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E CHENAIS[1], K STÅHL[1], V GUBERTI[2], K DEPNER[3]

[1] National Veterinary Institute, Uppsala, Sweden
[2] National Institute for Environmental Protection and Research, Rome, Italy
3 Friedrich Loeffler Institute, Greifswald-Insel Riems, Germany

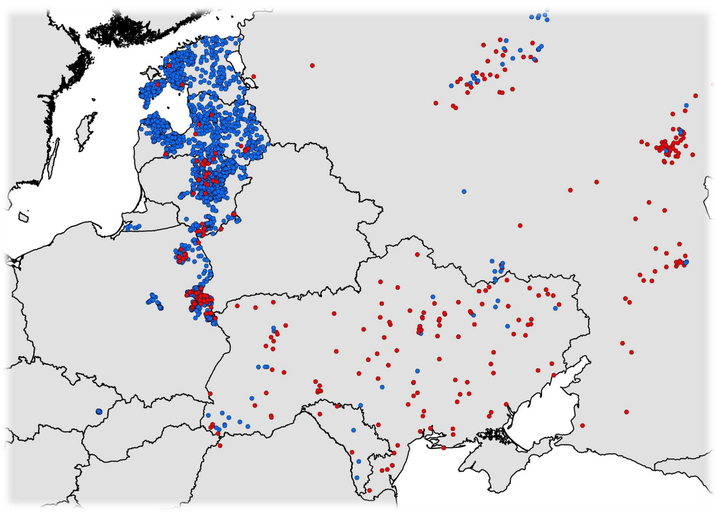
Introducing the wild boar-habitat epidemiological cycle of African swine fever

Insights from the epizootic in central/eastern Europe

The African swine fever (ASF) epizootic in central/eastern Europe presents a new scenario involving wild boar and virus survival in the environment. Gained insights led to an update of the accepted ASF-transmission models to include a fourth epidemiological cycle: the wild boar-habitat cycle.

The four epidemiologic cycles of ASF:

1) Sylvatic cycle: the common warthogs; bushpigs and soft ticks.
2) Tick-pig cycle: soft ticks; domestic pigs.
3) Domestic cycle: domestic pigs and pig products.
4) Wild boar-habitat cycle: wild boar; pig- and wild boar products and carcasses; the habitat.



Notifications of ASF-cases in wild boar (blue) or outbreaks in domestic pigs (red) from 1st January until 30th November 2017.

In the epizootic outside the EU and in Romania the epidemiology follows the domestic cycle (3). Within the EU, a previously not described epidemiologic cycle with its focus in the wild boar population and its habitat as a virus reservoir emerged. **We suggest naming this cycle the wild boar-habitat cycle** (4).

This cycle includes both direct transmission and indirect transmission through the habitat. The characteristic of the indirect transmission depend on landscape, time, season and carcass decomposition. The long-term availability of the virus in infected carcasses overtakes the expected density dependent transmission pattern, and allows the virus to persist despite any reduction in density and size of the local wild boar population due to hunting and ASF caused mortality.

Geography, ecology, meteorology and wild boar demography co-affect the epidemiology, and each contribute, to the viability of the cycle.

ASF - STOP

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