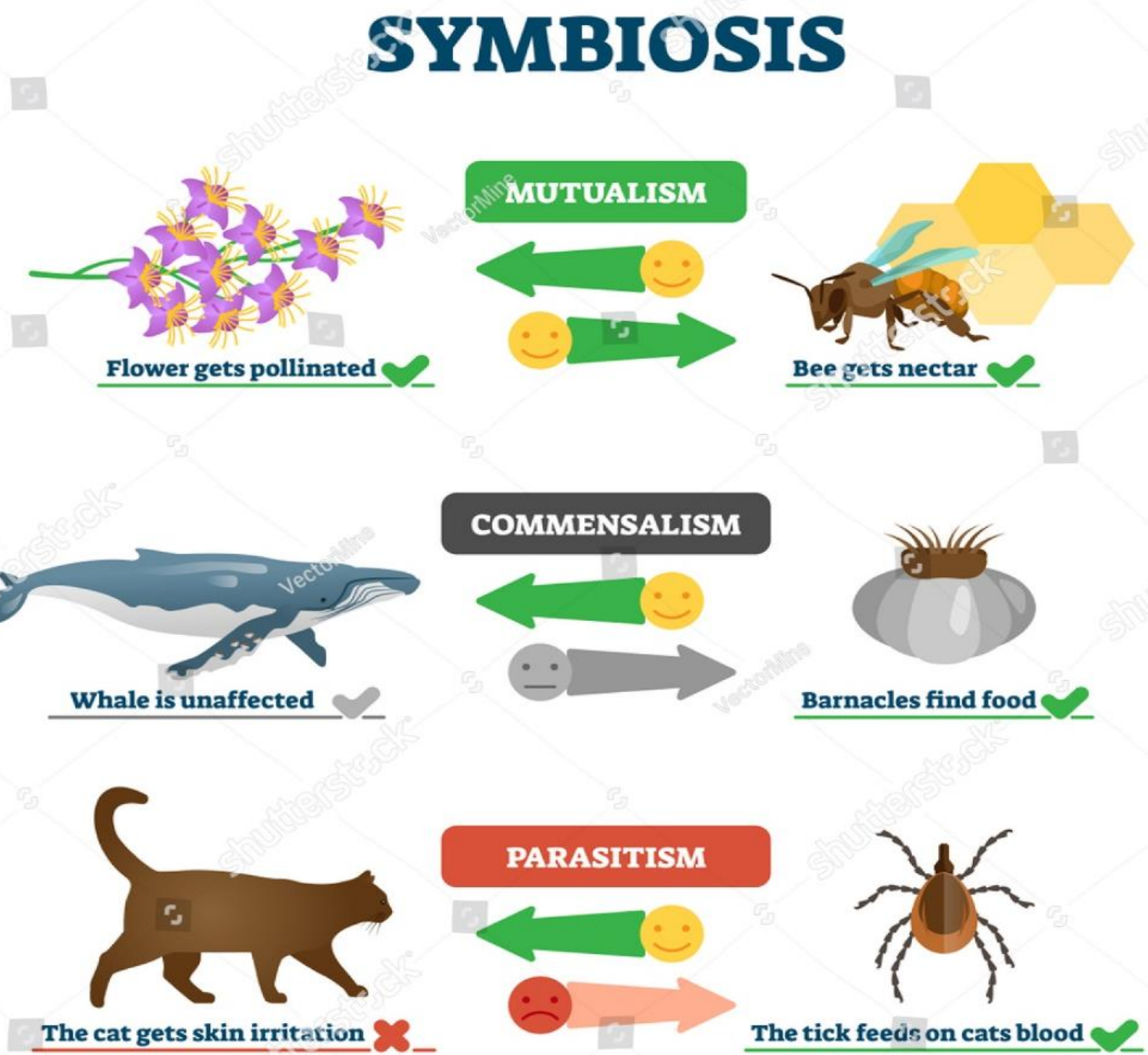
SCIENTIFIC ENGLISH

By: NABTI Ismahane

Parasitology

A science that study parasites, their hosts, and the relationship between the parasite and the host



- Parasitology is concerned with parasites and parasitism.
- Parasitism is A form of symbiosis in which one organism (called parasite) benefits at the expense of another organism usually of different species (called host).
- The association may also lead to the injury of the host.

