Preliminary Outbreak Assessment

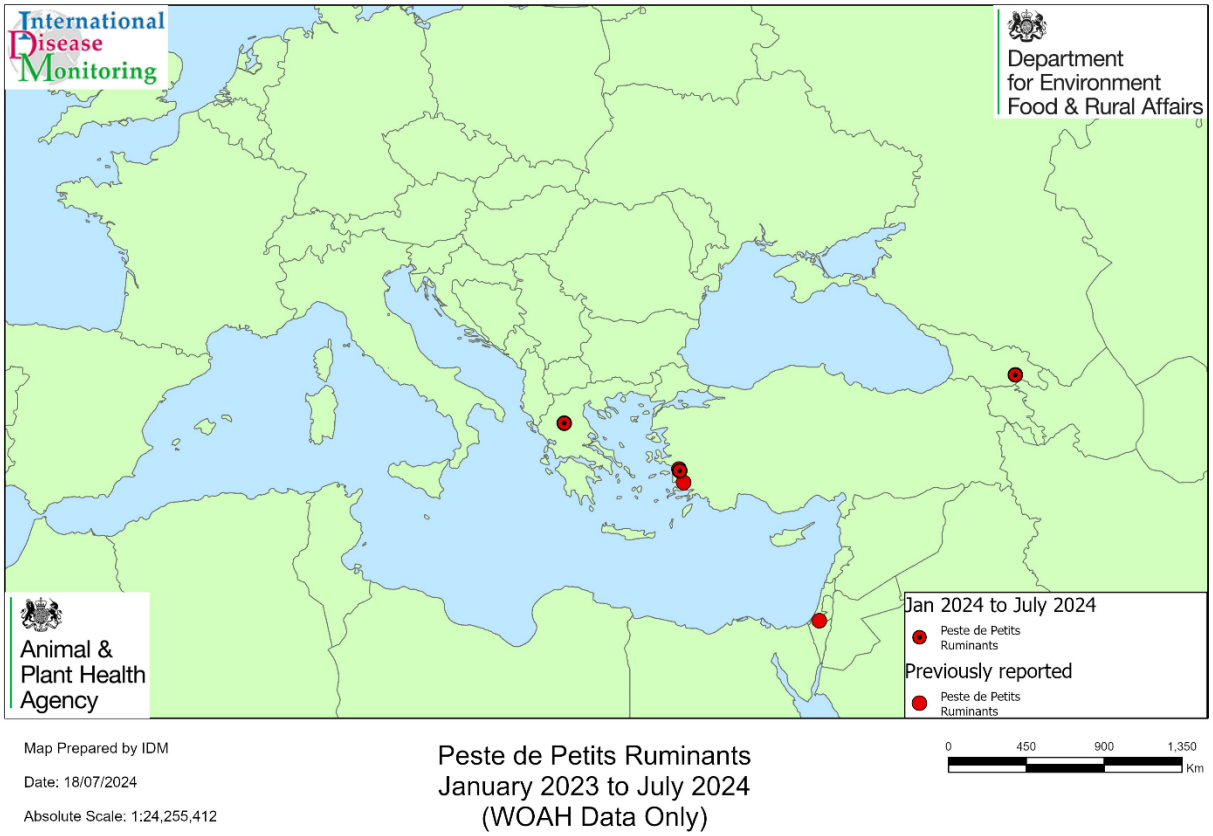
Peste de Petits Ruminants in Greece

17 July 2024

Disease Report

On 11 July 2024, Greece made an immediate notification to World Organisation for Animal Health (WOAH) of a report of Peste de Petits Ruminants (PPR) in Kastraki, Thessaly and Central Greece. This is the first time PPR has been reported in Greece, and only the second time the disease has been detected in the European Union since Bulgaria reported outbreaks in 2018.The outbreak was reported on 8 July 2024 due to clinical signs, and later confirmed by PCR on 11 July 2024. The premises housed a mixed herd of 264 sheep and goats. It was reported that 50 animals displayed clinical signs on the farm. The ministry of rural development and food have implemented legislative control measures such as culling and disposal of animals, protection and surveillance zones, and undertaking an epidemiological investigation on 11 July 2024. The premises housed a mixed herd of 264 sheep and goats. It was reported that 50 animals died on the farm. The Ministry of Rural Development and Food have implemented legislative control measures such as culling and disposal of animals, protection and surveillance zones, and undertaking an epidemiological investigation. On 16 July, Greece reported 2 further outbreaks in the same region.

Elsewhere, according to the Animal Disease Information System (ADIS), 6 outbreaks of PPR have been reported in Türkiye in 2024 so far, with 3km and 10km protection and surveillance zones put in place and vaccination carried out at each outbreak location. According to WOAH, there was also one outbreak of PPR in Georgia in February 2024, and one outbreak in Israel in April 2023.



Map of PPR across Europe from January 2023 to July 2024. The red dots are previously reported outbreaks. The red dots with a black centre are outbreaks reported from January 2024 to July 2024.

Situation Assessment

Peste de Petits Ruminants (PPR) is a serious (non-zoonotic) viral disease of sheep and goats causing production loss, and mortality of more than 50% in affected flocks in non-endemic regions (WAHIS 2024). It is transmitted most commonly by direct, or aerosol contact with infected animals, although fomites and contaminated products cannot be ruled out. Virus can be present in all secretions or excretions of infected animals. Generally, sheep show fewer clinical signs than goats and in regions of higher sheep density, disease can spread undetected. Therefore prompt detection, culling, movement restrictions and disinfection should be applied to prevent spread (EFSA, 2015).

