#### DISCLAIMER

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- (iii) any direct or indirect consequences of any nature arising from or relating to the use of the information contained in a self-declaration.

# Self-declaration of freedom from infection with rabies virus by Greece

Declaration sent to the World Organisation for Animal Health (WOAH) on 8 August 2024, by Mrs Mary Gianniou, WOAH Delegate for Greece, Head of the Animal Health Directorate of the Directorate General of Veterinary Services of Hellenic Ministry of Rural Development and Food, Athens, Greece.

#### I. Introduction

The objective of this self-declaration is to demonstrate that Greece fulfils the requirements of a country free from infection with rabies virus, in compliance with Chapters 1.6 and 8.15 of the 2024 Terrestrial Animal Health Code (*Terrestrial Code*). This is the first time that Greece has submitted a self-declaration to WOAH for this purpose. A brief description of the Greek rabies eradication programme in place and relevant historical data will be presented.

Our request for self-declaration of disease freedom is hereby submitted following the approval of Greece as a Member State with disease-free status from infection with rabies virus, in its whole territory, according to the <u>Commission</u> <u>Implementing Regulation (EU) 2021/620</u>. It concerns the entire territory of Greece and the populations of both domestic and wild animals.

The Greek territory covers an area of 132,049km<sup>2</sup>. Administratively, our country is divided into thirteen (13) Regions, which are further divided into 74 Regional Units (RUs) (Figure 1). It consists of a continental part characterized by the presence of vast mountainous areas (almost 80% of the total land area of the country) and an extensive water surface, with many island complexes and a coastline at an extent of approximately 15,000km. Greece has borders with Albania to the northwest, the Republic of North Macedonia and Bulgaria to the north and Turkey to the east.

Greece formally requests WOAH to publish this self-declaration on its website. A statement of responsibility signed by the WOAH Delegate of Greece is contained in Annex I.

The starting date of this self-declaration is the 8<sup>th</sup> of August, 2024.



Figure 1: Map of the administrative division of Greece.

## II. Rabies notification and disease-free status of Greece within the European Union

Rabies is a notifiable disease within the European Union (EU) and, therefore, also in Greece according to the EU legislation of animal health - <u>Regulation (EU) 2016/429 ('Animal Health Law'</u>), in accordance with <u>Commission</u> <u>Implementing Regulation (EU) 2018/1882</u> and <u>Commission Implementing Regulation (EU) 2020/2002</u>, applicable since April 21<sup>st</sup>, 2021.

Further, rabies is a notifiable disease, according to the national legal basis in force: the <u>Presidential Decree No 133/1992</u> (Government Gazette, volume 66A'), the Joint Ministerial Decision [Number: 331/10301/25.01.2013 (Government Gazette, volume 198B'), the Joint Ministerial Decision 3941/120925/07.10.2013 (1<sup>st</sup> amendment of the Joint Ministerial Decision 331/10301/25.01.2013), the Joint Ministerial Decision 1049/41498/05.04.2016 (2<sup>nd</sup> amendment of the Joint Ministerial Decision 331/10301/25.01.2013) and the Law 4235/2014 (Government Gazette, volume 15A'), as in force.

Legal documents regarding the implementation of the programme, the "Rabies Control Manual" and any relevant information can be found at the website of the Hellenic Ministry of Rural Development and Food (HMRDF), at the following link: <u>http://www.minagric.gr/index.php/el/for-citizen-2/nosimata-zoon/457-lissa</u>.

According to union and national law, it is mandatory for all citizens, related professionals and any other stakeholder involved in the management of animals susceptible to rabies to notify the veterinary authorities of animals showing clinical signs similar to the disease or found dead for unknown reasons. The Greek National Reference Laboratory (GNRL) for rabies in animals (the Virology Laboratory in the Department of Molecular Diagnostics, Foot and Mouth Disease, Virological, Rickettsial and Exotic Diseases in the Directorate of Veterinary Center of Athens in the Directorate General of Veterinary Services of the HMRDF) immediately notifies the positive results for rabies to the central and local competent veterinary authorities. Upon confirmation of rabies, the Central Competent Veterinary Authority (CCVA) of the HMRDF notifies the outbreak to the EU Animal Disease Information System (ADIS) and to WOAH's World Animal Health Information System (WAHIS). Emergency measures are activated and all involved stakeholders and services are informed. Reporting of notifiable diseases to WOAH is performed on a regular basis via WAHIS.

