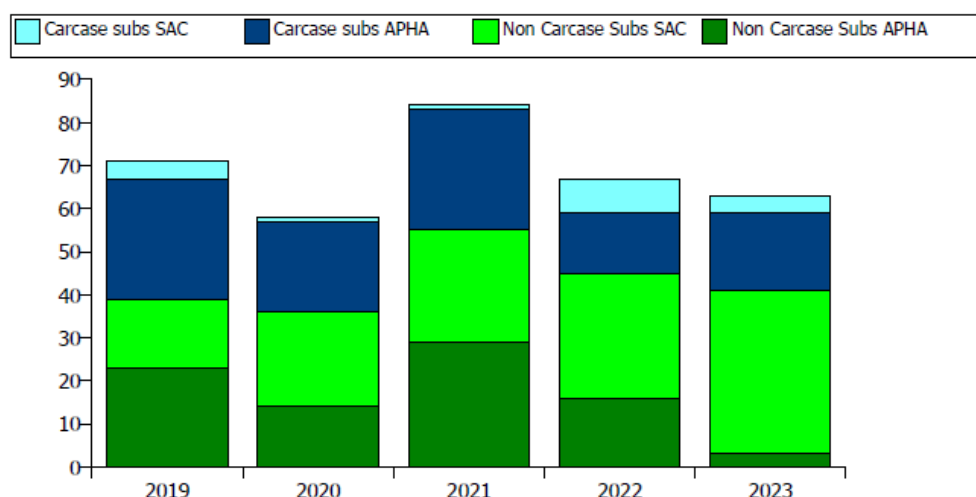
## Diagnostic Submission Data

The number of diagnostic submissions in Quarter 3 of 2023 (July to September) for alpacas, llamas and farmed deer is shown in Table 1. The APHA figures include submissions to partner post-mortem providers (PPP). Other miscellaneous and exotic species may also be received in small numbers.

Carcase and non-carcase submissions for the same Quarter (July to September) for period 2019 to 2023 are shown in Figure 1. Slight decrease of total submission numbers since 2021 for this quarter is in part due to higher decrease in non-carcass submissions to APHA despite increase in submission of carcasses to SAC.

**Table 1 - Diagnostic submissions in Quarter 3 of 2023 (July to September) for alpacas, llamas, and farmed deer to APHA and Scottish Agricultural College (SAC).**

July - September	Non-carcass submissions APHA	Non-carcass submissions SAC	Total non-carcass submissions	Carcass submissions APHA	Carcass submissions SAC	Total carcass submissions	Grand total
2019	23	16	39	28	4	32	71
2020	14	22	36	21	1	22	58
2021	29	26	55	28	1	29	84
2022	16	29	45	14	8	22	67
2023	3	38	41	18	4	22	63



**Figure 1 - Carcase and non-carcase submissions for Quarter 3 of 2023 (July to September) Period 2019 to 2023.**

Total diagnostic submissions for Quarter 3 for all years (2019 to 2023) for each main species covered by this report and for each main geographical area are shown in Table 2.

**Table 2 - Total diagnostic submissions for Quarter 3 for all years (2019 to 2023) in the different geographical areas.**

All Years	Alpaca	Deer	Llama	Sum
Eastern England	67	18	6	91
Northern England	55	9	2	66
Scotland	48	28	6	82
Wales	12	3	2	17
Western England	29	18	3	50
Unknown	28	8	1	37
Summary	239	84	20	343

## New and re-emerging diseases and threats

### Bluetongue virus (BTV)

Bluetongue virus (BTV) has been circulating in European countries for some time. However, on 5 September 2023 the Netherlands reported their first outbreak of Bluetongue (BT) since 2009 and been confirmed to be BTV-3 serotype (in sheep). Additionally, on 21 September 2023 French authorities confirmed the presence of new strain of BTV-8 which is causing more severe clinical signs in cattle and sheep.

[PROMED](#) report of fatal case of BTV in an alpaca in the Netherlands in October 2023 - Archive Number: 20231011.8712572. Bluetongue - Europe (14): Netherlands (Friesland) alpaca, fatal, Belgium (Antwerp) serotype 3 confirmed.

