

# ***Ad hoc* Group on the Revision of Chapters on Equine Encephalitides of the *Terrestrial Animal Health Code***

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The WOAH *ad hoc* Group on the Revision of chapters on Equine Encephalitides of the *Terrestrial Code* (hereafter the Group) met for the first time from 18 to 20 June 2024 at the WOAH headquarters in Paris following the recommendations from the WOAH Terrestrial Animal Health Standards Commission and the Scientific Commission for Animal Diseases (hereafter the WOAH Specialist Commissions) to revise the current *Terrestrial Code* Chapter 12.4. on equine encephalomyelitis (eastern and western); as well as to recommend amendments to Chapters 12.11. on Venezuelan equine encephalomyelitis, 8.10. on Japanese encephalitis and 8.21. on West Nile fever.

## 1. Opening

Dr Montserrat Arroyo, WOAH Deputy Director General for International Standards and Science, thanked the experts and representatives of the Specialist Commissions and their supporting institutions for their commitment and support to the work of the Group. She thanked the Group for their confidentiality and invited them to consider representing their respective regions. Dr Arroyo emphasised the importance of establishing implementable standards and workable provisions grounded in clear rationale, while also advocating for a One Health approach to address potential zoonotic aspects. Finally, she encouraged Group members to propose relevant recommendations to the *Terrestrial Code* chapters on Japanese encephalitis, Venezuelan equine encephalitis, and West Nile Fever.

Dr Monal Daptardar from the Science Department presented the disease listing criteria (*Terrestrial Code* Chapter 1.2) and the assessment results of equine encephalitides against those criteria. Dr Mauro Meske from the Status Department provided a brief overview of the Terms of Reference (ToR) and the meeting of the Group and introduced the Secretariat supporting the Group's work.

## 2. Appointment of the Chair and Rapporteur

Prof. Peter Timoney was appointed as chair and Dr Tania Ware acted as rapporteur with the collaboration from WOAH Secretariat. The ToR and list of participants are provided as [Annexes 2](#) and [2](#), respectively.

## 3. Revision of Chapter 12.4. Infections with Eastern equine encephalitis virus (eastern equine encephalomyelitis) and Western equine encephalitis virus (western equine encephalomyelitis)

### 3.1. Initial considerations

The Group reviewed the remarks of the WOAH Specialist Commissions on the revision of chapters on equine encephalitides of the *Terrestrial Code*, including a request for assessment on whether eastern and western equine encephalomyelitis should be covered in separate chapters and for defining the animal hosts to be targeted for each disease.

The Group noted that the current chapter was very limited, outdated and did not follow the current conventions for *Terrestrial Code* chapters. The Group agreed to draft a full new chapter to replace the current Chapter 12.4. and considered provisions to be included in this chapter following the guidance of the framework for *Terrestrial Code* Standards.

The Group discussed and agreed on having a single chapter for both diseases: eastern equine encephalomyelitis (EEE) and western equine encephalomyelitis (WEE), as the same provisions would apply to both diseases. Nonetheless, the Group agreed to add a paragraph in the introductory article about how the two diseases are related and should be considered for the purposes of the *Terrestrial Code*.

The Group highlighted the zoonotic nature of the diseases and considering the conclusions of the Specialist Commissions supporting the listing of both diseases for their impact on public health, it was agreed to propose recommendations to mitigate animal and public health risks.

### 3.2. General provisions (Article 12.4.1.)

#### a) Definition of the diseases

The Group discussed the pathogenic agents to be covered by the chapter and the naming conventions of the viruses to be used. The Group noted that there has been an update in the nomenclature of the viruses, and they are now classified as Alphaviruses by the International Committee on Taxonomy of Viruses (ICTV). In this regard, the Group recommended considering updating the name of viruses as *Alphavirus* – *eastern* & *western*. In addition, the Group also suggested that the Chapter 3.6.4. of the *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals (Terrestrial Manual)* be updated.

