Follow-up report 7

01/12/2021

The event is ongoing. Weekly follow-up reports will be submitted.

Sender	Country/territory	Report ID
Delegate of Greece	Greece	FUR_152683
Event status	No evolution reason	Self-declaration
On-going	The epidemiological situation remains unchanged since the last report	No

General information

Country or zone - Country	Disease - SARS-CoV-2 in animals (Inf. with)	Started on - 04/12/2020
Animal type - Terrestrial	Confirmed on - 08/12/2020	Causal agent - SARS-CoV-2
Disease category - Emerging	Reported on - 01/12/2021	Reason - Emerging disease

Disease impact

Outbreak morbidity - 2.0

Outbreak mortality - 1.0

Zoonotic potential - Yes

Zoonotic potential description - To date, the Y453F mutation in the spike (S) protein of the virus, referred to as mink-related-variant, has been detected in sequenced SARS-CoV-2 genomes from 6 human cases directly related to mink (farm workers/owners), but it has not been detected in samples from the general population. Sequencing of virus genomes from human and mink samples is ongoing

Epidemiology

Source of the event or origin of the infection - Unknown or inconclusive

Epidemiological commentsIn total, 25 out of 91 mink farms have been tested positive for SARS-CoV-2 since the first outbreak was confirmed on 13/11/2020. Epidemiological data and comparative analysis among human and mink isolated SARS-CoV-2 genomes indicate that minks were infected, in most of the cases, by humans. Stamping out and official disposal of carcasses were only applied to the first confirmed farm. At that point, it was decided to stop culling animals. The whole country is practically considered a single zone. Movement restrictions (complete standstill for live animals) and strict biosecurity measures, including the mandatory use of personal protective equipment (PPE), have been imposed not only to the infected mink farms, but also to all fur farms in Greece. Reporting of increased mink morbidity and mortality to the veterinary authorities is obligatory at national level. Vaccination of high-risk population directly related to farms (farm workers, owners, veterinarians) has been concluded. In the framework of the one-health approach, veterinary and health authorities have been closely collaborating both at local and central level. Active repeated weekly surveillance (RT-PCR tests) is conducted by health authorities in all mink farm workers/owners. Results are notified directly to veterinary authorities which investigate every farm that is epidemiologically linked to a confirmed human case. In addition, veterinary authorities investigate every notification for increased animal morbidity and mortality. Oropharyngeal swabs are collected from the animals and tested with RT-PCR. Sequencing of virus genomes from human and mink samples is conducted

Control measures at event level

Domestic control measures

Applied
- Movement control inside the country
- Quarantine
- Surveillance outside containment and or the protection zone
- Surveillance within containment and or the protection zone
- Traceability
- Zoning

Wild control measures

Applied
- Movement control inside the country
- Quarantine
- Surveillance outside containment and or the protection zone
- Surveillance within containment and or the protection zone
- Traceability
- Zoning

Diagnostic

Clinical signs - Yes

Method of diagnostic - Diagnostic test

Test name	Category	Test type	Laboratory	Species sampled	Outbreaks	Tested from	Tested until	Result
Virus sequencing	Genotyping	Laboratory Test	Centre for Research and Technology Hellas (CERTH) National Laboratory	Mustelidae	1	23/08/2021	25/08/2021	Positive
Real-time polymerase chain reaction (real-time PCR)	Nucleic acid detection	Laboratory Test	Centre for Research and Technology Hellas (CERTH) National Laboratory	Mustelidae	1	12/08/2021		Positive
Real-time polymerase chain reaction (real-time PCR)	Nucleic acid detection	Laboratory Test	Centre for Research and Technology Hellas (CERTH)	Mustelidae		08/12/2020		Positive
Virus sequencing	Genotyping	Laboratory Test	Centre for Research and Technology Hellas (CERTH)	Mustelidae		16/12/2020		Positive
Real-time polymerase chain reaction (real-time PCR)	Nucleic acid detection	Laboratory Test	Centre for Research and Technology Hellas (CERTH)	Mustelidae		18/12/2020		Positive
Real-time polymerase chain reaction (real-time PCR)	Nucleic acid detection	Laboratory Test	Centre for Research and Technology Hellas (CERTH)	Mustelidae		08/12/2020		Positive
Real-time polymerase chain reaction (real-time	Nucleic acid detection	Laboratory Test	Centre for Research and Technology Hellas	Mustelidae		08/01/2021		Positive