Parasitology has different sub-disciplines:

- Medical parasitology
- Veterinary parasitology
- Structural parasitology
- Quantitative parasitology
- Parasite ecology

Medical parasitology

- The science that deals with the human parasites and the diseases caused by them; included the study of three major groups of animals:

1. Parasitic protozoa,
2. Parasitic helminths (worms), and
3. Arthropods that directly cause disease or act as vectors of various pathogens.

Veterinary parasitology

- The study of animal parasites, especially relationships between parasites and animal hosts, and their interactions
- Parasites of domestic animals (livestock and pet animals), as well as wildlife animals, are here considered.
- Veterinary parasitology studies the genesis and development of parasitoses in animal hosts. It also studies the taxonomy and systematics of parasites, morphology, life cycles, and living needs of parasites in the environment and in an animal host.

Structural parasitology

- The study of structures of parasitic proteins.
- Involves protein expression, protein purification and crystallography.
- It applies the techniques of Structural biology (such as X-ray crystallography or NMR) to determine the 3-D structures of protein molecules involved in a parasitic relationship.

Quantitative parasitology

- Is the quantitative study of parasitism in a host population.
- The frequency distribution of parasites among hosts is used as the basis of the quantitative assessment of the nature of parasitism.

Parasite ecology

- Studies the ecological impact of parasites
- Combines biodiversity surveys and experiments with molecular and evolutionary ecology to gain a broad understanding of host-parasite interactions
- Parasites influence host behavior and fitness, and can regulate host population sizes, sometimes with profound effects on trophic interactions, food webs, competition, biodiversity and keystone species. These interactions suggest that parasites are integral components in shaping community- and ecosystem structure.

Terms in parasitology

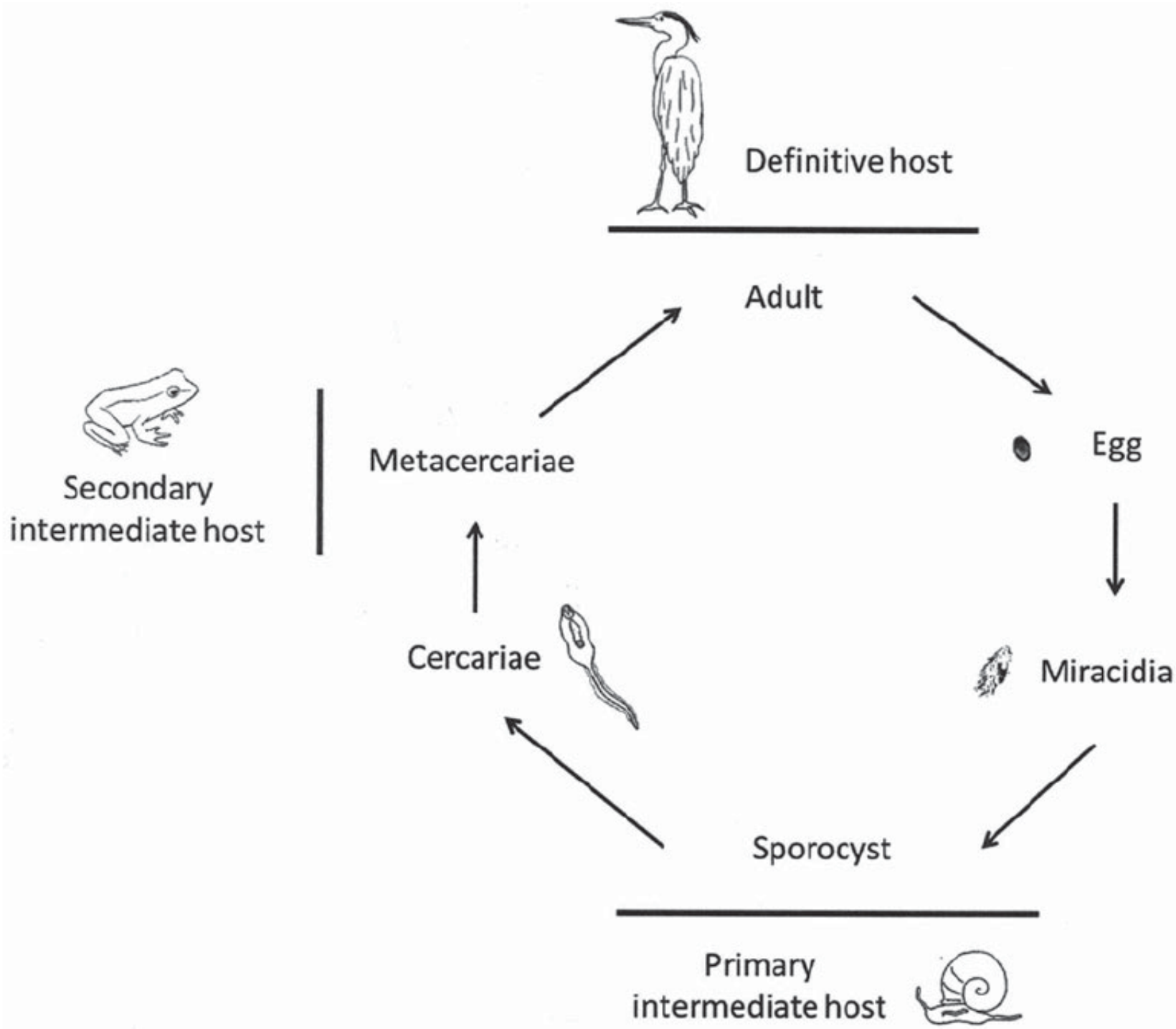
- **Parasite** (parasite;طفيلي) **:** Any organism that lives in or on another organism without benefiting the host organism; commonly refers to pathogens, most commonly in reference to protozoans and helminths.