The Group acknowledged that several animal species, such as rodents, reptiles, and wild birds are susceptible to the respective diseases and can act as reservoirs and play a role in the transmission of the disease. However, infection in some species, such as birds and reptiles are usually nonclinical, and therefore, diagnosis of EEE and WEE in susceptible species other than horses and humans is incidental (White, Gregory, et al, 2011)<sup>1</sup>. The Group was not aware of Members conducting active surveillance programmes to detect the presence of eastern and western Alphavirus in these species. Additionally, there are no systematic reports of infection with these viruses reported to the World Animal Health Information System (WAHIS), except in horses. Furthermore, the Group agreed that within the *Equidae* family, horses (*Equus ferus caballus*) have high mortality and morbidity rates and exhibit clinical signs (Equine Disease Health Watch)<sup>2</sup>. The Group highlighted that horses act as dead-end hosts for both EEE and WEE and play no role in the transmission of the disease. Nevertheless, as horses are the main animal host showing clinical signs, the Group stressed that they play a critical role in detection of the disease, which allows authorities to take measures to minimise the potential impact on public health.

The Group noted that WEE has been reported in both wild and domestic birds such as turkeys, pheasants, captive emus, and also in reptiles. The Group considered that while these birds and reptiles can be infected, there is no documented evidence that these species play a significant epidemiological role in the occurrence of disease in horses (Chénier, 2010)<sup>3</sup>. Therefore, conducting surveillance and applying risk mitigation measures would not be justified.

Thus, for the purposes of the chapter as described above, the Group proposed to define the two diseases, as diseases of horses, and recommended including the proposed chapter under *Terrestrial Code* Section 12 (diseases of Equidae) and amending Chapter 1.3. to include EEE and WEE in Article 1.3.5., within the category of diseases and infections of Equidae.

#### b) Definition of the occurrence of the disease

Regarding the methods of detection described for determining a case, the Group recommended inclusion of the isolation of EEE and WEE viruses or the detection of nucleic acid specific to or antigenic material from the brain and organs such as the liver or spleen. Furthermore, the Group noted that due to potential false positive tests results, the mere detection of nucleic acid is not enough to consider it as a case and recommended that a positive result should be complemented with clinical signs, pathological lesions, or epidemiological link to a confirmed or suspected case.

The Group agreed to keep the antigenic test in the general provisions even though there are currently no commercially available antigenic tests, as this test has been included in the *Terrestrial Manual*, and there is a possibility in the future that commercial kits could be developed.

The Group discussed that, in general, serological tests are unable to differentiate vaccinated from non-vaccinated horses and these tests have low specificity. If serological tests are used to confirm a case, paired samples should be tested as per the provisions of the *Terrestrial Manual* to differentiate current infection from vaccination or previous exposure. The Group also noted that, due to the high lethality of EEE, and in acute cases of WEE, it might not be possible to conduct paired serum sampling due to the short clinical course of the disease. In this case, clinical signs, pathological signs, and epidemiological links would provide further evidence to substantiate a case.

Additionally, confirmatory diagnosis can be performed using options 1, 2 or 3 of the draft Article 12.4.1. In the case of the hemagglutination inhibition test, the Group was of the opinion that this is a complex test to implement and an outdated method for diagnosis. Therefore, the Group recommended Specialist Commissions to consider the removal of this test from Chapter 3.6.4. of the *Terrestrial Manual*.

Regarding the use of IgM ELISA, the Group noted that there is a lack of a standardised protocol as well as a challenge to perform the test particularly for alphaviruses. In addition, this method requires monitoring antibody seroconversion in paired samples taken two weeks apart, which is challenging as the horse may die before the second sample can be collected.

The Group noted that there are currently no WOA Reference Labs for equine encephalitides and suggested that the Biological Standard Commission reiterate to WOA Delegates the need to promote and nominate a WOA Reference Lab for these diseases.

c) Incubation period

The Group acknowledged that while the incubation period, described in the *Terrestrial Manual*, ranges from 1 to 14 days, it was decided to include only the longest incubation period i.e. 14 days for *Terrestrial Code* purposes.