PCR)			(CERTH)					
Virus sequencing	Genotyping	Laboratory Test	Centre for Research and Technology Hellas (CERTH)	Mustelidae		12/01/2021		Positive
Real-time polymerase chain reaction (real-time PCR)	Nucleic acid detection	Laboratory Test	Centre for Research and Technology Hellas (CERTH)	Mustelidae		08/12/2020		Positive
Real-time polymerase chain reaction (real-time PCR)	Nucleic acid detection	Laboratory Test	Centre for Research and Technology Hellas (CERTH)	Mustelidae		05/02/2021		Positive
Virus sequencing	Genotyping	Laboratory Test	Centre for Research and Technology Hellas (CERTH)	Mustelidae		08/02/2021		Positive
Real-time polymerase chain reaction (real-time PCR)	Nucleic acid detection	Laboratory Test	Centre for Research and Technology Hellas (CERTH)	Mustelidae		08/12/2020		Positive
Real-time polymerase chain reaction (real-time PCR)	Nucleic acid detection	Laboratory Test	Centre for Research and Technology Hellas (CERTH)	Mustelidae		13/02/2021		Positive

Quantitative data summary

Measuring unit - Animal

Species	Type	Susceptible	Cases	Deaths	Killed and disposed of	Slaughtered	Vaccinated	Outbreak morbidity	Outbreak mortality
Mustelidae	New	-	-	-	-	-	-	-	-
Mustelidae	Total	116374	15626	1088	0	0	0	13.43	0.93
All species	New	-	-	-	-	-	-	-	-
All species	Total	116374	15626	1088	0	0	0	13.43	0.93

Event morbidity - 2.0

Event mortality - 1.0

Morbidity range - 0.27-49.3

Mortality range - 0.27-1.06

Outbreaks

1000145761-Regional Unit of Kastoria

Outbreak reference - KASTORIA_7

Started on - 26/01/2021

First administrative division - Epirus and Western Macedonia

Second administrative division - West Macedonia	Epidemiological unit - Farm	Geographic coordinates - 40.4712,21.1861
Third administrative division - Kastoria	Location - Regional Unit of Kastoria	

Description of the affected populationThe animals are bred in a commercial farm for their fur. On 1/2/2021 veterinary authorities were notified by the farm owner about increased mortality and clinical symptoms. According to the owner, reduced feed intake was first observed on 26/1/2021, while respiratory symptoms and increased mortality were first detected on 29/1/2021. On 3/2/2021, samples (oropharyngeal swabs) were collected from 3 dead and 7 symptomatic animals and all of them were tested positive with RT- PCR.

Species	Type	Measuring unit	Susceptible	Cases	Deaths	Killed and disposed of	Slaughtered	Vaccinated
Mustelidae	New	Animal	-	-	-	-	-	-
Mustelidae	Total	Animal	716	716	55	0	0	-
All species	New	Animal	-	-	-	-	-	-
All species	Total	Animal	716	716	55	0	0	-

1000146487-Regional Unit of Grevena

Outbreak reference - GREVENA_5	Started on - 08/02/2021	First administrative division - Epirus and Western Macedonia
Second administrative division - West Macedonia	Epidemiological unit - Farm	Geographic coordinates - 39.895,21.6014
Third administrative division - Deskati	Location - Regional Unit of Grevena	

Description of the affected populationThe animals are bred in a commercial farm for their fur. On 8/2/2021, veterinary authorities were notified by the health authorities for two human cases (workers) directly related to the farm. The two positive workers were detected in the framework of the early warning system (weekly testing) for farm staff that has been in place since November 2020. Samples (oropharyngeal swabs) were collected from 20 animals and 17 were tested positive with RT- PCR. Mink showed no clinical symptoms and feed intake was not reduced. Taking into account the farm records, observed mortality didn''t exceed the regular values that are expected within this time period (slimming preceding mating season), thus was considered unrelated to the outbreak

Species	Type	Measuring unit	Susceptible	Cases	Deaths	Killed and disposed of	Slaughtered	Vaccinated
Mustelidae	New	Animal	-	-	-	-	-	-
Mustelidae	Total	Animal	27658	17	0	0	0	-
All species	New	Animal	-	-	-	-	-	-
All species	Total	Animal	27658	17	0	0	0	-