- **Host (hôte; مضيف):** an animal or plant that acts as a biological refuge in which the parasite may dwell. The host usually provides shelter or nourishment to the other organism, which may use the host to partially/completely sexually develop

- **The definitive host (**hôte définitif ; المضيف النهائي**):** is the one which harbors the adult parasite and where the parasite reproduces sexually.

- **The intermediate host (**Hôte intermédiaire ; مُضِيْفٌ ثانَوِيّ**) :** is the host which harbors the larval stage or the asexual forms of the parasite. Few parasites require two different intermediate hosts in addition to a definitive host.

- **Vector (**vecteur ; الناقل**):** is a living organism that transmits an infectious agent from an infected animal to a human or another animal. Vectors are frequently arthropods, such as mosquitoes, ticks, flies, fleas and lice. The vector can be an intermediate host or only a mechanic vector.


Definitive host
Adult
Egg
Miracidia
Sporocyst
Primary intermediate host
Cercariae
Metacercariae
Secondary intermediate host

- **Life cycle (**Cycle de la vie; دورة الحياة): All parasites have a life cycle that involves a period of time spent in a host organism and that can be divided into phases of growth, reproduction, and transmission. Life cycles of parasites can be further divided into two categories: direct (monoxenous) and indirect (heteroxenous).

Metazoa parasites

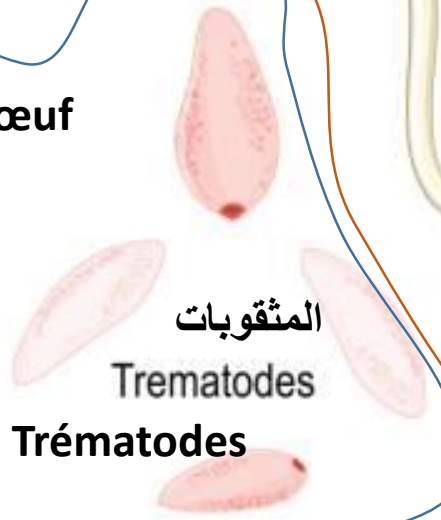
HELMINTHS

Platyhelminthes

soft-bodied usually much flattened acoelomate worms

دودة البقر الشريطية
Beef tapeworm
Ténia du bœuf

Vers plats
FLATWORM
الديدان المفلطحة



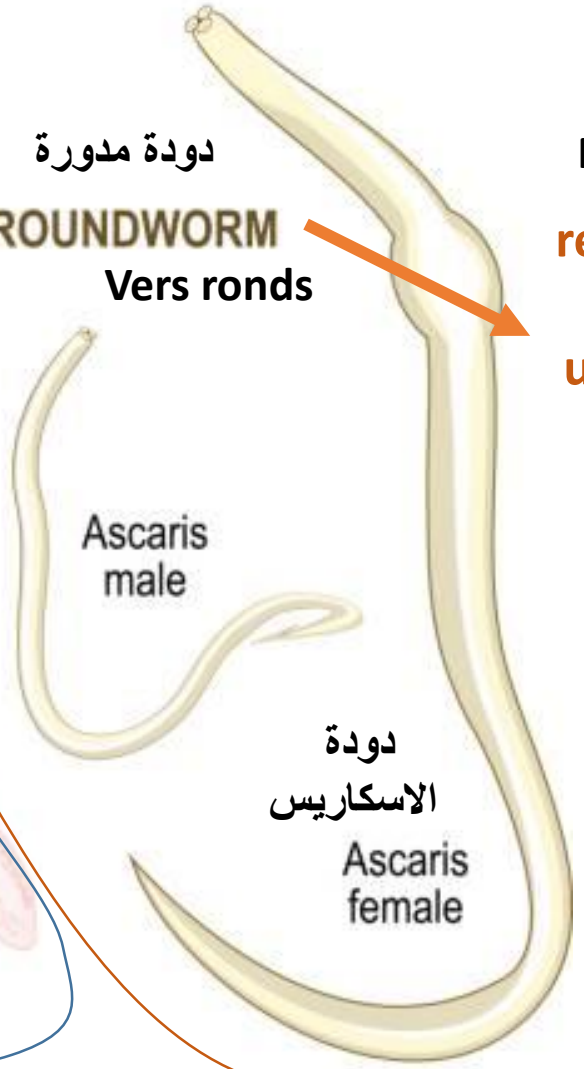
المثقوبات
Trematodes
Trématodes

Nematode

related round-bodied unsegmented worm

الديدان الدبوسية
Pinworms
Oxyures

دودة مدورة
ROUNDWORM
Vers ronds



Ascaris male

دودة الاسكاريس
Ascaris female

Tick

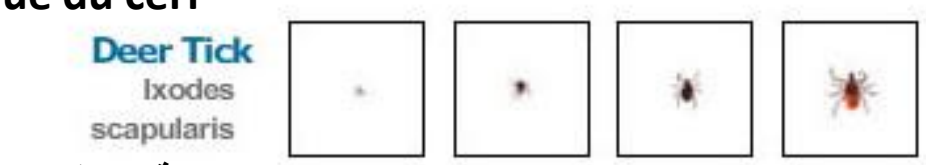
Tique

القراد

قراد الكلاب

Tique des chiens