### 3.3. Safe commodities (Article 12.4.2.)

The Group considered different horse products that are generally traded and discussed if they complied with the criteria in Chapter 2.2. to be considered as 'safe commodities'.

a) Live horses

The Group considered the statement in Chapter 3.6.4. of the *Terrestrial Manual* that "*some horses may develop transient viraemia that has been suggested to be sufficient to transmit the EEE virus to mosquitoes under the right conditions.*" However, the Group highlighted that the transmission of the EEE virus from horses to mosquitoes has been observed only under experimental conditions and not in natural settings (Franklin, 2022)<sup>4</sup>. Therefore, the Group concluded that there is sufficient evidence to substantiate that the risk of transmission from horses is negligible, rendering live horses as safe commodities.

b) Other commodities

The Group concluded that there is no evidence of transmission of the pathogen through products derived from horses, such as meat, serum, hide, hair, and hooves. Thus, these products should be considered as safe commodities. For these products, the Group took into consideration the new nomenclature adopted for animal products in the Glossary of the *Terrestrial Code* and suggested to use of the terms "animal products" and "germinal products", which include the above-described products.

### 3.4. Provisions on animal health status

a) Article 12.4.3. Country or zone free from EEE or WEE

The Group discussed the relevance of including an article that provides recommendations for defining the conditions under which countries or zones can be considered free from EEE or WEE. While noting that this would have no practical value for international trade in terms of certification for export – since horses and most relevant horse-derived commodities are considered as safe commodities – the Group still considered the inclusion of such provisions important for risk management purposes. This article would serve as the basis for setting up the conditions for surveillance and public health policies, including early awareness and implementation of preventive measures. The Group also noted that this information was important to manage risks that the environment may present for horses transiting through or being temporarily imported into an infected country or zone.

It was agreed that the conditions to claim freedom from EEE or WEE should be based on the recommendations stated on Article 1.4.6. of the *Terrestrial Code*, with the prerequisite that the diseases must have been notifiable. The Group discussed that the diseases should be notifiable for at least two years, considering the possibility of the viruses overwintering in unidentified hosts or being reintroduced by migratory birds (Bingham, 2014; Armstrong et al., 2022)<sup>5,6</sup>. The Group agreed that the requirements for historical freedom should follow the provisions of Article 1.4.6, point 2.b.

When historical freedom cannot be demonstrated, Members can substantiate their claim for freedom by providing clinical surveillance data on horses for the past two years. This period allows for the completion of at least two seasonal cycles of the vector in regions with temperate climates. The Group noted that a similar timeframe approach has been used in Code chapters for other vector-borne diseases, such as Chapter 8.21. 'West Nile fever', Chapter 12.1. 'Infection with African horse sickness virus', and Chapter 8.3. 'Infection with Bluetongue virus'.

The Group discussed the use of vaccines against EEE and WEE (inactivated, not DIVA). Considering that horses do not play an epidemiological role in the transmission of the diseases, the Group concluded that the vaccination of horses or the importation of seropositive horses into a free country or zone would not affect the animal health status.

For guidance on vaccination, Members should refer to Chapter 4.18. and the *Terrestrial Manual*.

*b) Recovery of free status (Article 12.4.4.)*

The Group agreed that after an outbreak of EEE and WEE in a previously free country or zone, the free status could only be regained by applying the provisions of Article 12.4.3. It was pointed out that demonstrating the absence of clinical disease in horses is feasible, whereas providing evidence of virus circulation in other reservoir species, such as wild birds, is challenging. Therefore, within the scope of these provisions, the requirements in Article 1.4.6, point 2.a.iv, would not be applicable. Thus, evidence that surveillance is in place and the absence of the disease in horses should be sufficient to regain free status.

### **3.5. Recommendations for safe trade**

*a) Recommendations for importation of horses (Article 12.4.5.)*

Given that horses are considered safe commodities and dead-end hosts, the Group agreed that there is no need to recommend specific sanitary measures to ensure their safe importation. Nevertheless, the Group agreed that it would be important to prevent the trade of horses with clinical signs, not because these would bear a risk of transmission of the disease, but to avoid potential disruption of trade flows and welfare issues that may be caused by the presence of neurological signs in a horse being traded individually or, even worst, as part of a group of animals. Therefore, the Group proposed including provisions for the importation of horses, recommending only that the animal should be subjected to clinical inspection within 48 hours prior to shipment, and this information should be included in the veterinary certificate.

The Group discussed the importance of considering the disease status of the exporting country or zone and the vaccination status of the horse. It was concluded that any risk management measures or restrictions in such case would be unnecessary, as the importation of seropositive or infected horses without clinical signs will not affect the status of the importing country, considering that horses are not sufficiently viraemic and are considered dead-end hosts for EEE and WEE as stated in the *Terrestrial Manual*.

