

Filth flies (Diptera) in zoos of South Carolina, USA

[An Unrat lebende Zweiflügler (Diptera) in Zoos von South Carolina, USA]

by

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Abstract	Zoos provide ideal habitats for flies associated with dung and garbage. Filth flies were surveyed in two South Carolina zoos. Fifty-eight species were collected, representing the families Calliphoridae, Fanniidae, Muscidae, Phoridae, Psychodidae, Sarcophagidae, Sepsidae, Sphaeroceridae, and Stratiomyidae. Ultraviolet light traps baited with carbon dioxide collected the largest proportion of species (71.8 %) among those attracted to light and gravid traps. Some of the species captured in the zoos are known to harbour animal and human pathogens.
Key words	Calliphoridae, Fanniidae, Muscidae, Phoridae, Psychodidae, Sarcophagidae, Sepsidae, Sphaeroceridae, Stratiomyidae, Nearctic Region, exotic animals, pathogens, zoonoses
Zusammenfassung	Zoos stellen ideale Lebensräume für Dung und Abfall besuchende Zweiflügler dar. Solche „Unrat-Fliegen“ wurden in zwei Zoos in South Carolina untersucht. Insgesamt wurden 58 Arten aus 9 Familien (Calliphoridae, Fanniidae, Muscidae, Phoridae, Psychodidae, Sarcophagidae, Sepsidae, Sphaeroceridae, Stratiomyidae) identifiziert. Mit Kohlendioxid und UV-Licht als Lockmittel arbeitende Fallen erbeuteten den größten Teil der festgestellten Spezies (71,8 %), die von Lichtfallen und „gravid traps“ (Fallen zum Fang eiablagebereiter Weibchen) angelockt werden. Einige der in den Zoos gesammelten Arten sind bekannt dafür, dass sie humane und nicht-humane Pathogene beherbergen.
Stichwörter	Calliphoridae, Fanniidae, Muscidae, Phoridae, Psychodidae, Sarcophagidae, Sepsidae, Sphaeroceridae, Stratiomyidae, nearktische Region, exotische Tiere, Pathogene, Zoonosen

Introduction

Zoos worldwide provide unique assemblages of animals from different zoogeographic regions. Dung from the animals and refuse from the daily operational activities of zoos offer diverse nutritional resources and breeding sites for filth flies (ADLER et al. 2011). These flies, which breed in dung and rotting organic matter, are a nuisance, but also transmit pathogens and parasites, creating medical and veterinary threats (GREENBERG 1973, MAURIN & RAOULT 1999, GRACZYK et al. 2003). Among filth flies, the house fly *Musca domestica* LINNAEUS, 1758 (Muscidae) has been considered one of “the most dangerous insects associated with humans” (WEST 1951).

The concentration of diverse animals and habitats in zoos suggests the possibility of a diverse fauna of filth flies. A study in a German zoo, for example, documented well over 100 species of filth flies (KÜHLHORN 1981). Yet, few other surveys of filth flies have been conducted in zoos. Understanding which species of flies are present in zoos and which might contribute to transmission of disease agents, will lead to more efficient and targeted pest-management programs. We, therefore, provide a preliminary survey of filth flies in two zoos of South Carolina, USA. The survey is based on opportunistic collections and rearings from dung and refuse and from a larger study of flies in these two zoos.