

# **PEDICULUS**

## **HEAD LOUSE & BODY LOUSE**

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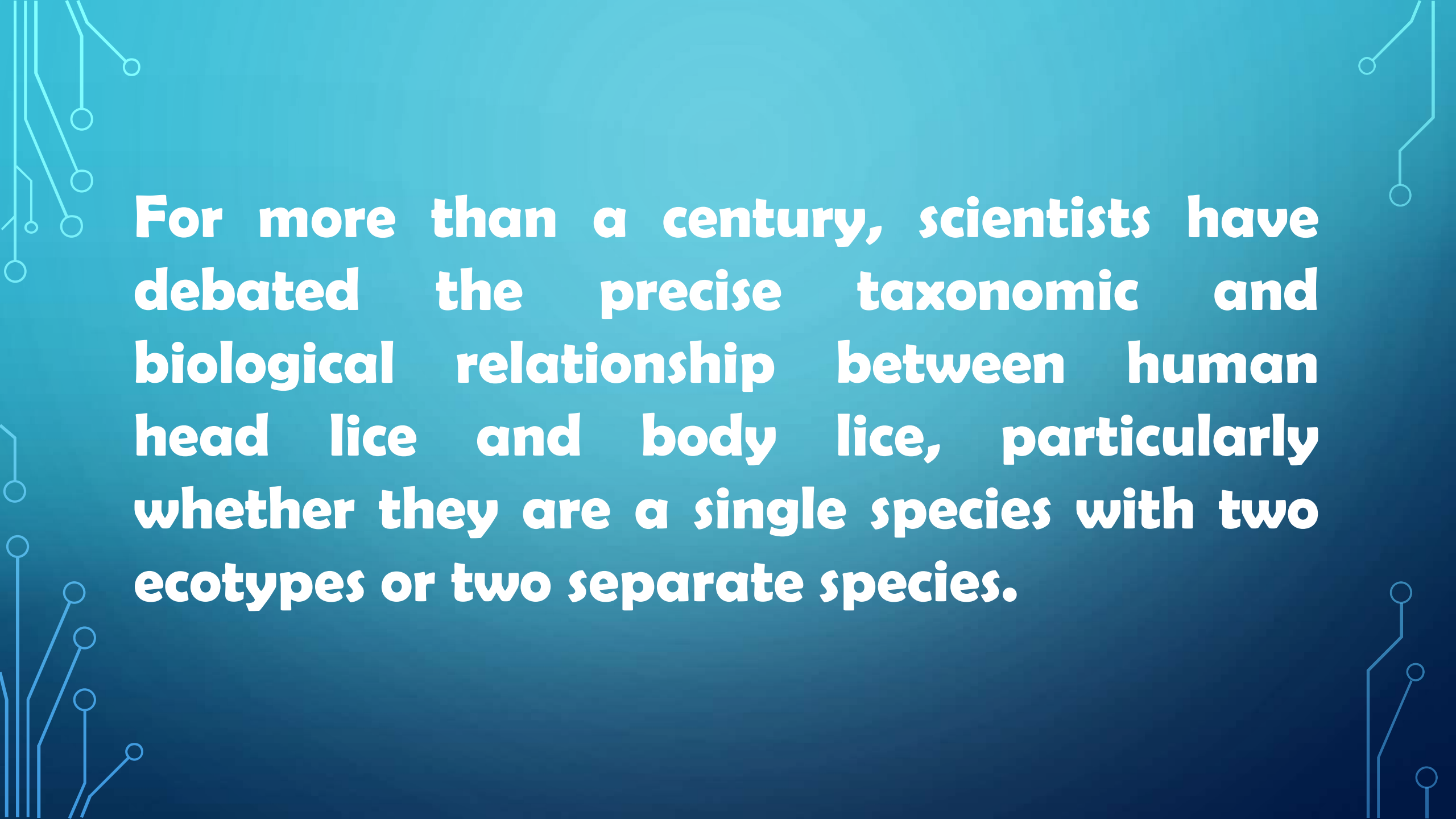
**DEPARTMENT OF ZOOLOGY**

**PDUAM, DALGAON**

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## **Head louse & Body louse**

**Lice have been associated with humans throughout recorded history. Human-infesting lice are commonly named according to the areas of the body where they are usually found.**



**For more than a century, scientists have debated the precise taxonomic and biological relationship between human head lice and body lice, particularly whether they are a single species with two ecotypes or two separate species.**

**Scientists have debated for more than a century whether human head lice and body lice are:**

- . Two separate species, or**
- . One species with two different ecotypes.**

**According to the two-species theory:**

- . Body louse = *Pediculus humanus***
- . Head louse = *Pediculus capitis***

**According to the single-species theory:**

- Body louse = *Pediculus humanus humanus***
- Head louse = *Pediculus humanus capitis***

**The term *Pediculus humanus corporis* has often been used for body lice in medical literature, but it is considered invalid by the International Commission on Zoological Nomenclature.**