Considering that live horses and other relevant horse commodities are safe commodities, the Group recommended not to include specific recommendations for importation from infected countries or zones and for temporary importations. As horses are dead-end hosts, there is no risk of transmission through horses and, therefore, no need to distinguish between horses arriving from either infected or free countries.

In addition, the Group did not consider necessary to include provisions for procedures for the inactivation of pathogenic agents in commodities as they are not relevant for the control of both EEE and WEE.

### **3.6. Provisions on surveillance for EEE or WEE**

#### ***a) Principles of surveillance for EEE or WEE (Article 12.4.6.)***

The Group pointed out that the primary goal of implementing surveillance measures in horses is to reduce public health risks. Horses serve as sentinels for EEE/WEE, and since they are dead-end hosts, they are neither carriers nor amplifiers of the virus. The intent of surveillance in horses is to utilise their role as sentinel units for EEE/WEE, where clinical signs in horses indicate the active presence of the virus in the environment, thereby signifying a public health risk (Barba et al., 2019)<sup>7</sup>. Consequently, detecting illness in horses can prompt measures to prevent associated outbreaks in humans. A declaration of freedom from disease in horses by a country could suggest the absence of the pathogen in the environment. From this perspective, the Group agreed to develop an article on the principles of surveillance for EEE/WEE.

The Group emphasised that clinical surveillance is crucial for the initial detection of EEE and WEE, as it helps identify suspected cases and in implementing subsequent measures. While the *Terrestrial Manual* provides information on clinical signs in horses, there are no pathognomonic signs specific to EEE and WEE. Therefore, it was recommended to highlight in this chapter that all clinically suspected animals should be confirmed by laboratory testing.

The Group suggested adopting a combination of active and passive surveillance measures and referred to Chapter 1.4. 'Animal Health Surveillance' as it provides comprehensive guidance on surveillance measures.

Regarding vector surveillance, the Group discussed the potential for viruses to 'overwinter' in unidentified hosts or be re-introduced by migratory birds. In the case of WEE, transovarial transmission within mosquito populations could maintain the virus within the population (Bingham, 2014; Armstrong et al., 2022)<sup>5,6</sup>. The Group noted that the spread of vectors is strongly influenced by ecological conditions such as temperature, precipitation, and water levels, making it important to monitor vector activity. Consequently, the Group agreed on the need to include information on ecological conditions as part of the surveillance system in this article. Furthermore, the Group recommended that Veterinary Authorities prioritise the surveillance of horses over vector surveillance species. However, vector surveillance conducted in accordance with Chapter 1.5. of the *Terrestrial Code* could be helpful in identifying areas of high or low vector activity.

The Group discussed the need for including surveillance of birds in the chapter, as described under Section 3.1 of this report. Noting that although birds are susceptible to EEE and WEE, they often do not exhibit clinical signs and have low mortality rates. Thus, the Group recommended not to include provisions on surveillance for susceptible species other than horses, but occasional findings of these diseases in other species should be duly notified to the Veterinary Authorities and followed up appropriately. The Group suggested highlighting the need to implement the One Health approach in this section through collaboration between veterinary and public health authorities and emphasised generating awareness during outbreaks targeting animal owners and other relevant stakeholders. The Veterinary Authority should coordinate in a timely manner with public health and other Competent Authorities and share information to support the decision-making process for the management of human and animal exposure.

#### ***b) Surveillance for early warning (Article 12.4.7.)***

The Group discussed the importance of including specific guidelines on the early warning system, especially due to high morbidity and mortality in horses (up to 75 % in EEE and 20-50% in WEE) (Mackay, 2009)<sup>8</sup>, the public health implications of EEE and WEE, as the spread of the disease is attributed to the spread of mosquito species. The Group acknowledged that infection with EEE and WEE, including clinical signs in other species (such as ovine, camelids, and captive poultry birds) had been reported (Spickler, 2017)<sup>9</sup>. For the purpose of EWS, the Group recommended that WEE and EEE cases in all species should be notified to the appropriate national authorities. The Group noted that there is no need to specify the responsibility of stakeholders involved in the EWS as this should be described already in the country's legislation.

