



Research article

Comparison of stable fly (Diptera: Muscidae) population dynamics on a cattle farm and at an open zoo in Thailand

Naritsara Malaithong^{a,b}, Gerard Duvallet^c, Jirod Nararak^a, Ratchadawan Ngoen-Klan^a, Krajana Tainchum^d, Theeraphap Chareonviriyaphap^{a,*}

^a Department of Entomology, Faculty of Agriculture, Kasetsart University, Bangkok 10900 Thailand

^b Center for Advanced Studies for Agriculture and Food, Kasetsart University Institute for Advanced Studies, Kasetsart University, (CASAF, NRU-KU), Bangkok 10900, Thailand

^c UMR5175 CEFE, Centre d'Écologie Fonctionnelle et Évolutive, Université Paul-Valéry Montpellier, France

^d Agricultural Innovation and Management Division, Faculty of Natural Resources, Prince of Songkla University, Songkhla 90110, Thailand

Article Info

Article history:

Received 2 February 2021

Revised 30 April 2021

Accepted 17 May 2021

Available online 18 June 2021

Keywords:

Abundance,
Ecological habitats,
Species diversity,
Stomoxys calcitrans,
Stomoxiine flies

Abstract

Stomoxys flies (Diptera: Muscidae) are an important animal pest and a potential vector of pathogens. The density and abundance of these flies vary depending upon the type of ecological habitat. This study compared the diversity and abundance of *Stomoxys* flies in two different ecological habitats: a small-scale cattle farm and a zoological park. Vavoua traps were used to capture adult flies during 0600–1800 hours for two consecutive days every month, alternating between sites for 2 yr. Among the six species of *Stomoxys* spp. described in Thailand, the study sites had four that were morphologically identified as *Stomoxys calcitrans* (81.1%), *S. indicus* (17.8%), *S. sitiens* (0.6%) and *S. uruma* (0.5%). The cosmopolitan *S. calcitrans* was the most abundant at both sites. A greater number of flies were captured on the farm (8,758 specimens) than at the zoo (1,416 specimens). A seasonal effect was observed at the farm, with abundance peaking in August in the rainy season ($p < 0.05$). Overall, the number of *Stomoxys* flies trapped peaked during 1400–1800 hours on the cattle farm and during 1400–1600 hours at the zoo. On the farm, there was a significantly ($p < 0.05$) higher number of *Stomoxys* flies during the rainy season (July–October) than in other seasons. A clear understanding of habitat preferences by *Stomoxys* flies with respect to species diversity, abundance and daily activity patterns will facilitate and improve the efficacy of fly prevention and control strategies in Thailand.

* Corresponding author.

E-mail address: faasthc@ku.ac.th (T. Chareonviriyaphap)

online 2452-316X print 2468-1458/Copyright © 2021. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>), production and hosting by Kasetsart University of Research and Development Institute on behalf of Kasetsart University.

<https://doi.org/10.34044/j.anres.2021.55.3.05>