1000141042-Regional Unit of Grevena

Outbreak reference - GREVENA_3	Started on - 04/12/2020	First administrative division - Epirus and Western Macedonia
Second administrative division - West Macedonia	Epidemiological unit - Farm	Geographic coordinates - 40.226447,21.440184
Third administrative division - Grevena	Location - Regional Unit of Grevena	

Description of the affected populationThe animals are bred in a commercial farm for their fur. Suspicion was raised in the framework of surveillance activities following notification about a confirmed human case (farm worker) for COVID-19. Samples (oropharyngeal swabs) were collected from twenty animals and were tested positive with RT- PCR. Mink showed no clinical symptoms and feed intake was not reduced. Mortality did not increase. It was negligible and within the expected range based on the farm records, thus is considered unrelated to the outbreak.

Species	Type	Measuring unit	Susceptible	Cases	Deaths	Killed and disposed of	Slaughtered	Vaccinated

Mustelidae	New	Animal	-	-	-	-	-	-
Mustelidae	Total	Animal	4000	20	0	0	0	-
All species	New	Animal	-	-	-	-	-	-
All species	Total	Animal	4000	20	0	0	0	-

ob_90436-Regional Unit of Kozani

Outbreak reference - KOZANI_13 | Started on - 22/08/2021 | First administrative division - Epirus and Western Macedonia

Second administrative division - West Macedonia | Epidemiological unit - Farm | Geographic coordinates - 40.376,21.4914

Third administrative division - Voio | Location - Regional Unit of Kozani

Description of the affected populationThe animals are bred in a commercial farm for their fur. According to the owner a significant reduction of feed intake was first noticed on 22/8/2021. A gradual increase in daily deaths and respiratory symptoms were first observed in the following day. Based on that, the owner notified veterinary authorities on 25/8/2021. At the same time health authorities reported a positive farm worker in the context of active sampling and testing of mink farm workers in Greece. Samples (oropharyngeal swabs) from nine dead animals were collected. Seven out of nine samples tested positive with RT- PCR.

Species	Type	Measuring unit	Susceptible	Cases	Deaths	Killed and disposed of	Slaughtered	Vaccinated
Mustelidae	New	Animal	-	-	-	-	-	-
Mustelidae	Total	Animal	14200	7000	150	0	0	0
All species	New	Animal	-	-	-	-	-	-
All species	Total	Animal	14200	7000	150	0	0	0

1000142955-Regional Unit of Kastoria

Outbreak reference - KASTORIA_5 | Started on - 31/12/2020 | First administrative division - Epirus and Western Macedonia

Second administrative division - West Macedonia | Epidemiological unit - Farm | Geographic coordinates - 40.517,21.058

Third administrative division - Kastoria | Location - Regional Unit of Kastoria

Description of the affected populationThe animals are bred in a commercial farm for their fur. Suspicion was raised in the framework of surveillance activities following notification about a confirmed human case (farm worker) for COVID-19. Samples (oropharyngeal swabs) were collected from twenty animals and 1 out of 4 pooled samples was tested positive with RT- PCR. Mink showed no clinical symptoms and feed intake was not reduced. No mortality was observed.

Species	Type	Measuring unit	Susceptible	Cases	Deaths	Killed and disposed of	Slaughtered	Vaccinated
Mustelidae	New	Animal	-	-	-	-	-	-
Mustelidae	Total	Animal	3200	5	0	0	0	-
All species	New	Animal	-	-	-	-	-	-
All species	Total	Animal	3200	5	0	0	0	-

1000141549-Regional Unit of Kozani

Outbreak reference - KOZANI_9 | Started on - 11/12/2020 | First administrative division - Epirus and Western Macedonia

Second administrative division - West Macedonia | Epidemiological unit - Farm | Geographic coordinates - 40.2862624,21.4396819

Third administrative division - Voio | Location - Regional Unit of Kozani

Description of the affected populationThe animals are bred in a commercial farm for their fur. Suspicion was raised in the

framework of surveillance activities following notification about increased mink mortality. Samples (oropharyngeal swabs) were collected from ten dead animals and tested positive with RT- PCR. Infected mink showed respiratory symptoms and reduced feed intake.