#### 4. Recommendations for the revision of the Code Chapter on Japanese encephalitis

The Group discussed the main considerations for a future revision of the *Terrestrial Code* Chapter 8.10. on Japanese Encephalitis (JE) and noted that the ecology and epidemiology of Japanese encephalitis virus (JEV) differ from those of WEE and EEE, as pigs act as amplifiers for JEV. The Group observed that the current chapter focuses solely on the importation of horses/equines, which are dead-end hosts for JEV. The chapter lacks provisions for pigs and pig products, which are significant amplifiers of the disease. The Group recommended keeping JE under the category of multiple species disease (Article 1.3.1.).

Based on the literature reviewed, the Group acknowledged that waterfowl represent the main reservoir and swine is the main amplifying host, based on their levels of viraemia, duration of the infectious period and asymptomatic appearance of infection (Garin-Bastuji, 2017)<sup>10</sup>.

Additionally, the Group suggested that similar to the chapters on WEE and EEE, the revised chapter should include considerations from a public health perspective, as JE is a zoonotic disease with a high impact on humans.

The Group also advised changing the name of the chapter to 'Infection with *Orthoflavivirus japonicum* (Japanese Encephalitis - JE)' in accordance with the Tax on details from ICTV.

Furthermore, the Group provided suggestions on the expertise that would be needed to undertake the revision of this chapter and recommended WOA to invite specialist(s) in pig health and pig production, in addition to expert(s) on JE and some members from the current Group.

The Group suggested that the following provisions could be included in the chapter on JE:

##### a) General provisions

The Group noted that a wide range of animals, including birds, reptiles, and amphibians are susceptible species for JE virus and there is evidence that birds from the family Ardeidae (herons and egrets) act as reservoirs. Antibodies have also been found in other families of birds. Birds such as ducks, passerines, gulls, and pigeons, can develop significant viraemia, while others such as crows, American white pelicans, and double-crested cormorants circulate little or no virus in the blood (Spickler, 2017)<sup>9</sup>.

A wide range of mammals, including horses, can act as dead-end hosts. Nevertheless, swine is the only domestic animal species that is involved in JEV amplification. In the case of equids, the low viraemic levels prevent the transmission of the disease in natural conditions (Spickler, 2023)<sup>11</sup>.

There is limited evidence in wildlife, in that there have been reports that feral swine and wild boar could act as amplifying hosts. There are cases of brush-tailed possums (*Trichosurus vulpecula*) developing significant viraemia after experimental inoculation.

Due to the broad range of animal species involved and with clinical disease observed mainly in equids and swine, the Group recommended to include swine and equids in the scope of the chapter. It also recommended that additional expertise should be sought for developing the case definition and defining the host range for the JEV for the purposes of the *Terrestrial Code*.

##### b) Safe commodities

The Group recommended that live horses and their products be included as safe commodities, similar to the draft revised chapters on WEE and EEE. It also recommended including specific provisions in the chapter for pigs and pig products due to evidence of high viraemia in pigs and transmission within the pig population without involving vector species. It was also noted that while processed pig meat could be considered a safe commodity, the high viraemia in pigs necessitates careful consideration of provisions for the importation of raw pig meat and semen.



c) Provisions on animal health status

The Group recommended that the decision on the types of Suidae (wild, domestic, captive, feral) to be included for surveillance to demonstrate freedom, the criteria to determine country, zone or compartment freedom, as well as the requirements for importation of pigs and pig commodities should be left to the dedicated *ad hoc* Group on JE.

However, in the case of Equidae, the Group recommended to follow the provisions of the newly drafted chapter on WEE, and EEE. It was also noted that countries that do not meet the provisions to be determined free of JEV, should not be considered necessarily as infected due to the uncertainty over the geographical distribution of the disease.

Regarding provisions for recommendation for temporary or permanent importations of horses, the Group concluded that the same provisions for WEE and EEE would be applicable to JE.

d) Provisions on Surveillance

The Group noted that serological surveillance is not particularly useful, as horses could have been infected in the past or vaccinated, and the duration of the presence of antibodies is uncertain. Considering that JE vaccines (not DIVA) are available for horses and horses travelling to infected countries are frequently vaccinated against JE, the Group concluded that the value of serological surveillance in horses is limited.

