The Order Strepsiptera is defined.

Carlos Henrique Marchiori[1]

1 Instituto Federal Goiano

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The Order Strepsiptera is defined as entomophagous endoparasitoids attacking insect species in seven orders. The adult male looks like a typical winged insect, with a large head and protruding eyes, short front wings with no veins, and broad rear wings with few radiating veins. Adult females do not undergo complete metamorphosis, retaining a larval form (Neoteny), they do not have wings or legs and display eyes, mouthparts, and rudimentary antennae [1-8].

Reproductively competent adult females are viviparous, giving rise to living larvae, and do not undergo complete metamorphosis, retaining the larval form. Males also develop inside a host, in the larval stage, but go through the pupal stage and leave the parasitized insect as adults, to live a free life. Eventually, they look for an insect parasitized by an adult female to fertilize her right there. The eggs hatch inside the female and small larvae are expelled. Females of the order Strepsiptera are 2 to 30 mm long, while males are 1 to 7 mm. Insects infested by these parasites can be easily identified by a sac-like structure belonging to the females or by the head of the pupae, both emerging from the abdomen. Adult males only live a few hours. The order Strepsiptera encompasses almost 600 species of modified endoparasitoids, commonly parasitizing bees and wasps [1-8].

Adult males and females in this group exhibit some of the greatest sexual dimorphism known. They have such a bizarre life cycle that it hardly seems real. The female is a small larva that lives inside the body of another host insect, while the male is even more mysterious, almost alien-like. They live just long enough to reproduce, and after mating, the male abandons the host, leaving him free but often weakened. These insects are so rare that scientists still have a lot to discover about their biology and ecology (Figure 1) [1-8].

Parasitized hosts undergo several changes, including loss of fecundity and manifestation of anomalous behaviors (host manipulation). In Halictoxenos borealis Kifune, Hirashima & Maeta, 1982 (Strepsiptera: Stylopidae) parasitoid of the species Lasioglossum apristum Vachal 1903 (Hymenoptera, Halictidae) while bees without parasitoid collect pollen, the parasitized species do not collect or eat pollen, a behavior that appears to help disperse the larvae of the parasitoid in the flowers awaiting transport by the bee that contorts its abdomen, pressing it against the flowers. **Hosts:** Orders and Families: Hemiptera (Coreidae, Cydnidae, Delphacidae, Eurybrachidae, Fulgoridae, Issidae, Lygaeidae Cicadeliidae, Membracidae, Pentatomidae, Scutelleridae Tettigometridae), Blattodea, Diptera (Tephritidae) and Orthoptera (Tridactylidae) (Figures 1-4) [1-8].

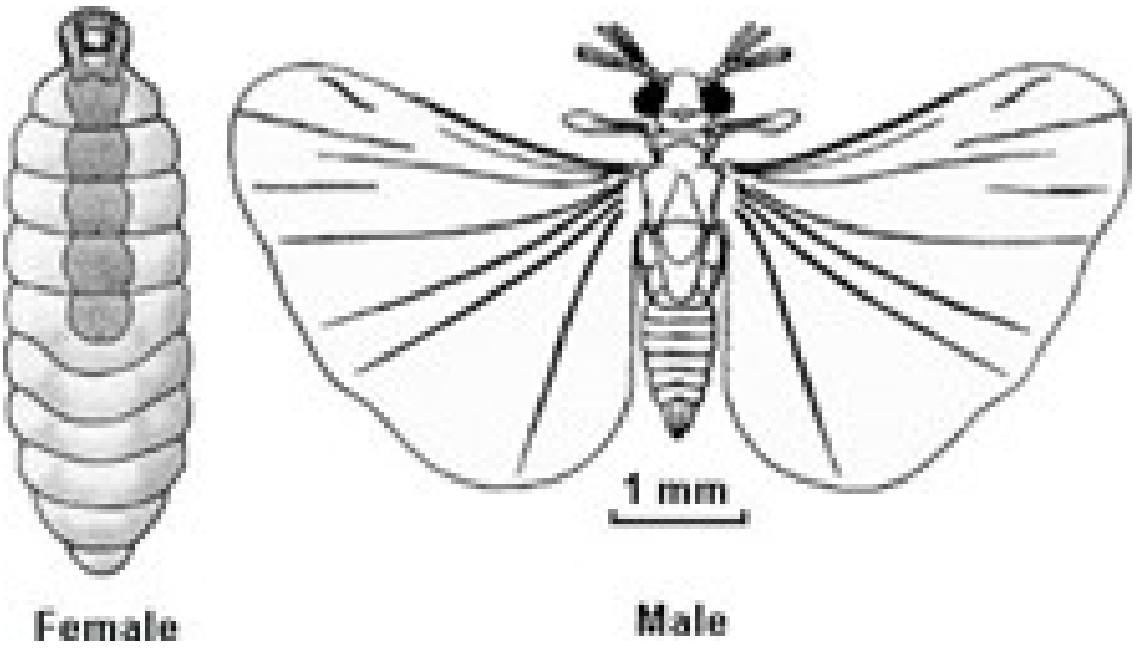

Figure 1. Female (left side) and male (right side) adults of Strepsiptera. Source: https://www.comosomosbiologia.com/2023/08/insetos-raros-que-voce-provavelmente.html.

Figure 2. Adult females of the species *Xenos vesparum* Rossius, 1793 (Strepsiptera: Xenidae) with different body sizes were removed from wasps of the species. Sources: Photo: Jessica Hird and https://extension.oregonstate.edu/gardening/pollinators/strepsiptera-strange-parasite-attacks-bees-other-insects.