The Animal Health Law (AHL) supplemented by <u>Commission Delegated Regulation (EU) 2020/689</u> has laid down rules for the approval of the status "free from infection with rabies virus (RABV)" for EU-Member States and zones thereof. On December 1<sup>st</sup>, 2020, Greece submitted to the European Commission an application to be granted the "free from infection with RABV" status. Following its assessment, this application was shown to comply with the criteria of Annex V, Part I, Chapter 2, Section 1 of the Delegated Regulation (EU) 2020/689. Therefore, Greece was listed in Part I of Annex III of the <u>Commission Implementing Regulation (EU) 2021/620</u>. The free status from infection with RABV is maintained up to now, in line with the provisions set out in Article 41 of the AHL and Article 81 of the Delegated Regulation (EU) 2020/689.

#### III. History of rabies in Greece

The last rabies case in humans, in Greece, was dated back in 1970, and in animals, up to 2012, the disease was last confirmed in 1987 in a dog in northern Greece (more specifically in the RU of Evros). After an absence of twenty-five (25) years, the disease re-emerged in late 2012 (Figure 2). A red fox with abnormal behavior was found in the northwestern part of Greece at the RU of Kozani, where it was sampled and tested for rabies. On 19.10.2012, the GNRL for rabies in animals confirmed the disease by immuno-fluorescence and molecular tests and an immediate notification was sent to WOAH on the same day. By the end of 2012, eight (8) more cases of rabies in animals were confirmed.



Figure 2: Geographical distribution of rabies outbreaks in Greece in the period 2012-2014.

The last rabies case confirmed was a red fox in Pella RU on 09.05.2014.

The re-emergence of rabies in 2012 coincided with a high incidence of cases in nearby countries. From October 2012 to May 2014, 48 cases in animals were confirmed (Figure 2, Graph 1). More specifically, the laboratory-confirmed cases were nine (9) in 2012 [seven (7) foxes and two (2) dogs], twenty-nine (29) in 2013 [25 foxes, two (2) cattle, one (1) dog and one (1) cat] and ten (10) in 2014 [eight (8) foxes and two (2) dogs]. The last rabies case was confirmed in a red fox in the RU of Pella, in the Region of Central Macedonia, in May 2014.



<u>Graph. 1</u>: Number of rabies cases per month during the 2012 – 2014 rabies outbreak in Greece.

The following measures are applied for the control and eradication of rabies in animals:

## In domestic animals

- Mandatory registration and vaccination of companion animals [according to <u>Regulation (EU) No 576/2013</u> of the European Parliament and of the Council].
- Control of animal movements (identification, registration, vaccination against rabies of dogs, cats and ferrets, before movement).
- Mandatory vaccination of other carnivores, used as pets.
- Vaccination of farm animals against rabies, in case of confirmation of the disease, in the affected area(s).
- Control of the disease in stray dogs and cats, via identification, registration and vaccination against rabies.

## > In wildlife populations

A large-scale and long-term Oral Rabies Vaccination Campaign (ORVC) by aerial distribution of vaccine-baits to prevent introduction and suppress the spread of infection among wildlife is carried out. The ORVC for the immunization of wildlife was launched in 2013, following the re-emergence of the disease in 2012 and is implemented under European Commission co-financing.

The first vaccination campaign took place in autumn/winter 2013, the second in autumn/winter 2014, and the third in autumn/winter 2015. Since then, fifteen (15) more ORVCs have been implemented biannually, with the exception of the year 2021. More particularly, this year, unforeseen financial and administrative difficulties [the end of the three-year framework contract covering the rabies vaccine-baits purchase and distribution, the late adoption of the new Single Market Programme (SMP) and the consequent additional delays in the national budget allocation] led to the cancellation of the implementation of the 2021 ORVCs. In 2024, the 18<sup>th</sup> ORVC in wildlife started on the 10<sup>th</sup> of April and lasted till the 26<sup>th</sup> of the same month. Since 2016, ORVCs have been biannual and conducted during spring (April-May) and autumn (October-November), as temperature conditions for the vaccine baits used are considered more appropriate in these periods.

In Greece, the vaccine bait used during the first seven (7) ORVCs was the Rabigen (SAG2 vaccine-baits), for the next six (6) ORVCs, the Lysvulpen, Bioveta (SAD Bern vaccine), while for the 2022, 2023 and 2024 ORVCs the Rabadrop, Bioveta (SAD Clone attenuated vaccine) is being used.

From 2013 until 2015, the ORVCs covered approximately half the country's continental territory. Since the autumn of 2016 ORVC, the vaccination area of the ORVCs has expanded to cover the country's north borderline in Xanthi, Rhodope and Evros RUs. In contrast, the RUs of Magnesia, Thesprotia and a part of Fthiotida, were excluded. The total actual area covered per campaign was approximately 55,000km<sup>2</sup>. The average vaccine-bait distribution density was 25 baits per square kilometer. On average, one and a half million (1,500,000) baits were distributed per ORVC and approximately three million (3,000,000) per year.