The Group emphasised that serological and clinical surveillance is recommended in swine. Clinical surveillance in pigs is a more reliable indicator of the presence or absence of the disease since they always show clinical signs, while horses can remain asymptomatic. However, the Group highlighted that subject matter experts should be consulted for providing surveillance strategies in swine.

## 5. Recommendations for the revision of the Code Chapter on Venezuelan Equine Encephalomyelitis (VEE)

The Group discussed the main considerations for a future revision of the current *Terrestrial Code* Chapter 12.11. The Group discussed the existing nomenclature and suggested to update the disease name due to the change of the name of the disease-virus, now considered as infection with [Alphavirus Venezuelan](#) (Venezuelan equine encephalomyelitis), according to the ICTV: [Taxon Details | ICTV](#).

a) General provisions

The Group had noted that the *Terrestrial Manual Chapter 3.6.4* provides a description of the role of equids and reservoirs in the epidemiology of the disease, transmission, and amplification of various subtypes of the VEE virus. The Group stated that having two groups of strains, epizootic and enzootic, each presenting unique epidemiological challenges and transmission dynamics would be a challenge for the development of a case definition for VEE.

b) Differentiating epizootic and enzootic strains of VEE

The Group noted that VEE viruses are divided into epidemic (or epizootic) and endemic (or enzootic) groups based on their epidemiological characteristics. All viruses except VEEV variants I-AB and I-C are considered to be enzootic. Enzootic VEE viruses occur in limited geographic areas, maintained in cycles involving wild animals. The enzootic subtypes are not amplified in equids, and do not usually cause disease in these animals. In contrast, epidemic VEE viruses are detected only sporadically, are amplified in equids, and can cause extensive epidemics affecting both equids and humans (FAD-PreP/USDA, 2013)<sup>12</sup>. The origins of epidemic VEE viruses are uncertain, as I-AB and I-C viruses do not seem to be maintained in natural cycles between outbreaks. Some evidence suggests that they may arise when mutations in enzootic VEE viruses allow efficient amplification in horses, which then die out once the epidemic ends. It is unclear if enzootic strains revert to epizootic strains and provoke disease. (Spickler, 2017)<sup>9</sup>. Endemic strains are also a public health concern as they can be fatal to humans, though they do not seem to be fatal for equids. Epidemic and enzootic subtypes emerged in Venezuela-Colombia and spread to Central America.

The Group mentioned that one enzootic I-E VEE virus subtype detected in Mexico since the 1990s can affect horses, differing from other enzootic strains. Certain strains of this subtype have caused extensive outbreaks in Mexico but not spread further beyond the country. Like other enzootic VEE strains, they are not thought to be amplified in equids. The Group highlighted that there are different approaches for preventive and control measures depending on whether the location is free from the disease or experiences sporadic presentations, particularly regarding the importance of differentiating epizootic or enzootic VEE strains and their roles in virus maintenance and transmission to horses and humans.

c) Provisions on safe commodities, animal health status and surveillance

The Group noted that VEE is one of the six diseases covered under the HHP certificate as per Chapter 4.17., underscoring its critical importance in international horse trade. The Group recommended to critically assess whether trade measures should encompass all equids or only horses, excluding other susceptible species.

Furthermore, it recommended that the revised chapter on VEE should incorporate provisions for country, zone and compartment freedom to effectively manage disease control and facilitate safe international trade practices, including for the movements of competition horses.

The Group expressed concern on the lack of a WOAHA Reference lab for equine encephalitides. Additionally, the *ad hoc* Group for the revision of the Chapter on VEE should include experts from countries where the disease occurs.

d) Recommendations to review the Terrestrial Manual Chapter 3.6.4.

The Group noted that the *Terrestrial Manual* Chapter 3.6.4. 'Equine encephalomyelitis (Eastern, Western and Venezuelan)' currently does not provide methods to facilitate differentiation between VEE virus strains. Therefore, the Group recommended that the *Terrestrial Manual* chapter be reviewed and the possibility of differentiating between strains of VEE be assessed by the Biological Standard Commission. The Group recommended consideration of any evidence indicating that strains may have undergone changes in molecular and epidemiological characteristics that could affect their transmission dynamics and viral variability, especially concerning endemic strains.

