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Assessment of interactions between African swine fever virus, bushpigs (*Potamochoerus larvatus*), *Ornithodoros* ticks and domestic pigs in north-western Madagascar

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Summary

Since its introduction in Madagascar in 1998, African swine fever (ASF) has severely affected national pig production and persists as a common disease in that country. Two of its natural hosts in the African continent, the bushpig (*Potamochoerus larvatus*) and tick vectors of the *Ornithodoros moubata* complex, are reported in west and central regions of the island. However, their role in the maintenance and transmission of the virus has been insufficiently studied. In this work, we tried to assess their potential role in the epidemiology of the disease in Madagascar, by assessing the levels of interaction between (i) ASF virus (ASFV) and bushpigs and (ii) between soft ticks and domestic and wild suids in north-western Madagascar. Twenty-seven sera and 35 tissue samples from bushpigs were collected and analysed for the presence of anti-ASF antibodies and viral DNA. In addition, the sera from 27 bushpigs and 126 domestic pigs were analysed with an ELISA test for the detection of antibodies against salivary antigens from *Ornithodoros* ticks. No circulation of ASFV or anti-ASFV antibodies nor anti-tick antibodies were detected in bushpigs. However, seven of the domestic pig sera (5.6% of the total sample population) were antibody positive for *O. moubata* antigens. The probability of freedom from ASFV in the bushpig population using Bayesian statistical methods ranged between 73% and 84%. The probabilities of absence of anti-tick antibodies in domestic and wild pigs were estimated at 63% and 71%, respectively. These preliminary results suggest that bushpigs are unlikely to play a significant role in the maintenance and transmission of ASFV in Madagascar. Nevertheless, further ASFV surveys are needed on that species to confirm this assumption. In addition, the presence of antibodies against *O. moubata* in domestic pigs suggests that soft ticks may be able to maintain ASFV within a domestic pig cycle in areas of Madagascar where they remain present.



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