Cases in the literature on BTV in camelids:

Henrich M, Reinacher M, Hamann H. Lethal bluetongue virus infection in an alpaca. *Vet Rec.* (2007) 161:764. doi: [10.1136/vr.161.22.764](https://doi.org/10.1136/vr.161.22.764)

Ortega J, Crossley B, Dechant JE, Drew CP, MacLachlan NJ. Fatal bluetongue virus infection in an alpaca (*Vicugna pacos*) in California. *J Vet Diagnost Investig.* (2010) 22:134–6. doi: [10.1177/104063871002200129](https://doi.org/10.1177/104063871002200129)

Meyer G, Lacroux C, Leger S, Top S, Goyeau K, Deplanche M, et al. Lethal bluetongue virus serotype 1 infection in llamas. *Emerg Infect Dis.* (2009) 15:608–10. doi: [10.3201/eid1504.081514](https://doi.org/10.3201/eid1504.081514)

## **Epizootic haemorrhagic disease (EHD)**

An exotic notifiable disease very similar to BTV in terms of vectors and routes of transmission that has recently spread to Europe is epizootic haemorrhagic disease (EHD) that affects wild and domestic ruminants. Due to the clinical presentation, bluetongue is a key differential diagnosis, along with foot-and-mouth disease (FMD) in deer and cattle. Additional differential diagnoses in cattle are bovine viral diarrhoea (BVD), infectious bovine rhinotracheitis, vesicular stomatitis, malignant catarrhal fever, and bovine ephemeral fever (WOAH, 2019).

Updated information regarding EHD outbreaks can be found on [Epizootic haemorrhagic disease in Europe - GOV.UK \(www.gov.uk\)](#).

Outbreaks of EHD have been confirmed in southern Europe both in Sardinia and in Spain for the first time. A case in the wild red deer in Sardinia is significant as the first case confirmed in wildlife, which could potentially behave as a reservoir of infection over time.

Deer may be showing the following signs - excessive salivation, fever, weakness, stiffness, lameness, inappetence, facial oedema, coronitis, stomatitis, hyperaemia of the conjunctivae and oral mucous membranes, oral ulcers on the dental pad, hard palate, or tongue, excessive bleeding - bloody diarrhoea, haematuria, dehydration or just been found dead.

Please see below links for further information:

- Topical issues:  
[Imports, exports and EU trade of animals and animal products: topical issues - GOV.UK \(www.gov.uk\)](#)
- Latest outbreak assessments:  
[Animal diseases: international and UK monitoring - GOV.UK \(www.gov.uk\)](#)

- How to spot and report bluetongue:
  - England - [Bluetongue: how to spot and report the disease - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/urls/bluetongue-how-to-spot-and-report-the-disease)
  - Wales - [Bluetongue | GOV.WALES](https://gov.wales/bluetongue)
  - Scotland - [Bluetongue: how to spot and report the disease - gov.scot \(www.gov.scot\)](https://gov.scot/government/urls/bluetongue-how-to-spot-and-report-the-disease)
- How to spot and report EHD:
  - England - [Epizootic haemorrhagic disease: how to prevent, spot and report it - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/urls/epizootic-haemorrhagic-disease-how-to-prevent-spot-and-report-it)
  - Wales - [Epizootic haemorrhagic disease \(EHD\) | GOV.WALES](https://gov.wales/epizootic-haemorrhagic-disease)
  - Scotland - [Epizootic haemorrhagic disease: how to spot and report the disease - gov.scot \(www.gov.scot\)](https://gov.scot/government/urls/epizootic-haemorrhagic-disease-how-to-spot-and-report-the-disease)
- Veterinary Practice article on EHD and BTV: <https://www.veterinary-practice.com/article/btv-and-ehdv>
- Bluetongue imports requirements: [Bluetongue requirements for imports or transits from the EU \(defra.gov.uk\)](https://defra.gov.uk/government/urls/bluetongue-imports-requirements)

## Diagnoses from the Great Britain scanning surveillance network including unusual diagnoses

### Camelids

#### Severe liver disease in an alpaca

A two-year-old alpaca was euthanased, following recumbency, after a three-week history of weight loss. Poor body condition was first noted approximately one week after shearing. Skin lesions around the mouth were also identified, and three weekly doses of ivermectin had been given to treat for mites. Treatment for fluke and worms with a combined levamisole and triclabendazole product had been given in April, June and October, with the last treatment around three weeks prior to submission. Examination by the private veterinarian identified ascites and blood testing indicated liver damage. The group were grazing and fed supplementary pellets and hay.

#### Significant PME findings:

- Emaciated body condition
- Fibre loss with associated dry, dark pink skin lesions with crusting over the face (Figure 2)
- Submandibular and retropharyngeal lymph nodes were slightly enlarged and dark purple
- Pulmonary oedema, peritoneal and pericardial effusions with fibrin
- Severe liver lesions:
  - Marked hepatomegaly
  - Approximately 60% of the liver was affected by severe fibrosis with cyst-like structures protruding from the serosal surface (Figure 3) containing watery

- brown liquid, extending into fluid-filled cavities with thick white fibrous walls within the liver parenchyma, which was firm and dark red
- The remaining approximately 40% of liver which did not contain cavity-like structures was dark pink to red on the cut surface with a speckled appearance due to pale striations throughout.