The Group noted that equids can significantly spread epizootic strains, whereas enzootic strains usually have a cycle between rodents and mosquitoes and can incidentally cause disease in both equids and humans. Unlike in EEE and WEE, equids are not dead-end hosts but amplifying hosts of VEE (Walton, TE, et al. 1973)<sup>13</sup>. However, equines do not act as amplifying hosts for some enzootic variants, such as the Mexican I-E variant. Therefore, for the purposes of the *Terrestrial Code*, the Group recommended to include horses, donkeys, and mules (under the Family Equidae) as host species.

In the case of rodents, multiple species under the Family Rodentia, can act as a reservoir host for enzootic VEE strains. Different species of rodents have varying levels of susceptibility to the enzootic subtypes and demonstrate signs of illness according to specific environmental conditions. For example, rodents in endemic areas generally seem unaffected, however, those in wild and laboratory settings can become ill. Therefore, since these strains can infect wild and laboratory rodents and cause severe disease in some species, such as guinea pigs, mice, and hamsters, the Group recommended including the Family Rodentia as host species.

The Group noted that infections have also been reported in other mammals (e.g. pigs, cattle, goats, sheep, dogs, rabbits) and some birds, but most infections appear to be subclinical. Therefore, these animals should be excluded as host species for the purpose of this Chapter.

## 6. Next steps

The Group's report and draft Chapter 12.4. will be considered by the WOAHA Specialist Commissions at their September 2024 meetings.

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.../Appendixes

## Annex 1 Terms of reference

### MEETING OF THE AD HOC GROUP ON THE REVISION OF CHAPTERS ON EQUINE ENCEPHALITIDES OF THE TERRESTRIAL ANIMAL HEALTH CODE PARIS, 18–20 JUNE 2024

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#### Purpose

The purpose of the *ad hoc* Group on the Revision of chapters on equine encephalitides of the *Terrestrial Code*.

#### Background

The Terrestrial Animal Health Standards Commission (the Code Commission) considered requests from Members to review Chapters 8.10. Japanese encephalitis (JEE) and 12.11. Venezuelan Equine Encephalomyelitis (VEE), which were raised during the 89th General Session in May 2022, and several considerations presented by the Secretariat, including the impact on trade for the movement of horses from infected countries, the discrepancies observed between the chapters of the *Terrestrial Code* and *Terrestrial Manual*, as well as the opinion of the International Horse Sports Confederation (IHSC) and discussions of the Scientific Commission at its September 2015 meeting.

The Code Commission noted that Chapter 8.10. was first adopted in 1992, and the most recent update was adopted in 2000, but the corresponding *Terrestrial Manual* Chapter 3.1.10. was updated in 2021. It also agreed that the current Chapter 8.10. was partly obsolete, given the latest information in Chapter 3.1.10 of the *Terrestrial Manual*.

The Code Commission also noted that the revisions of Chapter 12.4. Equine encephalomyelitis (Eastern and Western) (EEE and WEE) (no update since its first adoption in 1968) and Chapter 12.11. Venezuelan equine encephalomyelitis (the most recent update adopted in 1998) was included in its work programme in February 2020, but that work had not yet been initiated.

Considering the epidemiological similarities across these three diseases, the Code Commission agreed to approach the revisions of these three disease-specific chapters together to ensure a consistent logic is applied to all three chapters. It also agreed that Chapter 8.21. West Nile fever should also be considered, even if updated more recently.

While acknowledging that a major revision of these chapters will be needed, the Code Commission requested the Secretariat, in consultation with subject matter experts and the Scientific Commission for Animal Diseases (the Scientific Commission), to first undertake a scientific assessment of the susceptible animals, their epidemiological role and their relevance for surveillance and disease prevention and control, to further discuss the approach for the different chapters and then identify the next steps and priorities.

Following this request, an assessment of these diseases against the criteria for the inclusion of diseases, infections, and infestations in the WOAHP list of notifiable terrestrial animal diseases in accordance with Chapter 1.2. of the *Terrestrial Code*, was conducted by subject matter experts, and considered by the Scientific Commission at its meeting of September 2023.

At the February 2024 meeting, the Code Commission agreed to revise *Terrestrial Code* chapters on equine encephalitides and considered the Terms of Reference for an *ad hoc* Group and requested to report back at its September 2024 meeting.

