

Reviewer report

Manuscript Number: #75982

Manuscript title: Prediction of the spread of African swine fever through pig and carcass movements in Thailand using a network analysis and diffusion model

Summary:

The study uses network analysis and a diffusion models to evaluate the African swine fever distribution in Thailand. It addresses a key disease in the global swine industry and hence important to the readership of peer J and manuscript is generally well written. However, the write can be improved upon as described below in my comments. Majorly, the reliance on expert opinion to parametrize that model casts some doubt on the reliability of the model findings. Sensitivity and other analyses ought to be done to clear this doubt.

Major revisions/comments:

1. Rewrite the entire abstract so that the reader can easily pick out the separate sections of the abstract i.e. background, materials and methods, results and conclusion. Also explicitly indicate the mean values and other relevant numbers in the abstract.
2. Some few more relevant citations need to be considered in the introduction and discussion sections.
3. You overly base your parameter estimation on expert opinion as you state in line 112. This is a major limitation to this study. You need to test the effect of using such expert elicitation on your study findings and acknowledge that among your study limitations. Such elicitations are never free of bias and hence findings are rarely reproducible. Devote a section to explaining the impact of this and also justifying why you chose this approach when literature exists on some of the parameters such as ASF transmission probabilities.
4. Justify the choices of 30 and 50 time steps in M&M lines 143-144.

Minor revisions:

5. Line 31: Explicitly name the country from which this that is obtained for clarity of the abstract.
6. Lines 31-32: You write “Our networks were presented as the network of live pig movements at the provincial and district level and the network of carcass movements at the provincial and district level.” and there is a lot of repetition. Rewrite this sentence compactly.
7. Line 51. Add citation(s) for the statement “The incubation period for ASF ranges from 3 to 19 days”. Also note that the number given may be slightly different from those by WOAHP (see https://www.woah.org/fileadmin/Home/eng/Animal_Health_in_the_World/docs/pdf/Disease_cards/AFRICAN_SWINE_FEVER.pdf).
8. Lines 51-54: Add citation(s) for the clinical signs.
9. Lines 71-74: The citations listed do not necessary match the content mentioned about Ukraine. Consider rewriting the entire sentence and add the respective reference to where they are appropriate. Also on R0 and ASF modelling using field data, Field data based

studies such as Barongo et al. Plos One 2015: 10(5):e0125842 cannot be easily overlooked due to the variety of methods used. Consider reading and perhaps citing such literature.

10. Line 95: You write “Movement data from 2019 was used..” but “data” is plural and I suggest you change was to were.
11. Line 106: insert “to” after referred.