

A NATIONWIDE STUDY OF STOMOXYS (DIPTERA: MUSCIDAE), POTENTIAL MECHANICAL VECTOR OF ANIMAL TRYPANOSOMIASIS IN CAMEROON

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Background

Stomoxys (see fig 1) are mechanical vectors of African Animal Trypanosomiasis (AAT) and are frequent in diverse habitats including tsetse free areas where the disease occurs. Apart from the direct effects caused by this fly-group such as painful bites they are capable of mechanically transmitting several pathogens of medical (*Bacillus anthracis*) and veterinary (animal trypanosomes) importance (Baldacchino et al., 2013).



Fig 1. Adult *Stomoxys* fly

A high infestation of *Stomoxys* flies was observed in an indigenous Goudali breed in Ngaoundere (fig 2 A,B,C). Although little is known about some aspects of their bionomics, a comprehensive nationwide data on its distribution and that of AAT is required to show their role in the epizootiology of animal trypanosomiasis in the different ecosystems of the country.



Fig 2. Adult *Stomoxys* flies on whole body of a Goudali bull (A), densely found around leg (B) and head region (C).

Methods

Trapping of *Stomoxys* was conducted from 2015-2017 in all the agro-ecological regions (AEZs) (fig 3) of Cameroon using standard traps (fig 4). A web-search and consultation of relevant documents on AAT occurrence and distribution in Cameroon from 1990 to 2021 was conducted.

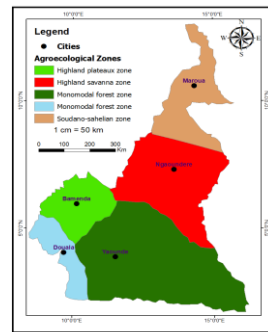


Fig 3. AEZs of Cameroon



Fig 4. Vavoua trap

Results

-A total of 77,804 *Stomoxys* specimens were collected, and eight species identified that included: *Stomoxys niger niger*, *S. calcitrans*, *S. niger bilineatus*, *S. omega*, *S. xanthomelas*, *S. inornatus*, *S. transvittatus* and *S. sitiens*.

-The overall apparent density (ADT) was 3.5 *Stomoxys* per trap per day (s/t/d) and a statistically significant difference (Kruskal-Wallis Chi-squared = 103.51, df = 4, p-value < 1.76e-21) was recorded with regions.

-AAT occurred in tsetse free Ngaoundere and Maroua with high densities of *Stomoxys* flies.

-AAT distribution overlapped with that of most *Stomoxys* spp. except for *S. transvittatus* and *S. inornatus* (figs 5, 6, 7 and 8).

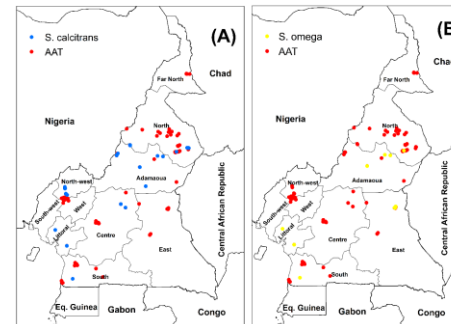


Fig 5. Distribution of AAT, *S. calcitrans* and *S. omega*

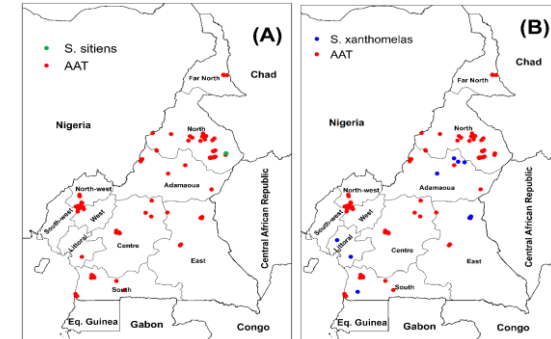


Fig 6. Distribution of AAT, *S. sitiens* and *S. xanthomelas*

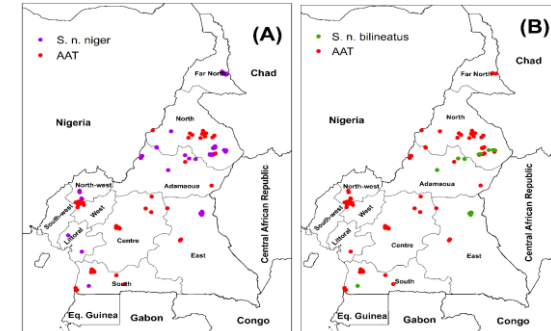


Fig 7. Distribution of AAT, *S. n. niger* and *S. n. bilineatus*

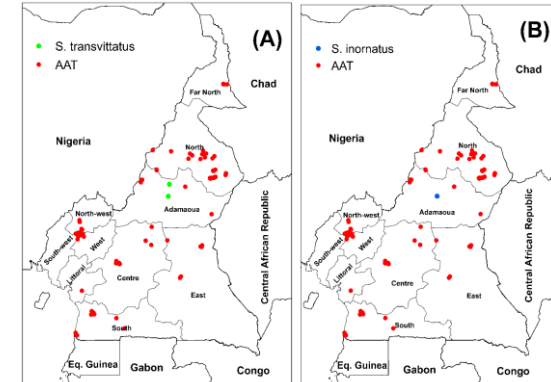


Fig 8. Distribution of AAT, *S. transvittatus* and *S. inornatus*

Conclusion

Eight species constitute the *Stomoxys* fauna of Cameroon. Distribution of most species coincided with that of AAT. In tsetse free foci where AAT occurs, the *Stomoxys* density there is high.

Reference

Baldacchino F, et al. Transmission of pathogens by *Stomoxys* flies (Diptera, Muscidae): a review. Parasite. 2013; 20:26.

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