

ENVIRONMENT

Those annoying sand flies

I SUSPECT that nearly all outdoor enthusiasts at some point in time might have been bitten by sand flies. I say "bitten", because "bite" is the common term in use.

These flies do not bite because they do not have biting mouth parts; instead their mouth parts are designed for sucking blood. Nevertheless, I will use the word bite because we all use that word when a blood-sucking insect tries to get a blood meal from us.

There are two groups that are called sand flies in the West Indies and both groups are present in Trinidad and Tobago. The two groups belong to two separate families: Psychodidae and Ceratopogonidae. The term sand fly is really reserved for the former. I will deal first with the Psychodidae as two members of the Trinidad and Tobago Field Naturalists' Club who went into a forest in Guyana were bitten by species of this group and they both became infected with a nasty parasite called Leishmania. The other family, Ceratopogonidae, will be discussed in a subsequent article.

The family Psychodidae is represented in the Old World by three genera: Phlebotomus, Sergentomyia and Chinius and in the New World by three genera, Warileya, Brumptomyia and Lutzomyia. Two out of the three genera in the New World are found in

Trinidad and Tobago: Brumptomyia and Lutzomyia. These flies are also called "moth flies", midges and phlebotomine sand flies. They are small, 1.5 to 4.0 mm in length and are hairy. The wings are held upright when at rest. The males live on plant juices but the females must take a blood meal for the maturation of the eggs. The blood meal could come from cold blooded vertebrates, birds or mammals. These sand flies are not strong flyers and fly with a hopping movement. As a consequence, their flight range is limited. This group of sand flies is active mainly at night. They live in places where it is dark, where there is high humidity and rich in organic material on which the larvae feed.

Such places could be under forest litter, in broken spaces in masonry on buildings, caves, animal holes in the ground and chicken houses.

There is an egg - larva - pupa - adult cycle. An egg to egg cycle can last from six to ten weeks depending on the temperature. There are 21 species of phlebotomine sand flies recorded from Trinidad: 1 Brumptomyia and 20 Lutzomyia.

These sand flies have been collected by staff members of the Trinidad Regional Virus Laboratory from Chaguaramas in the west to the Rio Grande forest in the east.

● FLIES continues on Page 16B



A LUTZOMYIA sand fly taking a blood meal. PHOTO BY RAY WILSON, LIVERPOOL SCHOOL OF TROPICAL MEDICINE (WIKIPEDIA)



ENVIRONMENT

Phlebotomine sand flies transmit disease

●FLIES from Page 14B

We should however, not confuse the Culicoides (Ceratopogonidae) sand flies found at Maracas, Las Cuevas and other beaches with these sand flies.

Although some species have been taken from Bush Bush Forest there is a general lack of records from most of central and south Trinidad as well as Tobago. This lacunae in our knowledge is not an indication that sand flies are absent from these areas, but is simply due to the lack of studies undertaken in these areas.

Of the 20 Lutzomyia species collected in Trinidad, seven were collected biting man. The others were collected using various trapping methods such as light traps and oil traps baited with various types of vertebrates.

Phlebotomine sand flies

transmit bartonellosis, a disease caused by bacteria and occurring at high altitudes in Peru, Bolivia and Colombia. They also transmit arboviruses elsewhere, but not in Trinidad and Tobago. They do however, transmit a nasty protozoan parasite called Leishmania. The disease is present in the Mediterranean, sub-Sahara, Middle East and Far East as well as in the New World. There are two main types: visceral and cutaneous. The latter is the more common form in Central and South America attacking the muco-cutaneous areas of humans, particularly the nasopharyngeal areas with ulcers and tissue destruction leaving horrible scars.

The ulcers are very painful. Some forms of the parasite attack the lobe of the ears. Common names applied to the disease are chiclero's ulcer and

espundia. Between 1926 and 1930 a total of 589 cases were reported in Trinidad according to the Surgeon-General reports of that time. No reasons were advanced for the sudden appearance or disappearance of the disease. The parasite was rediscovered in Trinidad in rodents captured at Turure Forest, near Sangre Grande. There is no doubt however, that sporadic cases in humans do occur in Trinidad. Indeed, two doctors, B Mahabir and A G Bhaskar in 1973 reported a case from Cedros although it was suggested that the infection might have occurred in Venezuela where the patient was a frequent visitor. More recently a colleague noted that she had isolated the parasite from a Trinidadian soldier who had not travelled to other countries, suggesting that the soldier was infected in Trinidad.

The parasite was found to infect a wide variety of rodents and murine opossums at Vega de Oropouche, Aripo, Waller Field and Turure Forest (although the last named forest no longer exists).

The species of parasite identified was Leishmania mexicana amazonensis and the sand fly vector was Lutzomyia flaviscutella. The reason why more citizens of Trinidad and Tobago are not infected with this parasite is probably due to the fact the sand fly is nocturnal in its activities and few individuals go into the forests during the night. Leishmaniasis is considered a zoonosis ie a disease that is normally present in wild animals but can be transmitted to humans.

When out in the field, the best way to protect yourself from the disease is to cover any exposed body parts (by wearing long pants and long-sleeved shirts) and by periodically

using insect repellents. For a cure, some people resort to home-made remedies including such drastic measures as battery fluid which leaves horrible scars worse than the infection itself. Compounds containing sodium stibogluconate (Pentostam) or meglumine antimonate (Glucantime) are commonly used drugs. The two infected Club members used Pentacrit (Pentamidine isetionate) and both were cured.

Today's feature was written by Elisha Tikasingh. For more information on our natural environment, you can contact the Trinidad and Tobago Field Naturalists' Club at admin@ttfnc.org or visit our website at www.ttfnc.org. The Club's next monthly meeting will be held today at St Mary's College. This month's lecture: "The Lionfish in TT" presented by Jahson Alemu.



SKIN sore due to infection with Leishmania before treatment. PHOTOS COURTESY THE TRINIDAD & TOBAGO FIELD NATURALISTS' CLUB