The gross liver lesions were very striking, and histopathology diagnosed a marked, multifocal to coalescing, chronic, portal fibrosis and biliary hyperplasia. The severity and chronicity of these changes made it difficult to determine the precise cause but, based on certain microscopic features and the gross distribution it was suspected that this was the result of damage by migrating parasites, for example liver fluke or *Cysticercus*. South American camelids tend to have very exaggerated reactions to liver fluke. No liver flukes were detected grossly, and no *Fasciola hepatica* eggs detected in faeces, however the parasitic insult may have been historic. Histopathological findings were not considered consistent with chronic hepatotoxicity, for example due to plant poisoning.

Histopathology of the skin lesions demonstrated an acute, necrotising inflammation of the superficial dermis. This might represent bacterial complication of tissue injury caused by photosensitivity or may result from chronic debilitation. Although *Chorioptes sp.* mites were identified on a skin scrape from the face, there were no arthropod parasites on the skin surface or within follicles in the histological sections, and the histopathology was not typical of ectoparasite infestation. There was evidence therefore of mange at some point previously, but it is likely the skin lesions were predominantly due to another cause.



**Figure 2 - Skin lesions in an alpaca with severe liver disease.**





**Figure 3 - Fluid-filled cyst-like structures extending from the visceral surface of the liver in an alpaca with severe liver disease.**

### **Haemonchosis as cause of death of an adult alpaca**

Severe haemonchosis was found to be the cause of anaemia and death in a five-year-old alpaca, which first showed signs of lethargy the day prior to submission. At that point it was administered anthelmintic treatment. No other clinical signs were reported and it was able to stand on the morning of submission, only to die a few hours later. The animal was grazing alongside 60 others (30 adults and 30 cria). Postmortem examination revealed a severely anaemic carcass, with pale mucous membranes/ tissues and ventral oedema, abdominal effusion with “nutmeg” liver, and reddened C3 with petechiae.

Bacterial cultures were negative, however 3 530 *Trichostrongyle*-type epg were detected in the faeces of the animal, 98% staining positive for *Haemonchus* spp., using a differential fluorescent labelled peanut antigen staining technique. Treatment of the rest of the group was recommended.

### **Colisepticaemia in a neonate cria**

A three-day-old Cria was submitted for postmortem examination after collapsing and dying during a plasma transfusion. Grossly there was generalised congestion of the carcass and C3 showed diffuse mucosal haemorrhages. These findings were indicative of a septicemia with likely secondary disseminated intravascular coagulation (DIC) and culture of the liver and brain isolated a haemolytic *E. coli* confirming the diagnosis. ZST

testing revealed hypogammaglobulinaemia, the likely underlying factor for disease development in this case.

## Deer

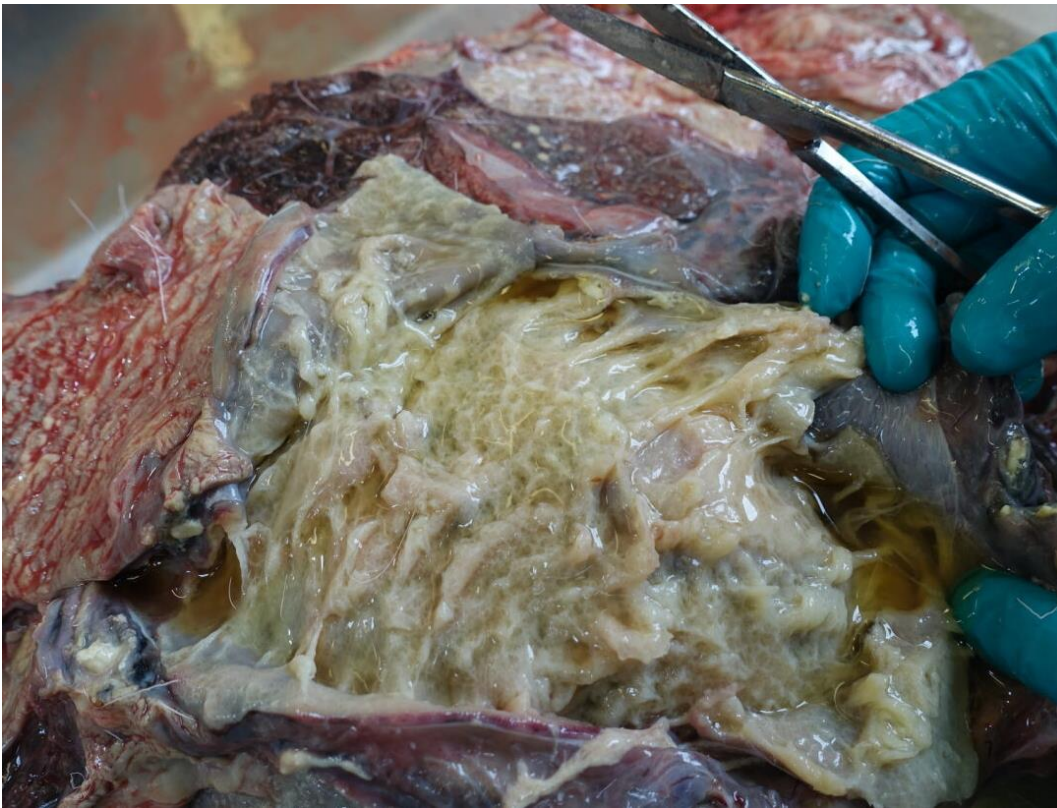
### Thoracic infection secondary to antler damage in a reindeer