From 2022 onwards, vaccine baits are being aerially distributed by fixed-wind aircraft to a 50km zone along the Greek land borders so that the total size of the area in which vaccines are distributed is reduced to approximately 33,000 km<sup>2</sup> (30,000 km<sup>2</sup> excluding water surfaces, roads, urban and suburban areas, as well as areas with altitude over 1,500m)

(Figure 3). For the first time, in the spring of 2022 ORVC, parts of the Region of Eastern Macedonia and Thrace, the Region of Central Macedonia, the Region of Western Macedonia and the Region of Epirus were included. The seventeen (17) RUs involved in the programme for the 2022-2024 ORVCs are the following: Evros (excluding Samothaki), Xanthi, Rhodope, Drama, Kavala (part), Imathia (part), Thessaloniki (part), Kilkis, Pella, Serres (part), Grevena (part), Kozani, Kastoria, Florina, Preveza (part), Thesprotia, Ioannina (part). The average vaccine-bait distribution density is 25 baits per km. On average, 723 thousand (723,000) vaccine baits are distributed per campaign and approximately one and a half million (1,500,000) per year. An automatic dropping device with a GPS receiver is installed in each aircraft to register the dropping coordinates of each vaccine bait and send the records "real-time" to both the competent authority and the aerial distribution company. Official veterinarians on the field are supervising the whole procedure.

All vaccines against rabies in wildlife in Greece have been produced and are used in accordance with the provisions of Chapter 3.1.19. the WOAH *Terrestrial Manual* (2024).



<u>Figure 3</u>: Evolution of the vaccination area from 2013 - 2015 (A), autumn ORVC 2016 until 2020 (B) and from 2022 onwards (C).

Intensified surveillance is still being carried out, and no more rabies cases have been confirmed ever since.

#### IV. Rabies surveillance in Greece including an early warning system

The programme for the control and eradication of the disease, including passive and active surveillance, as well as an early warning system for rabies, described in the <u>Joint Ministerial Decision [Number: 331/10301/25.01.2013</u> (Government Gazette, volume 198B'), as in force. The main objectives of the national rabies control and eradication programme are the following:

- immunization of red foxes, which are the reservoir of the rabies virus in our country,
- early detection of rabies occurrence,
- timely implementation of the necessary control and eradication measures and
- maintenance of the disease-free status.

The target species for the rabies eradication programme are indicator animals of the following families: Carnivora, Bovidae, Suidae, Equidae, Cervidae and Camelidae, with emphasis on the red fox, which is the main reservoir of the rabies virus and the target species of the ORVCs in Greece.

Indicatively, in 2023, population of dogs and cats in the entire Greek territory, is estimated as follows: 1.023.908 dogs (852.343 domestic and 171.565 stray) and 225.833 cats (135.010 domestic and 120.823 stray). Regarding the vaccination target species of red foxes, the estimated population in the same year is 331.000 animals. A schematic illustration of red foxes' populations during the years 2015-2023 is presented in Graph 2, here below.



Graph. 2: Population of foxes during the period 2015 – 2023 in Greece.

A great effort has been made throughout the years in order to increase public awareness regarding rabies and thereby ensure a functioning early warning system please refer to our website <u>minagric.gr</u> where an informative for rabies YouTube video is available). For this purpose, a communication campaign is launched before and during every ORVC, including informative documents issued by the CCVA and sent to all involved stakeholders, as well as the distribution of posters and leaflets. Also, people are informed via a radio-TV spot. The latest update of the aforementioned posters, leaflets and the radio-TV spot took place in 2019 and is planned to be repeated in the following years.

Greece has intensified its rabies surveillance due to the high risk of rabies introduction resulting from high rabies incidences in nearby countries and political instability in foreign territories leading to mass movements of people and animals.

Thus, the sample distribution, especially along our northern borders, in the framework of passive and active surveillance, is essential to have an improved overview of the areas where competent authorities should enhance surveillance and awareness activities. In this context, such data would enhance cross-border cooperation, especially with the neighbouring Balkan countries.

In the framework of passive surveillance, all susceptible animals (red foxes, wolves, jackals, dogs and cats, ferrets, wild boars, martens, jackals, sheep and goats, minks, wild cats, bats, squirrels, badgers, hedgehogs, otters, roe deer, red deer, weasels, rats, Equidae, rabbits, pigs, cattle, monkeys, bears), which are found dead by unknown reason, in the entire Greek territory, are to be collected and delivered for testing by the GNRL for rabies in animals. Moreover, dogs and other mammals found dead for unknown reasons or after road accidents or that may have exposed humans to the virus (e.g. by aggressive biting) are also sent for testing. The majority of the samples tested for surveillance purposes (>90%) come from red foxes. In a very limited number of cases, animals of susceptible species showing symptoms compatible with rabies such as unreasonable aggression, are sent for testing to the GNRL for rabies in animals.

