The Ceratopogonid Sand Flies of TT

WE all know the feeling. You are at the beach or river having a good time. Everything is fine for the moment but then it starts.

A mild itching gives way to an all out assault and you have to break out the repellent or head to the water to get some relief. Sand flies can really spoil a good time.

The members of this group are sometimes known as midges or punkies. They are slender and small, measuring 0.6 mm to 5.0 mm, so it is not surprising that they are also given the name "no-see-ums". They are called sand flies in the West Indies, yet we should not confuse them with the phlebotomine sand flies mentioned earlier in this newspaper series.

They are vicious blood suckers; no wonder names like Culicoides diabolicus and C. furens have been assigned to two members of the group. In a 1975 article in the Trinidad and Tobago Field Naturalists' Club's Journal, Dr T H G Aitken labelled them as "pestiferous sandflies", and so they are. These sand flies can be a real nuisance on some of our beaches such as Maracas and Las Cuevas on the north coast, and Balandra and Manzanilla on the north-east coast. They are also found in swamps, forested areas and even in some built-up areas such as St Augustine, Valsayn and Curepe.

Aitken and co-workers in 1975 noted that in Trinidad and Tobago members of the Ceratopogonidae are represented by 49 species in three genera: Leptotanlops (1), Forcipomyia (5) and Culicoides (45). Their wings may be spotted or hairy, have few veins, and are narrow and folded flat over the abdomen when at rest. The larvae live in a variety of moist areas such as tree holes, rotting vegetation, animal manure, but all require waterlogged areas which might include fresh, brackish or salt water depending on the species. The egg to adult cycle may take about three weeks.

The most common species found biting on the beaches are Leptotanlops buquueti, Culicoides phlebotomus and C. furens. In 1973, Dr John B Davies found C phlebotomus biting throughout the day at Las Cuevas beach, but biting activity peaked at 7 am and then again between 3 pm and 7 pm.

In the same area he found two other species biting, C. debilipalpis and C. paraenias, with peak biting activity between 8 am and 12 noon for the former and 8 am and 10 am for the latter. Together, these observations suggest that between 12 and 3 pm is likely to be the least bothersome time to enjoy sunbathing on the sand at Las Cuevas.

I have found C. diabolicus, C. furens and C. foxi more active at dawn and dusk at Turure Forest and Vega de Oropouche, while C. pusillus was active throughout the day with a peak at 7 am and a smaller peak between 5 pm and 6 pm.

Most of the collections of the Ceratopogonidae in Trinidad and Tobago were made by staff members of the TRVL, predecessor of the Caribbean Epidemiology Centre (CAREC) during the course of studies on arthropod-borne viruses (arboviruses). The collections were made mainly in north Trinidad although some were made in central and south Trinidad, reflecting the activities of the TRVL. Some 168,500 Culicoides sand flies were collected and processed by the TRVL for virus isolations, but no virus was isolated.

However, it is interesting to note that Oropouche virus, first described from Trinidad where it was isolated from man and mosquitoes, caused an epidemic of a febrile illness in humans in Brazil where a species of Culicoides was the vector. This virus is also known to cause meningitis.

Another virus vectored by Culicoides is "Blue Tongue" in sheep which has a worldwide distribution. There is some serological evidence that this virus is present in domestic animals in Trinidad.

Species of Culicoides are also known to transmit two forms of filarial worms to humans, Mansonella ozzardi and Dipetalonema perstans, both of which have been recorded as being present in Trinidad.

In a 1979 survey on humans residing on the north coasts of Trinidad, Dr M B Nathan and co-workers found Mansonella ozzardi in villagers from Maracas to Toco, with infection rates varying between 0.2 percent at Toco and 23 percent at Blanchisseuse.

Fogging with insecticides can be used to control these sand flies in resorts and residential areas while larviciding of breeding habitats and the use of repellents may bring some relief.

As annoying as they can be, these insects are nonetheless part of our natural environment and we would be well advised to learn as much about them as we can, and adjust our outdoor activities accordingly.

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@ttfncc.org or visit our website at www.tttfncc.org. The Club's next monthly meeting will be held on July 10, 2014 at St Mary's College.