The carcase of an adult castrated male reindeer was submitted to investigate pyrexia, respiratory signs and anorexia which had progressed to death over a period of five weeks. The onset of clinical signs appeared to be related to traumatic damage of papillomatous growths present on the antlers. Postmortem examination identified pyothorax (Figure 4), lung abscessation and an extensive fibrinous “bread and butter” pericarditis (Figure 5). *Trueperella pyogenes* and *Fusobacterium necrophorum* were isolated from the lungs and pericardium. These bacteria are commonly found in association with purulent infections in ruminants. Given the clinical timeline, it was suspected that the pathology may have been linked to the antler lesions.



**Figure 4 - Thorax of a reindeer filled with yellow purulent to caseous content.**





**Figure 5 - Extensive fibrinous “bread and butter” pericarditis in a reindeer.**

## **Miscellaneous**

### ***Yersinia pseudotuberculosis* enteritis and septicaemia in a Barbary ram**

A Barbary ram was found dead in the morning of the submission, having been last seen well the previous evening. It had been in the wildlife reserve for the past 4 weeks, and following a period of quarantine with three others, all were moved into an enclosed 170-acre area of grass and woodland where other species of ruminants are kept (including deer and antelopes). No vaccination or worming was performed. No other health concern was reported for the other individuals. During quarantine supplementary feeding was provided (cattle nuts) plus haylage.

This animal was in poor condition and dehydrated, but it had been eating as indicated by a reasonable amount of rumen contents. Grossly there was congestion of internal organs and enlargement of lymph nodes. The liver was swollen with multiple white pinpoints, due to a fibrinosuppurative hepatitis with intralesional bacterial colonies identified histopathologically. Septicaemia due to *Yersinia pseudotuberculosis* was diagnosed in this animal with the isolation of the bacteria in pure growth from multiple sites. A necro-suppurative enteritis was also identified by histopathology, associated with colonies of bacteria with morphology of *Y. pseudotuberculosis* indicating it to be the likely causative agent for the enteritis and subsequent septicaemia. There was also acute tubular kidney injury, suggested to be due to hypoxia secondary to the hepatic and intestinal changes. No significant endoparasitism burden detected. Clostridial enterotoxaemia was ruled out with the absence of beta or epsilon toxin, gross pathology or microscopical changes.

## Horizon scanning

### International Disease Monitoring (IDM)

International Disease Monitoring (IDM) horizon-scanning activities monitor for major, notifiable, or new and re-emerging animal disease outbreaks worldwide. This is done to provide an early warning and to assess the risks they may pose to the United Kingdom (UK), particularly for those diseases which impact on animal health and welfare, international trade, public health, or wider society. IDM also assess the risk that animal diseases might come into the UK through the trade in animals or animal products (legal or illegal), through movements of wildlife, or through the movement of fomites and vectors such as insects which may carry infectious disease. These outbreak assessments are used to guide decisions how to manage or reduce the risks and are published on the web: <https://www.gov.uk/government/collections/animal-diseases-international-monitoring>

### APHA's Endemic Disease Alert System

This is a component of the communications from our scanning surveillance network and a system that the APHA will be using to keep you up to date with significant disease alerts and information, projects, publication of reports and other items.

This is independent of the notifiable disease alert system.

To receive these notifications please email [SIU@apha.gov.uk](mailto:SIU@apha.gov.uk) with your:

- email address
- mobile number if you wish to receive text alerts

We hope that you find this new messaging system useful, and we welcome any suggestions or feedback. Email Surveillance Intelligence Unit [SIU@apha.gov.uk](mailto:SIU@apha.gov.uk) for more information.

## Publications

Nothing to report.

## References

None used.



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