

Cosmopolitan and neglected, *Stomoxys* flies are important vectors of pathogens!

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The genus *Stomoxys* Geoffroy, 1762 includes 18 known species (Zumpt, 1973), 17 of which with a tropical distribution and one (*S. calcitrans* (L. 1758)) cosmopolitan. *Stomoxys* flies are haematophagous and are a nuisance because of their painful bites and blood predation, and they are also mechanical vectors of pathogens present in the blood and skin of their animal hosts, especially livestock and dogs but occasionally also humans. A phylogenetic analysis suggests the paraphyly of the genus *Stomoxys*, due to the inclusion of *Prostomoxys saegerae* in the group. The basal branching of *S. indicus* suggests an Oriental origin of the genus, around the end of the Oligocene. A phylogeographic study of *S. calcitrans* shows the presence of an Oriental lineage differentiated from the remainder.

Stomoxys are not only immediate transmitters of pathogens, they are also suspected of delayed transmission by regurgitation of blood from crop or gut, which may considerably impact their role in the epidemiology of the transmitted diseases. Such a mechanism allows inter-herd transmission of pathogens. Equine infectious anemia, African swine fever, West Nile and Rift Valley viruses are known to be transmitted by *Stomoxys*, while others are suspected to be. *Rickettsia* (*Anaplasma*, *Coxiella*), as well as other bacteria and parasites (*Trypanosoma* spp., *Besnoitia* spp.), are also transmitted by *Stomoxys*. Finally, *Stomoxys* was also found to act as an intermediate host of the helminth *Habronema microstoma* and may be involved in the transmission of some *Onchocerca* and *Dirofilaria* species. Being cosmopolitan, *S. calcitrans* might have a worldwide and greater impact than previously thought on animal and human pathogen transmission.

Based on a better knowledge of their role as nuisance species and their biology, new means of control of *Stomoxys* flies are currently under study to specifically attract these insects to traps or toxic targets.