

Anthoscenus longirostris (Vieill.). Star-throat. (Leotaud No. 75 as *Mellisuga longirostris* Vieil. Gorge Carmin.) Length $4\frac{1}{2}$ to $4\frac{3}{4}$ inches. Bill 1.4 inch, black, nearly straight. *Male*. Upper plumage bronze-green with a brilliant peacock-blue crown and a ruby-red throat. There is an elongated white patch or streak on the centre of the rump, not always visible, also a large and conspicuous tuft of silky white feathers on either side between flanks and rump, visible when wings are spread. The two outer pairs of tail-feathers have broad white tips; the next pair have only a white dot at the tip; the central pair bronze-green, darker at margins, the four other pairs with basal half bronze-green, blackish terminally. There is a small white spot behind the eye and a white moustache. Underparts brownish-grey with a central white stripe which broadens on abdomen and vent. *Female*. Like the male but crown dull metallic green, the black throat patch larger and with only an occasional feather reflecting ruby-red; the grey of underparts paler, the white central stripe more conspicuous and the white moustache broader.

Breeding, but no data. Believed to be very rare but I know it from Waller field, Edinburgh field, the Platenal and near the Aripo cave. On 29th April 1956 I watched a female feeding a young bird; the male was nearby but was not seen to feed the young. The species was seen again in the same vicinity on Waller field in May and August. A bird of bush savannah and the margins of woodland. Not Tobago.

Lophornis ornatus (Bodd.). Tufted Coquette. (Leotaud No. 76 as *Mellisuga ornata* Bodd. Huppe-col.) Length $2\frac{1}{2}$ to $2\frac{3}{4}$ inches. Bill 0.4 inch, black, slightly curved. *Male*. A high, pale chestnut, occipital crest which is elevated transversely; a tuft of feathers on each side of neck white or chestnut tipped with green. Upper plumage bronze-green; a narrow white band across lower back; upper tail-coverts dusky-brown; tail rounded, deep chestnut, the feathers edged with dark brown. Abdomen duller bronze-green; under tail-coverts edged dark chestnut. *Female*. Differs from male in absence of crest and tufts and in the entire under surface cinnamon; the upper parts are of a more sombre green; the rump patch is conspicuous.

Breeding in February. The nest is small, built of plant-down saddled on the branch of a shrubby plant such as a pigeon-pea. A rare and local species showing a preference for cultivated gardens especially where pigeon-peas are grown. The birds appear to move from one locality to another during the year and females appear to be much more common than males. I have records from Waller field, near the Caura dam, on the old Tucuche road, high up on the Chaguaramal trace, at the top of Mount Tabor and high up the La Laja trace. It is said to be common near Tacarigua. Not Tobago.

PESTIFEROUS TRINIDADIAN SANDFLIES⁽¹⁾

BY THOMAS H. G. AITKEN

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AT certain times of the year and in varying situations, man is plagued by the painful attacks of minute flies known as sandflies. These insects are variously known as "punkies", "no-see-ums", biting midges, Kaboura flies, on

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the Rupununi Savannah of British Guiana and "jejenes" or "mimis" in some of the Latin American countries, and are not to be confused with *Phlebotomus* flies, Family Psychodidae (also called sandflies), black flies or Congo flies (Family Simuliidae) or the tiny non-biting eye gnats (*Hippelates*, etc.) belonging to the Family Chloropidae.

Most of the flies forming the subject of this note belonging to the genus *Culicoides* in the family Heleidae (formerly Ceratopogonidae). They are about the size of a pin head; most species have spotted wings, and they are avid blood suckers. The saliva injected into the tissues by these minute flies at the time of feeding produces an intense itching in the susceptible individual.

Aside from being a general nuisance, *Culicoides* have been incriminated as vectors of several pathogens in various parts of the world. These include at least four species of helminths as well as the virus of Blue Tongue, a disease of sheep occurring in South Africa and the western part of the United States. Two of the former, *Acanthocheilonema perstans* (Manson) and *Mansonella ozzardi* (Manson) cause human infections in the tropics, including the West Indies; *Mansonella ozzardi* infections are common on the north coast of Trinidad. The remaining two worms, *Onchocerca cervicalis* (Railliet and Henry) and *On. gibsoni* Cleland and Johnson are parasites of horses, mules and cattle, particularly in tropical and subtropical areas of the Old World.

In a previous communication, Myers (1935) reported two pestiferous *Culicoides* from Trinidad, *C. furens* (Poey), and *C. trinidadensis* Hoff., the former from the Barataria area and the latter from St. Joseph and St. Augustine. Subsequently, Adamson (1939) discussed in some detail eight species of man-biting heleids from Trinidad, including two from Tobago. As the terminology has changed since Adamson's paper, his list of species (in his order of importance as pests) is reproduced with the presently accepted names.

LIST OF SPECIES

<i>Adamson's names</i>	=	<i>Present names</i>
1. <i>Culicoides amazonius</i> Macfie	=	<i>C. phlebotomus</i> (Will.)
2. <i>Culicoides diabolicus</i> Hoff.		no change
3. <i>Culicoides stellifer</i> Adam., nec. Coq.	=	<i>C. paraensis</i> (Goeldi)*
4. <i>Culicoides furens</i> (Poey)		no change
5. <i>Holoconops hondurensis</i> Hoff.	=	<i>Leptoconops bequaerti</i> (Kieff.)
6. <i>Culicoides guttatus</i> Adam., nec. Coq.	=	<i>C. trinidadensis</i> Hoff. ?**
7. <i>Culicoides debilipalpis</i> Lutz		no change
8. <i>Culicoides pusillus</i> Lutz		no change

*According to Dr. Willis Wirth, *stellifer* localities outside of the U.S.A. another species *guyanensis* Fl. and Ab., see below. largely refer to *para*

**~~*Guttatus* does not occur in Trinidad.~~ Adamson's material may have been either *trinidadensis* or the closely related *insignis*.