Species	Type	Measuring unit	Susceptible	Cases	Deaths	Killed and disposed of	Slaughtered	Vaccinated
Mustelidae	New	Animal	-	-	-	-	-	-
Mustelidae	Total	Animal	3300	3300	400	0	0	-
All species	New	Animal	-	-	-	-	-	-
All species	Total	Animal	3300	3300	400	0	0	-

1000142957-Regional Unit of Kastoria

Outbreak reference - KASTORIA_6

Started on - 31/12/2020

First administrative division - Epirus and Western Macedonia

Second administrative division - West Macedonia

Epidemiological unit - Farm

Geographic coordinates - 40.496,21.144

Third administrative division - Kastoria

Location - Regional Unit of Kastoria

Description of the affected populationThe animals are bred in a commercial farm for their fur. Suspicion was raised in the framework of surveillance activities following notification about a confirmed human case (farm owner) for COVID-19. Samples (oropharyngeal swabs) were collected from twenty animals and 1 out of 4 pooled samples was tested positive with RT- PCR. Mink showed no clinical symptoms and feed intake was not reduced. No mortality was observed.

Species	Type	Measuring unit	Susceptible	Cases	Deaths	Killed and disposed of	Slaughtered	Vaccinated
Mustelidae	New	Animal	-	-	-	-	-	-
Mustelidae	Total	Animal	3000	5	0	0	0	-
All species	New	Animal	-	-	-	-	-	-
All species	Total	Animal	3000	5	0	0	0	-

ob_89750-Regional Unit of Kozani

Outbreak reference - KOZANI_12

Started on - 05/08/2021

First administrative division - Epirus and Western Macedonia

Second administrative division - West Macedonia

Epidemiological unit - Farm

Geographic coordinates - 40.288,21.4455

Third administrative division - Voio

Location - Regional Unit of Kozani

Description of the affected populationThe animals are bred in a commercial farm for their fur. According to the owner, a slight increase in daily deaths, without respiratory symptoms, was observed in the first days of August and was attributed to the excessive and extended heat wave. Within the following period the mortality rate further increased and respiratory symptoms were noticed in a few animals. Based on that, the owner notified veterinary authorities on 11/8/2021 and samples (oropharyngeal swabs) from ten dead animals were collected. Seven out of ten samples were tested positive with RT- PCR.

Species	Type	Measuring unit	Susceptible	Cases	Deaths	Killed and disposed of	Slaughtered	Vaccinated
Mustelidae	New	Animal	-	-	-	-	-	-
Mustelidae	Total	Animal	30000	80	80	0	0	0
All species	New	Animal	-	-	-	-	-	-
All species	Total	Animal	30000	80	80	0	0	0

1000141001-Regional Unit of Kozani

Outbreak reference - KOZANI_7

Started on - 04/12/2020

First administrative division - Epirus and

		Western Macedonia
Second administrative division - West Macedonia	Epidemiological unit - Farm	Geographic coordinates - 40.2408,21.3978
Third administrative division - Voio	Location - Regional Unit of Kozani	

Description of the affected populationThe animals are bred in a commercial farm for their fur. Suspicion was raised in the framework of surveillance activities following notification about a) increased mortality and b) a confirmed human case (farm owner) for COVID-19. Samples (oropharyngeal swabs) were collected from ten dead animals and all of them were tested positive with RT-PCR. Mink that died were relatively old and fat and showed mild respiratory symptoms and reduced feed intake. It is assumed that more animals were infected but their number cannot be calculated because of missing information.

Species	Type	Measuring unit	Susceptible	Cases	Deaths	Killed and disposed of	Slaughtered	Vaccinated
Mustelidae	New	Animal	-	-	-	-	-	-
Mustelidae	Total	Animal	2300	43	43	0	0	-
All species	New	Animal	-	-	-	-	-	-
All species	Total	Animal	2300	43	43	0	0	-

1000141542-Regional Unit of Grevena

Outbreak reference - GREVENA_4	Started on - 13/12/2020	First administrative division - Epirus and Western Macedonia
Second administrative division - West Macedonia	Epidemiological unit - Farm	Geographic coordinates - 40.1871123,21.460993
Third administrative division - Grevena	Location - Regional Unit of Grevena	

Description of the affected populationThe animals are bred in a commercial farm for their fur. Suspicion was raised in the framework of surveillance activities following notification about a confirmed human case (farm worker) for COVID-19.Samples (oropharyngeal swabs) were collected from twenty animals and were tested positive with RT- PCR. Mink showed no clinical symptoms and feed intake was not reduced. No mortality was observed.

