

# GENERAL INSECT MORPHOLOGY

## Lab 9 - A study of insect genitalia

### A. MALE GENITALIA.

#### 1. Male genitalia of an Orthopteran.

- a. Prepare a drawing of the lateral view of the last three segments of a katydid grasshopper, and label the following structures: the **eighth tergum (8T)**; the **ninth tergum (9T)**; the **tenth tergum (10T)** which is the last dorsal structure which is produced posteriorly over the male genitalia; the **ninth sternum (9S)** which is the last ventral segment and is produced posteriorly and then dorsally; the **cerci**; and the **epiproct**.

#### 2. Specialized male genitalia in the Odonata.

- a. Prepare a drawing of the ventral view of the terminal 3 segments of a male dragonfly, and label the following structures: the **eighth tergum (8T)**; the **ninth tergum (9T)**; the **eighth, ninth, and tenth sterna (8S, 9S, 10S)**; the **cerci**; the **epiproct**; the **paraprocts**; the **gonopods**; and indicate the location of the true **gonopore**.
- b. Prepare a drawing of the ventral view of the first 3 abdominal segments of a male dragonfly, and label the following structures: the **first, second, and third terga (1T, 2T, 3T)**; the **first, second, and third sterna (1S, 2S, 3S)**; the **anterior lamina** (which is another name for the 2nd sternum); the **hamule**; the **penis**; and the **genital lobe** which is simply a posterior extension of the 2nd tergite.

#### 3. Male genitalia of a Cicada.

- a. Examine the genitalia of a male Cicada. Note how the last abdominal sternum is produced posteriorly into a shield-like covering over the inner genitalia. This is called the **hypandrium**.

### B. FEMALE GENITALIA.

#### 1. Female genitalia of a Cicada.

- a. Prepare a lateral view drawing of female genitalia of a Cicada. Note the ovipositor composed of 2 pairs of valvulae in the main slender part of the ovipositor. These are **valvulae 1** and **valvulae 2**. The 1st valvifer is visible only with **subgenital plate** dissected away. Note the larger sheath-like **3rd pair of valvulae** coming off the large **2nd valvifers**. Also, label the **seventh, eighth, and ninth terga (7T, 8T, 9T)**.

#### 2. Female genitalia of the Orthoptera.

- a. Prepare a drawing of the lateral view of the terminal three segments of two of the following insects: either a cricket, a katydid, or a cone-headed grasshopper. Be sure to examine the other type of insect also. On your drawing label the following structures: the **eighth, ninth, and tenth terga (8T, 9T, 10T)**; the **cerci**; the **epiproct**; the **1st and 3rd valvulae**; the **2nd valvifer**; if possible the **1st valvifer**. Note the long ovipositor that consists of the 1<sup>st</sup> valvulae (ventral in position), and the 3<sup>rd</sup> valvulae (dorsal in position) which interlock with each other, forming a hollow tube for the egg to travel down; the 2<sup>nd</sup> valvulae are inside this tube, so you will not be able to see them externally. The enlarged base of the 1<sup>st</sup> valvulae are partially concealed by the **subgenital plate**. Dorsally, the base of the 1<sup>st</sup> valvulae are attached to a small sclerite which lies behind the ninth tergum and between it and the 2<sup>nd</sup> valvifer. This sclerite is the **1st valvifer**. The 2<sup>nd</sup> valvifer and third valvulae are not separated by a suture, but rather form a continuous process. The enlarged base is the valvifer.

#### 3. Female genitalia of the Odonata

- a. Prepare a drawing of the lateral view of the terminal three segments of a species of Coenagrionidae, labeling the following structures: **eighth, ninth, and tenth terga (8T, 9T, 10T)**; the **cerci**; the **paraproct**; the **1st, 2nd, and 3rd valvulae**; and the **1st and 2nd valvifers**.