Tique du cerf

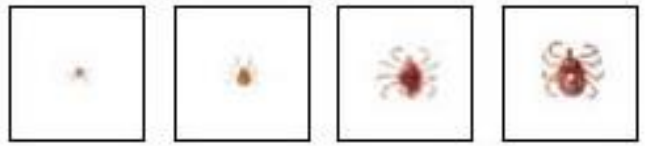


قراد الغزلان

يغموش أمريكي

Tique étoilée d'amérique

قُراد النجمة الوحيدة



Louse/lice

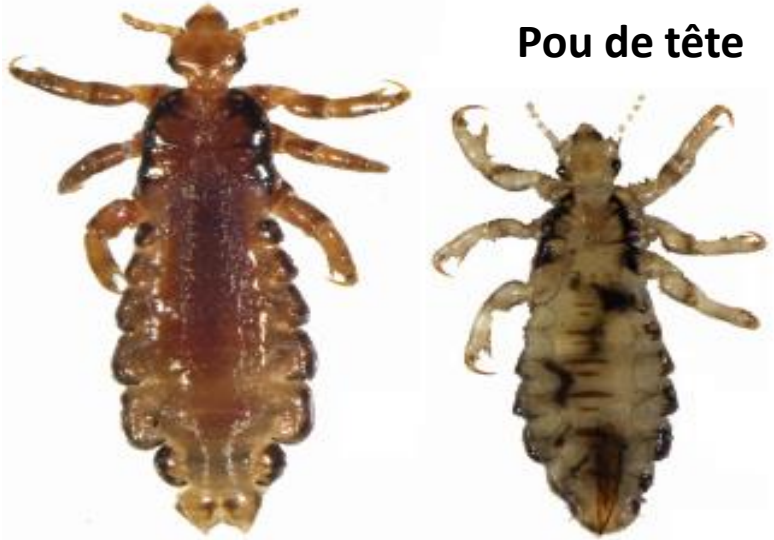
pou/poux

قملة/قمل

Pediculus humanus capitis

Head louse **قملة الرأس**

Pou de tête

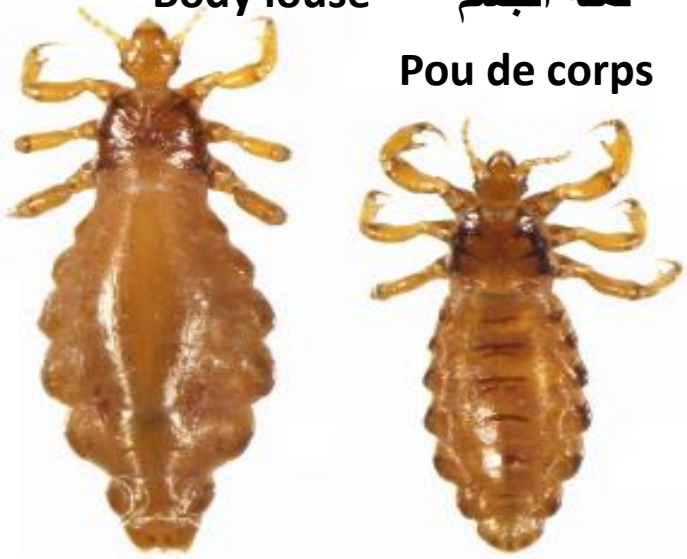


Female **Male**

Pediculus humanus humanus

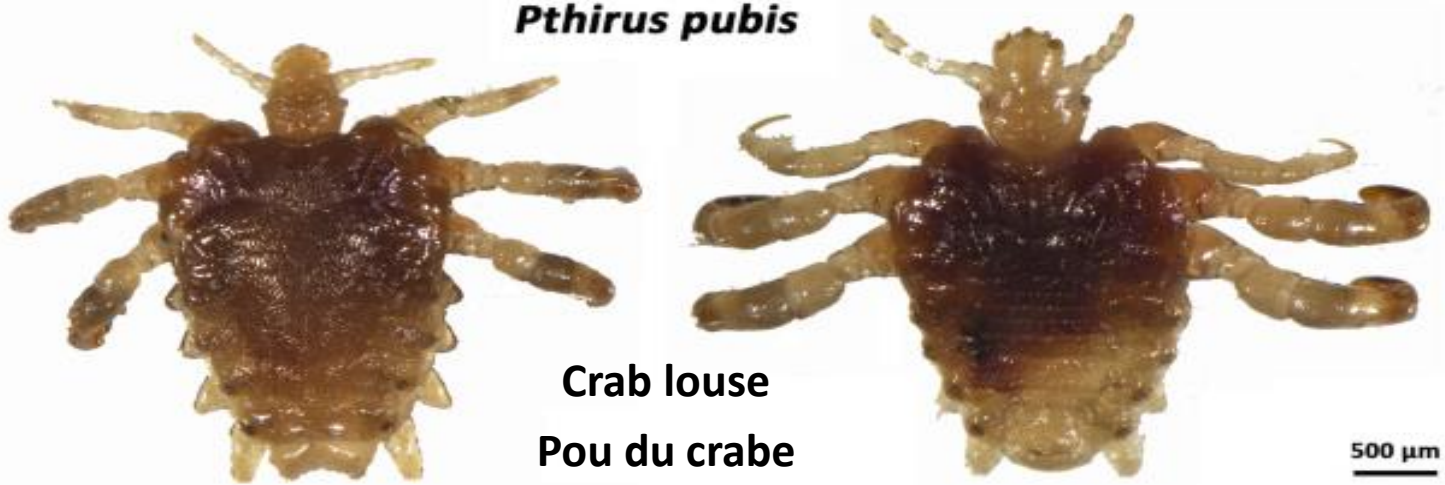
Body louse **قملة الجسم**

Pou de corps



Female **Male**

Pthirus pubis



Crab louse

Pou du crabe

قمل السلطعون

Female **Male**

General Flea Life Cycle

Cycle de vie général des puces

دورة الحياة العامة للبراغيث

larves à partir de pupes

يرقات من الشرانق

3 Larvae form pupae.

Apparition d'adultes
à partir de pupes

ظهور البالغين من الشرانق

4 Adults haltch from pupae.

5

Les œufs éclosent
en larves

2 Eggs hatch into larvae.

ظهور اليرقات
بعد تفقيس البيض

1 Eggs shed by female into environment.

Œufs pondus par les femelles

البيض الذي
تسقطه الإناث

313926