There are 4 lineages of PPR virus strains. Lineages I and II are found in West Africa, lineage III is found in East Africa, the Middle East and South India and lineage IV is predominantly found in Asia, although is suspected to have origins in Africa (Benfield and others 2023, Mahapatra and others 2021).

PPR is the current focus for global disease eradication, following the success with eradicating the related morbillivirus, Rinderpest, in 2011. In 2015, WOAH and The Food and Agriculture Organization of the United Nations (FAO) set a target to eradicate PPR by

2030, and the first phase of this PPR Global Eradication Program (PPR GEP) took place between 2017 and 2021. The second and third phases began in 2022.

In the Middle East, knowledge of the epidemiological situation is still incomplete (Benfield and others. 2023). In recent years, PPR has been officially reported in:

- Egypt
- Iran
- Iraq
- Israel
- Kuwait
- Oman
- Palestine
- Saudi Arabia
- the United Arab Emirates
- Yemen

In the last decade, Bahrain, Jordan, Lebanon, Syria and Qatar have not reported PPR. A PPR Regional Strategy for the Middle East was formulated in 2016 to promote international cooperation and progress eradication, but Iran, Israel and Palestine were not involved. Vaccination is practised in all these countries, except for Bahrain where the import and sale of PPR vaccines is illegal.

The disease has been reported in Türkiye on a regular basis, but no recent cases have been officially reported from the Thrace region which borders Bulgaria and Greece. According to the Turkish Ministry of Agriculture, Thrace has declared disease freedom from PPR since August 2022. They have not reported any outbreaks in the Thrace region since 2017. In 2018, there were five outbreaks of PPR in Bulgaria in areas close to the Thrace region of Türkiye, and it was considered highly likely that the virus was introduced from Türkiye. Control measures centred around surveillance, animal movement restrictions and stamping out. The source of the outbreak in Greece remains unknown and it is distant to the border with Türkiye. The role of wildlife is not fully understood but feral sheep and goats may be important in terms of the epidemiology in the region.

Vaccination with live attenuated vaccines is available for prevention and control of disease, although there is no approved DIVA vaccine (a vaccine differentiating infected from vaccinated animals) available in the EU. Vaccination was not practiced in the outbreak in Bulgaria in 2018, although was considered to be an option if disease had spread further.

Conclusion

The risk of PPR introduction to the UK as a result of this outbreak is considered negligible, as there are no data to suggest any pathways for transmission are fulfilled.

There have been no consignments of live sheep or goats or the semen or embryos of such species from Greece to the UK. Imports of live sheep and goats and ovine and caprine germplasm are currently prohibited to be exported to Great Britain (England, Scotland and Wales (GB)) following an outbreak of sheep pox and goat pox in October 2023. There has been 3,818 tonnes of milk and dairy products imported from Greece between 1 May and 12 July 2024. Of these, 98.4% were pasteurised and 1.6% were unpasteurised cheese. It is suggested that PPR has low survival rates in meat and raw milk products, and it is expected that the maturation time of cheeses and duration of transit to the UK is likely to be longer than virus survival time in these products. There is a general lack of evidence about PPR survival and research into this (Clarke and others, 2018). Chilled and fresh hides and skins are under a safeguard measure, suspending the entry to GB. WOAH recommendations for safe trade are that skins and hides from animals regardless of the PPR status of the premises should be treated or semi-processed, while meat should be processed using heat treatment to a minimum internal temperature of 70°C for at least 30 minutes and the necessary precautions taken after processing to avoid contact of the commodities with any potential source of PPR. Milk should come from flocks not under disease restriction or should be processed and necessary precautions should be taken to avoid contact of the products with any potential source of PPR (WOAH, 2024).

We will continue to monitor the situation, as this is an important exotic disease which will be a concern for the EU in terms of its ability to spread and the impact on livestock.

Authors

Megan Arter-Hazzard

Dr Sonny Bacigalupo

References

Benfield CTO, Legnardi M, Mayen F, Almajali A, Cinardi G, Wisser D, Chaka H, Njeumi F. Peste Des Petits Ruminants in the Middle East: Epidemiological Situation and Status of Control and Eradication Activities after the First Phase of the PPR Global Eradication Program (2017–2021). *Animals*. 2023; 13(7):1196.

BHVSI-SA, PPR in Greece.

Clarke BD, Islam MR, Yusuf MA, Mahapatra M, Parida S. 2018. Molecular detection, isolation and characterization of Peste-des-petits ruminants virus from goat milk from outbreaks in Bangladesh and its implication for eradication strategy. *Transbound Emerg Dis*.;65(6):1597-1604. doi:10.1111/tbed.12911

EFSA (2015) Scientific Opinion on Peste de Petits Ruminants.

FAO, Peste des Petits Ruminants Global Eradication Programme II and III: Overview of the plan of action.

Mahapatra, M.; Pachauri, R.; Subramaniam, S.; Banyard, A.C.; ChandraSekar, S.; Ramakrishnan, M.A.; Njeumi, F.; Muthuchelvan, D.; Parida, S. Ongoing Assessment of the Molecular Evolution of Peste Des Petits Ruminants Virus Continues to Question Viral Origins. *Viruses* **2021**, *13*, 2144

PAFF Presentations - Mission of the Community Veterinary Emergency Team to Bulgaria: Sheep pox epidemics on the Lesvos Island.

The Centre for Food Security and Public Health, PPR.

Tekirdag provincial department of agriculture and forestry, Thrace free from PPR.

WOAH (2020) PPR Disease Technical Cards.

WOAH (2024) Terrestrial Animal Code, Chapter 14.7 Infection with Peste de Petits Ruminants Virus.

This publication is available at https://www.gov.uk/government/collections/animal-diseases-international-monitoring
Any enquiries regarding this publication should be sent to us at iadm@apha.gov.uk