Figure 3. *Polistes dominula* (Christ, 1791) (Hymenoptera: Vespidae). The difference in size between parasites correlates with the size of the wasps. Strepsiptera larvae burrow into the exoskeleton of the bee, where they mature into adults. Sources: Photo: Jessica Hird and https://extension.oregonstate.edu/gardening/pollinators/strepsiptera-strange-parasite-attacks-bees-other-insects.

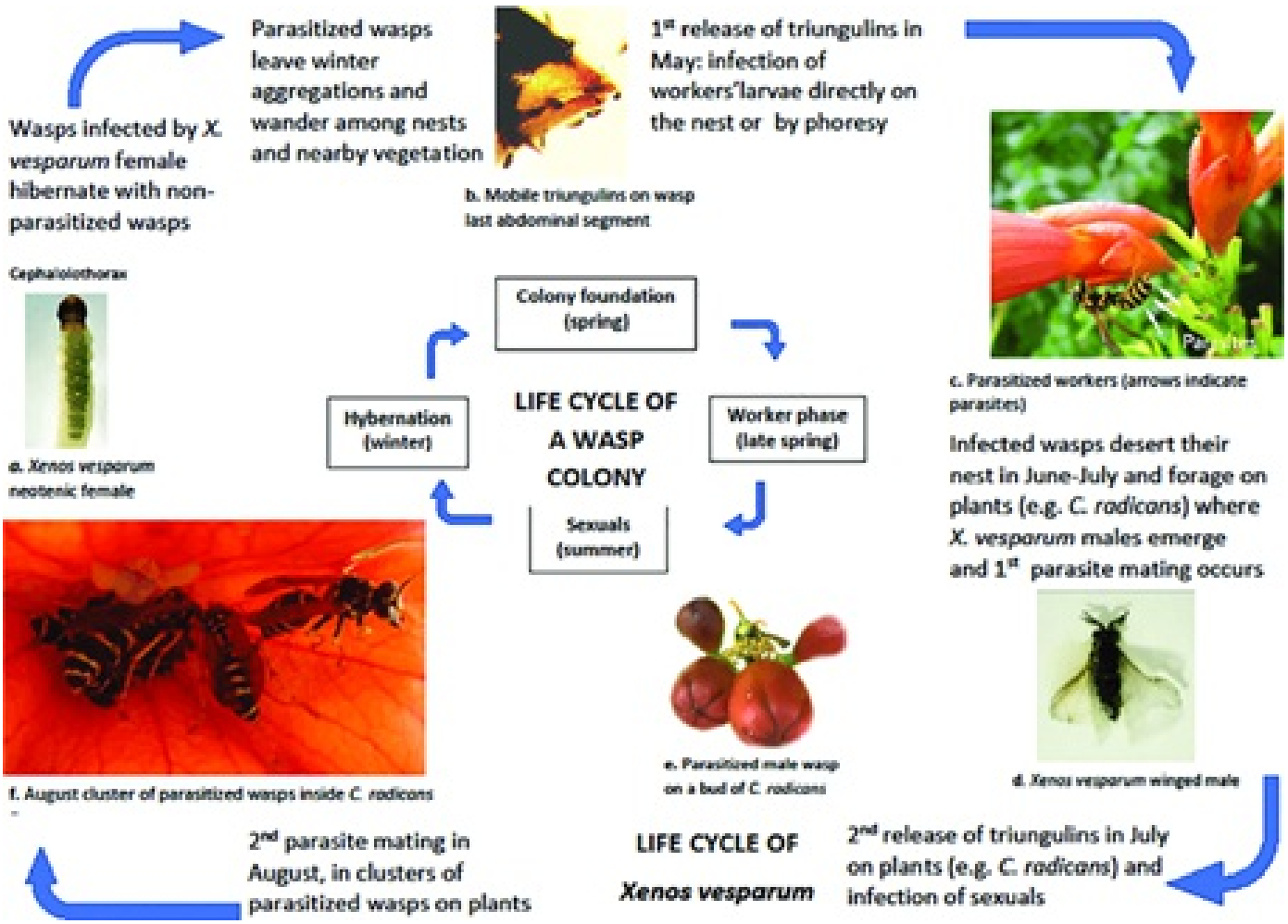

Figure 3. The life-cycle of the *Xenos vesparum* Rossius, 1793 (Strepsiptera: Xenidae) in parallel with the life-cycle of its primary host, the paper wasp *Polistes dominula* (Christ, 1791) (Hymenoptera: Vespidae). a) *X. vesparum* female. An extragenital canal opens in the female's cephalothorax, where mating and larval escape occurs. b) Triungulins are escaping from the female canal. c) Parasitized workers on *Campsis radicans* (L.) (Bignoniaceae)Note the distortion of the wasp abdomen due to parasites (arrows). d) *X. vesparum* male. Observe the striking sexual dimorphism of the parasite. e) A parasitized *Polistes dominula* (Christ, 1791) (Hymenoptera: Vespidae) male. f) Aggregation of parasitized wasps. Sources: Photos by Laura Beani. https://doi.org/10.1371/journal.pone.0205201.g001and https://www.researchgate.net/figure/The-life-cycle-of-the-strepsipteran-Xenos-vesparum-in-parallel-with-the-life-cycle-of-its_fig1_328506072.

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