Passive surveillance is conducted by a network of authorized veterinarians and veterinary officials, forestry services and hunters' associations. Rabies passive surveillance is primarily based on the Fluorescent Antibody Test (FAT) on nervous tissue samples derived from the brain of animals delivered. The method is performed in line with Chapter 3.1.19. of the *Terrestrial Manual* and is accredited (since 2016) with ISO/IEC 17025:2017 from the Hellenic Accreditation System (ESYD) (signatory member of the European and the International Network of Accreditation Bodies under the international Mutual Recognition Agreements). The FAT test is repeated in cases of potential human exposure to the disease.

Samples are subjected to further testing in the following cases: a) inconclusive FAT, b) in all FAT-negative samples related to cases with potential human exposure, c) in bat samples, d) in cases of autolyzed/putrefied samples or e) when animal nervous tissue samples are not considered suitable for analysis (broken cranium etc). A schematic illustration of the results of passive surveillance from 2012 up to 30.06.2024 is presented in Graph 2.

Confirmatory tests, apart from repeated FAT, include Real-Time Reverse Transcription PCR (Real-Time RT-PCR), Conventional Reverse Transcription PCR (RT-PCR), and sequencing analysis of the N and G genes (Ring Tests).

Molecular detection of rabies (Lyssavirus gene) with SYBR Green Real-Time RT-PCR has also been accredited with ISO/IEC 17025:2017 from ESYD, since 2023.

If a positive rabies case is diagnosed, the sample is sent to the European Reference Laboratory (EurRL) for rabies for further investigations on the detection of virus genotype.



<u>Graph. 3</u>: Number of samples tested in the framework of passive surveillance sampling in Greece for 2012-2024 (up to 30.06.2024).

Active surveillance to monitor the effectiveness of the ORVC comprises sampling and laboratory examination of hunted red foxes. It starts thirty (30) days after the ending of each ORVC and lasts approximately two (2) months; a prolongation is defined by the CCVA until the start of the next campaign so as to enhance monitoring results. In the framework of monitoring, the annual recommended number of animals to be tested is four (4) foxes per 100 square kilometres (4 foxes/100km<sup>2</sup>). This estimate is based on studies and field experience regarding the requirements to achieve a minimum coverage of 70%, as well as the density of the fox population in Greece. Samples are collected by forestry officers, gamekeepers and hunters. The hunting period starts in August and lasts up to the end of February of the following year. During this period, hunters are encouraged to hunt and provide hunted animals (red foxes) for monitoring to the local veterinary services. During the period of the hunting ban, a derogation is put into force and missions are organized by the forestry services, in order to hunt red foxes only for the purpose of monitoring the effectiveness of the preceding ORVC. In all cases, the official veterinarians at the local veterinary services where hunted red foxes are brought to collect blood samples, cut off the heads thereof, and send them to the GNRL for rabies in animals for testing.

It should be noted that since the summer of 2018, the HMRDF has cooperated with the Ministry of Environment with the aim of modifying some points of the programme's strategy by increasing the number of hunting missions performed and, at the same time, raising their effectiveness.

Monitoring the effectiveness of the ORVC is based on:

- The determination of bait uptake by detecting the presence of biomarker (tetracycline) in hunted foxes. The detection of tetracycline in canine teeth and a part of alveolar bone tissue derived from the lower jaw of each fox is performed according to the protocol of the EuRL for rabies. Tetracycline binding is assessed in teeth and in bones with ultraviolet light examination and inverse microscopy. The age of the animals collected is determined on the basis of a histological examination of teeth.
- The determination of seroconversion by detecting rabies-specific antibodies in target animals. A commercially available blocking ELISA kit is used for the detection of rabies antibodies in serum samples of the foxes.

Monitoring data is stratified according to the age of shot foxes.

Nervous tissue samples from red foxes delivered in the framework of monitoring the effectiveness of the ORVC in the vaccination areas are also tested with FAT. A schematic illustration of the results of active surveillance from 2012 up to 30.06.2024 is presented in Graph 3, here below.



<u>Graph. 4</u>: Results of the monitoring of the effectiveness of the 2013-2023 ORVCs (of all age classes) in the framework of active surveillance in Greece by analysing seroconversion and uptake of the biomarker (tetracycline) in hunted foxes.