Present knowledge indicates there are about two dozens species of *Culicoides* in Trinidad, plus the one species of *Leptoconops* and at least one species of man-biting *Lasiohelea*. All have been taken by collectors of the Virus Laboratory. Many of the species appear to have little or no contact with man, and are most frequently picked up in light trap collections. Presumably they are feeding on animals other than man, and, as essentially zoophilous forms, are not pertinent to the present discussion.

Of the species particularly pestiferous to humans, our records show the principal offender in Port-of-Spain to be *Culicoides guyanensis* Fl. and Ab.; it bites in the houses, on the galleries and in the gardens. The main feeding period seems to be between 4.30 and 7.30 p.m. and it is usually annoying during June and July. I also have seen many specimens from St. Augustine, taken during July and August 1957 out-of-doors and in houses. It is my opinion that the species reported by Adamson to be dominant in the St. Augustine collections was not *Culicoides paraensis* (stellifer) but rather the closely resembling *guyanensis*. We have taken *paraensis* in Trinidad but only rarely, in forested areas. Adamson reported *Culicoides diabolicus* at times to be pestiferous in houses in St. Augustine; he believed Myers' *trinidadensis* reported from this locality actually referred to *diabolicus*. On the other hand, the species might have been the closely related *insignis* or *foxi*. Adamson also found *Culicoides furens* biting in St. Augustine houses on occasion and we have taken it in light traps in Tucker Valley, U.S. Naval Station.

On the beaches, *Culicoides phlebotomus* (*amazonius*) is the most obnoxious species. Adamson lists the following coastal localities: Balandra, Manzanilla, Salybia, Sans Souci, Maracas, Granville, and Pelican island near Port-of-Spain, also Speyside, Tobago. To these I can add Bacolet and Pigeon Point, Tobago. Other beach species are *C. furens* (also on Tobago), *C. guyanensis* (Maracas) and *Leptoconops bequaerti*, a clear-winged species. Adamson reported the latter to be very abundant at Granville Bay (Cedros) and I found it to be the most abundant species at Pigeon Point, Tobago, 30th July, 1957.

In some of the larger swamps, such as the Caroni, one again encounters *C. guyanensis*, also *C. trinidadensis*.

The forested areas on the other hand, are chiefly infested by *Culicoides diabolicus* (not to be confused with *C. guttatus* Coq. of Brazil or *C. insignis* Lutz; the latter in Trinidad seems to be essentially zoophilic in food habits). *Diabolicus* has been the dominant *Culicoides* in our sylvan studies. Forest collecting has also produced fair numbers of *Culicoides debilipalpis*, a species, incidentally, which is most frequently found well above ground (50-75 feet generally) in the forest canopy. *Diabolicus*, on the other hand, seems to have no height (or light?) predilection, being caught equally frequently at ground level as well as high in the trees. Sylvan species less commonly encountered include: *Culicoides foxi* Ortiz, *C. hoffmani* Fox, *C. mirsae* Ortiz, *C. paraensis*, *C. phlebotomus*, *C. pussillus* and *C. N. Sp. near stigmatis* Wirth.

(Note : Identifications have either been made or confirmed by Dr. Willis W. Wirth, United States National Museum, Washington 25, D.C.)

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EPIPHYTES IN THE ROYAL BOTANIC GARDENS, TRINIDAD.

BY THOMAS H. G. AITKEN

MANY visitors to the tropics are impressed by the rich and varied vegetation which they see on all sides. Particularly impressive are the multitude of plants and vines adorning the tress. Indeed, to the traveller from temperate climes, this lush vegetation symbolizes the wet tropics. Occasional trees may be so laden with these "guest" plants, that they become sites of veritable aerial gardens. In the American tropics, these epiphytes (so-called because they merely cling to the tree for support rather than parasitize and injure it) belong principally to the families Orchidaceae, Bromeliaceae and Araceae; the Cactaceae and Gesneriaceae are represented by a few species each, as are the ferns and a few other smaller groups. While the flora of Trinidad is not as rich as that of the mainland, there are, nevertheless, many representatives of the first three of these families in the island, the approximate figures being 179 indigenous species of orchids, 57 bromeliads and 35 aroids. Not all of these are epiphytes, however, some species being terrestrial in habit and a majority of the Araceae are terrestrial or climbing plants.

The Royal Botanic Gardens in Port-of-Spain, do not have an over abundance of these aerial plants, but because of their accessibility to residents and visitors alike they serve as an excellent place for the study of this interesting group of plants. Most of the species have sufficiently characteristic foliage that they can be identified quite easily even if lacking flowers.

ORCHIDACEAE

Possibly only two or three of the islands' 179 species of orchids can truly be said to fall in the class of commercially desirable items; nevertheless there is a wealth of material on every side for the interested amateur to indulge his fancy, from tiny miniatures up to large species whose fleeting blossoms are only open for a day or two.

(1) *Epidendrum stenopetalum* Hooker

This and the following species are the most common orchids in the Gardens. The plants consist of three or four rigid stems which, when mature, vary from about 4 to 14 inches in length and are characterized by the rather narrowly linear, short, leathery leaves arising alternately at about $\frac{1}{2}$ to 1-inch intervals along the rigid stem (woody when old). The flowers, one to several in number, are produced at the tip of the stem; they are about $\frac{3}{4}$ inch across and a lovely pale magenta colour. Most of the time the flowers do not open, being fertilized by ants and going to seed while still closed, a condition known as cleistogamy. Both this and the following species are to be found growing in great profusion on the Sausage Tree near the Savannah Circular Road.