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## Considerations

When developing this work, the *ad hoc* Group should consider:

1. the assessment of the diseases against the listing criteria in the Scientific Commission's September 2023 meeting report,
2. the general structure and content of the *Terrestrial Code*, in particular chapters in Section 8 of the current edition, including the consideration that all the chapters of five equine encephalitides should be covered in separate chapters, and the guidance provided in the Framework for *Terrestrial Code* standards (disease- specific chapters), including the host species to be targeted for each disease;
3. the names of diseases containing specific country names, taking into account the relevant World Health Organization (WHO) guideline (Best Practices for the Naming of New Human Infectious Diseases).
4. the use of Glossary definitions in the *Terrestrial Code*;
5. the WOAHS Specialist Commissions' opinions on the scope of the revised chapters;
6. the current Chapters 3.1.10. (JEE) and 3.6.4. (EE) of the *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals*;
7. the World Trade Organization (WTO) Agreement on the Application of Sanitary and Phytosanitary measures (especially Article 8 and Annex C), the WTO Agreement on Trade Facilitation, the Codex Alimentarius Principles for Food Import and Export Inspection and Certification (CAC/GL 20-1995), Guidelines for the Design, Operation, Assessment and Accreditation of Food Import and Export Certification Systems (CAC/GL 26-1997) (to be provided in the Working Documents);
8. all working documents provided by the WOAHS Secretariat.

## Expectations

*Ad hoc* Group members should:

- be familiar with the structure of the *Terrestrial Code* and the use of Glossary definitions and the Framework for *Terrestrial Code* standards;
- have read and considered Chapters 8.10., 12.4. and 12.11. of the *Terrestrial Code*;
- have read all working documents provided by the WOAHS Secretariat;
- contribute to discussions, and;
- contribute to drafting text for the revised chapters and the report.

*Ad hoc* Group members should:

- sign the WOAHS Undertaking on Confidentiality;
- complete the WOAHS Declaration of Interest form, and;
- read and acknowledge the WOAHS personal data management policy.

## Deliverables

1. a report presenting the proposed approach for the revised chapters, including the rationale for decisions and proposed texts, and supporting references when relevant. This should include an assessment of the susceptible animals, their epidemiological role and their relevance for surveillance and disease prevention and control;

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2. the revised draft updated chapters for JE, EEE and WEE, followed by VEE;
  3. any recommendations to review Chapter 8.21. on West Nile Fever, based on the updated equine encephalitides Chapters;
  4. any points that require guidance from the Code Commission for the next steps in the development of the revised draft chapters.

### **Reporting / timeline**

The work of this *ad hoc* Group will likely require several meetings and may meet virtually or in person according to the needs. After a meeting, the Group should finalise the relevant deliverables within 5 weeks after the completion of the meeting.

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## Annex 2 List of Participants

### MEETING OF THE AD HOC GROUP ON THE REVISION OF CHAPTERS ON EQUINE ENCEPHALITIDES OF THE TERRESTRIAL ANIMAL HEALTH CODE

PARIS, 18–20 JUNE 2024

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#### MEMBERS

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**Prof Peter Timoney (Chair)**  
IHSC consultant  
Retired from Kentucky University  
and APHIS  
USA

**Dr Gaëlle Gonzalez**  
Deputy Director  
EU Ref Lab for equine  
diseases  
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**Dr Alan Guthrie**  
Equine Research Centre,  
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Department of Agriculture,  
Fisheries and Forestry,  
Animal Biosecurity Branch  
AUSTRALIA

**Dr María Aldana Vissani**  
Technical Director - Equine  
Virus Laboratory - National  
Institute of Agricultural  
Technology (INTA)  
ARGENTINA

#### REPRESENTATIVE OF THE SPECIALIST COMMISSIONS

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**Dr Baptiste Dingu**  
Scientific Commission  
for Animal Diseases

**Dr Gastón Funes**  
Terrestrial Animal  
Health Standards Commission

#### WOAH HEADQUARTERS

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**Dr Monal Daptardar**  
Scientific Coordinator  
Science Department

**Dr Francisco D'Alessio**  
Deputy Head  
Standards Department

**Dr Aristide Kabore**  
Disease Status Officer  
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**Dr Akinobu Kawamura**  
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Tamassia**  
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### Annex 3- References

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