Species	Type	Measuring unit	Susceptible	Cases	Deaths	Killed and disposed of	Slaughtered	Vaccinated
Mustelidae	New	Animal	-	-	-	-	-	-
Mustelidae	Total	Animal	3000	20	0	0	0	-
All species	New	Animal	-	-	-	-	-	-
All species	Total	Animal	3000	20	0	0	0	-

1000142951-Regional Unit of Kozani

Outbreak reference - KOZANI_10	Started on - 24/12/2020	First administrative division - Epirus and Western Macedonia
Second administrative division - West Macedonia	Epidemiological unit - Farm	Geographic coordinates - 40.354,21.413
Third administrative division - Voio	Location - Regional Unit of Kozani	

Description of the affected populationThe animals are bred in a commercial farm for their fur. Suspicion was raised in the framework of surveillance activities following notification about a) increased mink mortality b) a confirmed human case (farm owner) for COVID-19. Samples (oropharyngeal swabs) were collected from 3 dead and 7 symptomatic animals and tested positive with RT- PCR. Infected mink showed respiratory symptoms and reduced feed intake was observed.

Species	Type	Measuring unit	Susceptible	Cases	Deaths	Killed and disposed of	Slaughtered	Vaccinated
Mustelidae	New	Animal	-	-	-	-	-	-
Mustelidae	Total	Animal	3500	3500	200	0	0	-

All species	New	Animal	-	-	-	-	-	-
All species	Total	Animal	3500	3500	200	0	0	-

1000141038-Regional Unit of Kozani

Outbreak reference - KOZANI_8

Started on - 04/12/2020

First administrative division - Epirus and Western Macedonia

Second administrative division - West Macedonia

Epidemiological unit - Farm

Geographic coordinates - 40.28438,21.45

Third administrative division - Voio

Location - Regional Unit of Kozani

Description of the affected populationThe animals are bred in a commercial farm for their fur. Suspicion was raised in the framework of surveillance activities following notification about a) increased mortality and b) four confirmed human cases (farm owner and workers) for COVID-19. Samples (oropharyngeal swabs) were collected from ten dead animals and all of them were tested positive with RT- PCR. Infected mink showed respiratory symptoms and reduced feed intake.

Species	Type	Measuring unit	Susceptible	Cases	Deaths	Killed and disposed of	Slaughtered	Vaccinated
Mustelidae	New	Animal	-	-	-	-	-	-
Mustelidae	Total	Animal	7500	900	160	0	0	-
All species	New	Animal	-	-	-	-	-	-
All species	Total	Animal	7500	900	160	0	0	-

1000142953-Regional Unit of Kozani

Outbreak reference - KOZANI_11

Started on - 31/12/2020

First administrative division - Epirus and Western Macedonia

Second administrative division - West Macedonia

Epidemiological unit - Farm

Geographic coordinates - 40.348,21.567

Third administrative division - Voio

Location - Regional Unit of Kozani

Description of the affected populationThe animals are bred in a commercial farm for their fur. Suspicion was raised in the framework of surveillance activities following notification about a confirmed human case (farm worker) for COVID-19. Samples (oropharyngeal swabs) were collected from twenty animals and all 4 pooled samples were tested positive with RT- PCR. Mink showed no clinical symptoms and feed intake was not reduced. No mortality was observed.

