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Foot-and-mouth Disease Outbreak in the Primorsky Krai: there are no signs of the Natural Source of Infection

Belov Y.A.^{1,2}, Titova A.R.³, Tabakaeva T.V.^{1,3}, Lubchenko E.N.⁴, Shcheglov B.O.³, Galkina I.V.³, Suroviy A.L.⁵, Volkov Yu.G.¹, Kakareka N.N.¹, Pankratov D.V.⁵, Shchelkanov M.Yu.^{1,3}

¹ Federal Scientific Center of East Asia Terrestrial Biodiversity, Far Eastern Branch of Russian Academy of Sciences, Vladivostok, Russia;

² Vladivostok Branch of Russian Customs Academy, Vladivostok, Russia;

³ Far Eastern Federal University, Vladivostok, Russia;

⁴ Department for veterinary control of the Administration of Primorsky krai, Vladivostok, Russia;

⁵ Department for the protection, control and regulation of the use of wildlife objects of the Administration of Primorsky krai, Vladivostok, Russia.

Abstract: In the period 10.01-12.02.2019 a set of 15 outbreaks provoked by foot-and-mouth disease (FMD) virus (*Picornavirales*, *Picornaviridae*, *Aphthovirus*) genotype O were recorded in the Primorsky krai. Outbreaks occurred in 15 hog farms located in the Mikhailovskiy, Spasskiy, and Oktyabrskiy districts as well as Ussuriisk urban district; quarantine territory included 39 settlements. Two more outbreaks were recorded in hog farms of the Khabarovsk and Trans-Baikal Territories near the border of China.

On the background of epizootics among farm animals monitoring activities among wild boars (*Sus scrofa*) were intensified in the limits of Permanent Monitoring Program of wild animals (PMPWA) supporting by Far Eastern Branch of Russian Academy of Sciences together with Administration of Primorsky krai. Among wild boars (alive, hunted in scientific purposes or killed for natural reasons) there were no symptoms or laboratory confirmation of FMD. Moreover, specific antibodies against FMD virus in the sera of wild boars had not been detected during since the start of PMPWA. Real-time PCR confirmed the absence of FMD virus. Shortly before this outbreak, an FMD virus type O was recorded in the farms of Primorsky krai in 2000, 2012, and 2014. Farm outbreaks provoked by this type of FMD virus were also recorded in the city of Jiujiang (Jiangxi province, East China) (2016), Hulun-Buir district of China (Inner Mongolia) (2018). This gives grounds to consider the anthropogenic pathway as the source for domestic pigs together with the absence of any signs of the presence of natural foci in the Russian Far East.

Preventing such outbreaks in the future requires strengthening protective measures for sanitary protection of pig farms as well as at the crossing points in state border. It is necessary to improve the cooperation of services involved in sanitary control at the border. Improvement of wild boar research is still needed in order to develop scientific-based concept of the prevention of FMD virus penetration into natural biocenoses.

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