#### V. Measures implemented to maintain freedom in the country

## > Rabies vaccination in domestic animals

The vaccination against rabies of all dogs, cats and ferrets, as well as of any other carnivores used as pets, is mandatory in Greece. Regarding stray animals, the municipal authorities are responsible for the implementation of the anti-rabies vaccination programme, according to <u>National Law No 4830/2021 (Government Gazette, volume 169A')</u>.

#### > Prevention of introduction due to movements of animals from infected areas/countries

The legislative framework, applied within the European Union, in accordance with Articles 8.15.5. to 8.15.10. of the Terrestrial Code, is presented here below:

- Movements within the EU: <u>Commission Delegated Regulation (EU) 2020/688</u> and <u>Commission Implementing</u> <u>Regulation (EU) 2021/403</u> lay down rules for the application of Regulations <u>(EU) 2016/429</u> and <u>(EU) 2017/625</u> of the European Parliament and of the Council, regarding animal health requirements confirmed by certain model animal health certificates for movements of dogs, cats and ferrets for commercial purposes, as well as other captive, feral, wild and laboratory mammals and other susceptible domestic species (camelids, ruminants, equids, suidae).
- Entries from non-EU countries (Third Countries): <u>Commission Delegated Regulation (EU) 2020/692</u> lays down rules for the entry into the Union of consignments of certain categories of animals and goods, official certification, regarding such certificates in place for the import of dogs, cats and ferrets for commercial purposes, as well as other captive, feral, wild and laboratory mammals and other susceptible domestic species (camelids, ruminants, equids, suidae).
- Non-commercial movements of pets: <u>Regulation (EU) 576/2013</u> of the European Parliament and the Council and <u>Commission Implementing Regulation (EU) 577/2013</u>, sets the conditions for non-commercial movements and trade of pet animals, such as dogs, cats and ferrets from Third Countries (TC).

According to the above-mentioned Regulations, animals shall a) bear an electronic identification system (microchip) in compliance with ISO standard 11784 and of HDX or FDX-B technology, which can be read by a reading device compatible with standard ISO 11785 or by a clearly readable tattoo applied before 3 July 2011, b) have undergone an anti-rabies vaccination or revaccination, according to Annex III of Regulation (EU) 576/2013 that must be in force, c) have undergone a rabies antibody titration test in case the animals come from third countries not included in Part 2 of Annex

Il to Implementing Regulation (EU) 577/2013, as applicable (Annex II to this) or in <u>Commission Regulation (EU)</u> 2021/404, d) be accompanied by a passport if they come from third countries included in Part I of Annex II to Commission Implementing Regulation (EU) 577/2013 as applicable (Annex III to this), e) in any other case, be accompanied by a veterinary certificate complying with Annex IV of the Commission Implementing Regulation (EU) 577/2013, as indicated in A.2. of this circular (Annex VII to this), f) certified copies of the results of the serological examination shall be attached to the certificate, when this is required.

The entry into the Greek territory of dogs, cats and ferrets under twelve (12) weeks of age or between twelve (12) and sixteen (16) weeks is prohibited.

#### VI. Conclusion

Considering that:

- 1. The last rabies case (a red fox) in Greece was confirmed in 2014.
- 2. Rabies is a compulsory notifiable disease. Any change in the epidemiological situation of the disease is reported in accordance with Chapter 1.1. of the *Terrestrial Code*.
- 3. All susceptible animals showing clinical signs indicative of rabies are subjected to appropriate clinical, field and laboratory investigations.
- 4. The results of passive surveillance during the last ten (10) years demonstrate the absence of circulation of the rabies virus in Greece.
- 5. No case of indigenously acquired infection with rabies virus was confirmed in the last ten (10) years.
- 6. An effective surveillance system is in place, in accordance with Chapter 1.4. and Article 8.15.13. of the Terrestrial Code.
- 7. Regulatory measures for the prevention of infection with rabies are implemented in accordance with the relevant recommendations in the Terrestrial Code, including Articles 8.15.5. to 8.15.10

The WOAH Delegate of Greece declares that Greece complies with the requirements for a country free from infection with rabies virus as of 8 August 2024, in accordance with the provisions of Chapters 1.6 and 8.15 of the Terrestrial Code (2024 edition) and consistent with the information provided in WOAH-WAHIS.

## Annex I

I, the undersigned, Mrs Mary Gianniou,

Delegate of Greece to the World Organisation for Animal Health (WOAH), take responsibility for the self-declaration of freedom from infection with rabies virus.

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Drawn up on August 8th, 2024

Larria

Signature of the Delegate