Species	Type	Measuring unit	Susceptible	Cases	Deaths	Killed and disposed of	Slaughtered	Vaccinated
Mustelidae	New	Animal	-	-	-	-	-	-
Mustelidae	Total	Animal	14000	20	0	0	0	-
All species	New	Animal	-	-	-	-	-	-
All species	Total	Animal	14000	20	0	0	0	-

Map legend

OUTBREAKS REPRESENTATION ON MAP

OUTBREAKS NATURE

Single / Cluster

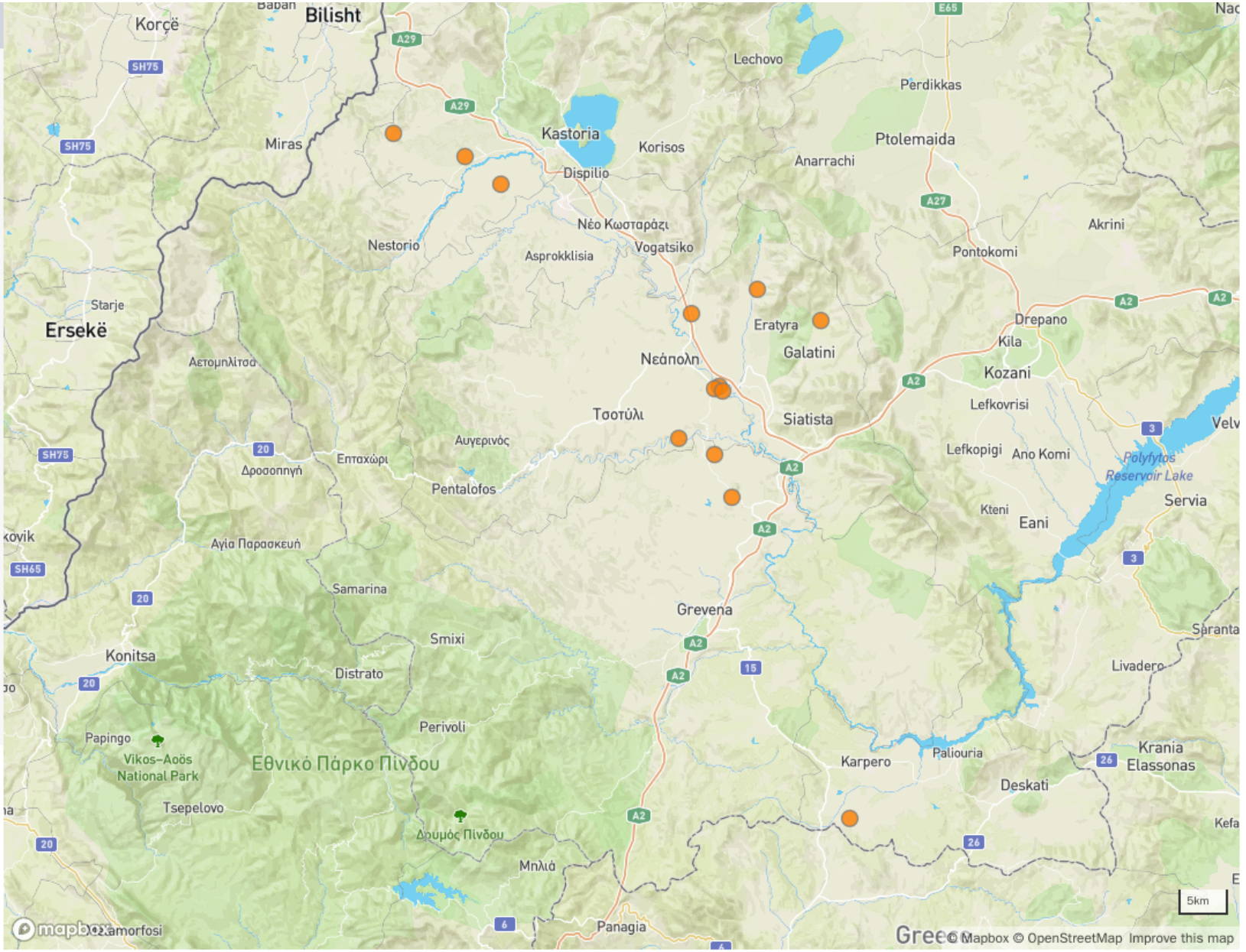
- Domestic species
- Wild species
- Domestic & Wild

OUTBREAKS STATUS

- Outbreak currently reported
- Ongoing outbreak
- Resolved outbreak

AGGREGATION REPRESENTATION

- < 20 outbreaks — 11
- 20 - 100 outbreaks — 50
- > 100 outbreaks — 120



Les localisations des foyers ont été renseignées par les Services vétérinaires compétents et peuvent ne pas représenter l'emplacement exact d'un foyer. L'OIE n'assume aucune responsabilité quant aux données affichées.