THE UNIVERSITY *of* EDINBURGH
School of Biological Sciences

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Prof. Oliver Pybus
Editor-in-Chief
Virus Evolution

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Dear Editor,

Please find enclosed the manuscript entitled "Spatio-temporal Dynamics of Foot-and-Mouth Disease Virus in South America" for consideration for publication in *Virus Evolution*. In this paper we investigate, for the first time, the phylodynamics of Foot-and-Mouth Disease Virus (FMDV) in South America using two comprehensive data sets of serotypes A and O. We employ state-of-the-art Bayesian phylogeographic and model selection techniques to uncover the spatial distribution patterns underlying both serotypes and evaluate the explanatory power of epidemiological predictors such as livestock trade and geographic distance. Our findings suggest that there are important differences in the determinants of spatial spread between the two serotypes, with different preferential routes and different best fitting predictors. While for serotype A we found that the (inverse) geographic distance between countries is the best predictor of viral spread, for serotype O the trade of cattle between countries was the predictor that best explained the data. We believe the paper may be of interest to the readers of *Viral Evolution*, both for the biological findings and the methods developed in the manuscript.

Sincerely,
Luiz Max Carvalho, Nuno Rodrigues Faria, Andres M. Perez, Marc A. Suchard, Philippe Lemey, Waldemir de Castro Silveira, Andrew Rambaut and Guy Baele.

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