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Mosquitoes that transmit parasites to frogs, toads and tree frogs.

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The Corethrellidae family, belonging to the order Diptera, currently has 108 known species in the world, all of the genus *Corethrella* Coquillett, 1902, and has its greatest diversity in tropical regions, but is still little studied in Brazil, with only thirty-four species recorded. Corethrellidae is a family of tiny insects that is a sister group to Chaoboridae and Culicidae and has some characteristics, which have already been detected [1-2].

Corethrellidae females need blood to complete egg maturation; In this family, hematophagy is conducted only in anurans, and therefore, females can transmit parasites such as protozoa and fungi to these animals. An important characteristic of the group is that its larvae are predators of other small aquatic invertebrates, such as mosquito larvae, and may also play a relevant role in the population control of human disease vectors. The systematics of this group is still largely unknown and, even though it has a wide distribution throughout the world, few species have been described and recorded for Brazil, with no records (Figure 1) [3-4).

Figure 1. *Corethrella* Coquillett, 1902 – Female: Source: https://bugguide.net/node/view/362517.

Corethrellidae receive the popular name of frog-biting midges due to the habit of their females of feeding on the blood of anuran amphibians, to obtain a protein supplement to develop their eggs. An exceptional aspect of Corethrellidae, in comparison with other hematophagous insects, is their attraction to the vocalization of male amphibians, which is their preferred criterion for choosing the host. Due to this interaction, it was found that blood parasites, euglenozoans of the genus *Trypanosoma* Gruby, 1843 (Kinetoplastea: Trypanosomatidae), are transmitted to frogs, such as those that cause Chagas disease and sleeping sickness in humans (Figures 2) [4-9].

The distribution of Corethrellidae species coincides with that of their anuran hosts, with its greatest occurrence in tropical and subtropical areas of the world. Immature stages occur in an environment of lentic aquatic, such as river backwaters, marshes, tree hollows, and bromeliads, and their larvae are predators of invertebrates, and can significantly influence the composition of local communities (Figure 2) [9-12].

Figure 2. Female frog-biting midge *Corethrella* spp. sucking blood at the nostril of a male treefrog *Scinax elaeochroa* (Cope, 1875) (Amphibia: Anura: Hylidae) in amplexus; hematoma formed beneath the surface of the skin (arrow). La Gamba, Costa Rica. Source: Photo: A. Ruppert.

They are vectors of *Trypanosoma*, intestinal parasites of anurans, and candidates for transmitters of the fungus *Batrachochytrium dendrobatidis* Longcore gen. et sp. nov. (Rhizophydiales: Batrachochytriaceae), which causes chytridiomycosis, related to the worldwide decline of anurans. Unlike other related hematophagous insects, such as those from the Culicidae family (gnats), species from the genus Corethrella do not appear to be attracted by CO2, nor by chemical signals. On the other hand, they are attracted by the vocalization of anurans (phonotaxis) [12-13].

There are two types of phonotaxis: positive and negative. The purpose of positive phonotaxis is attraction. It usually happens when the females of a particular species including those of frogs are attracted to the sounds made by the males.

Negative phonotaxis, on the other hand, serves to repel or warn, such as when the sound of a predator nearby signals to an animal that it needs to move away [14-16].

The songs of male anurans also attract adult females of *Corethrella*, which take blood meals exclusively on species in this group. They are candidates for transmitting the fungus *B. dendrobatidis*, which causes chytridiomycosis **(Chytridiomycosis** attacks the skin of amphibians and ends up interfering with their heartbeat, and transmission occurs through water or direct contact between animals 501 species of amphibians impacted by the fungus were listed, 90 of which are extinct or presumed extinct**)** related to the worldwide decline of anurans (Figure 3) [14-16].

Figure 3. Family Corethrellidae Source: Photo 72799799, (c) Hubert Szczygieł.

On the other hand, they are attracted by the vocalization of anurans (phonotaxis). The songs of male anurans also attract adult females of *Corethrella*, which take blood meals exclusively on species in this group. Parasitism can significantly affect the populations of its hosts, increasing mortality, decreasing fecundity, growth, and nutrition, and altering behavior [15-17].

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