**Lice undergo incomplete metamorphosis (egg/nit nymph adult) in about 18 to 24 days. Females lay eggs in their 3 to 4-week lifespan.**

- Location: Head lice attach eggs to hair shafts, while body lice glue eggs to the seams of clothing and only move to the skin to feed.**
- Vulnerability: Adult lice require blood meals to survive and will die within days without a human host**

## **Biology and Life Cycle**

- 1. Lice are small, wingless insects with flattened, elongated bodies and somewhat oval-shaped heads.**
- 2. Head lice, body lice, and pubic lice differ slightly in morphology, although these differences are difficult to identify without a microscope.**
- 3. Lice are visible to the naked eye and measure approximately 0.158 cm to 0.317 cm in length.**



**4. They are usually dirty white to grayish-black in color.**

**5. Unlike fleas, lice cannot jump, and unlike mosquitoes, they cannot fly.**

**6. Lice remain continuously on the human host throughout their life cycle.**

**7. Their life cycle consists of three stages:**


- Egg, Nymph, Adult
- 



**8. Nymphs undergo three molts before reaching maturity.**

**9. There are five stages in the life of the louse: (1) the nit or egg-stage, (2-4) the 1st, 2nd and 3rd larval stages, (5) the adult stage.**

**10. In passing from the 1<sup>st</sup> larval stage to that of the adult, it undergoes three successive moults, increasing in size at each successive stage.**

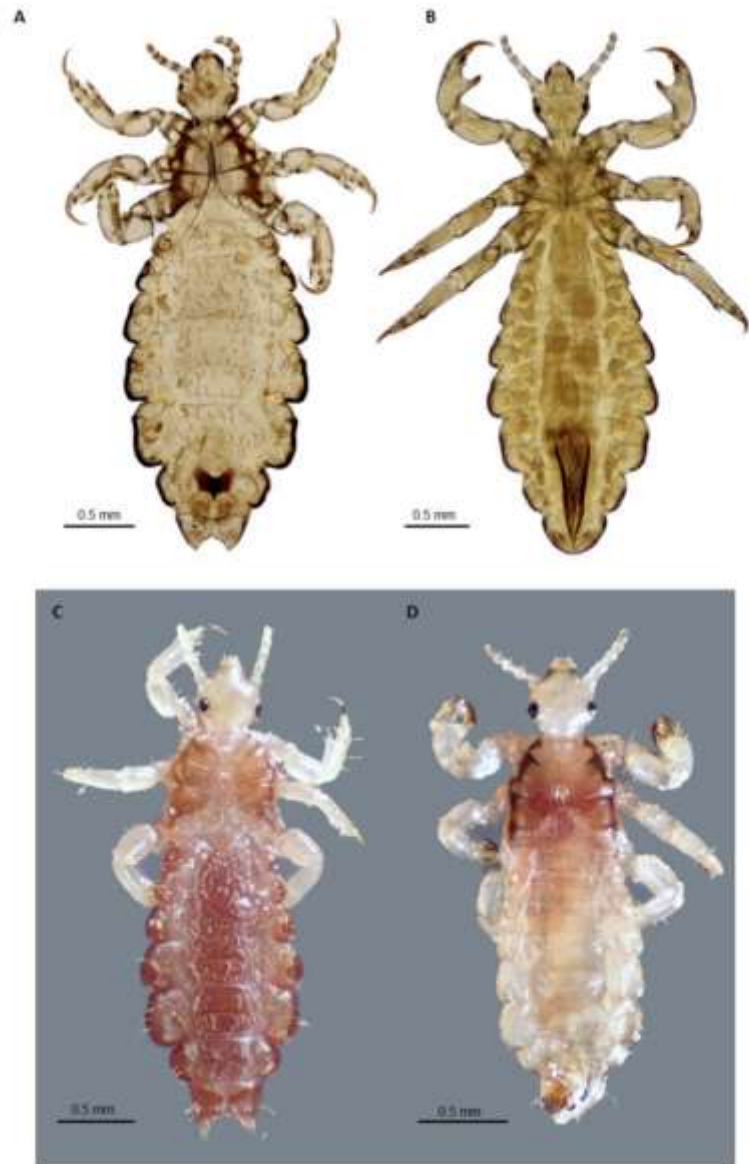


**11. The six legs, in all stages, are provided with a single large, curved, sharply pointed terminal claw specially adapted to progression on hair;**

**12. It possesses simple eyes and 5-articled antennae;**

**13. The mouthparts are adapted solely to the purpose of blood sucking.**





**Figure 1. Adult body louse and head lice.** A. Ventral view of slide-mounted female head louse; B. Ventral view of slide-mounted male body louse; C. Dorsal view of ethanol-preserved female head louse; D. Dorsal view of ethanol-preserved male head louse. All photographs were taken using a Visionary Digital K2/SC long-distance microscope (Infinity Photo-Optical Company, Boulder, CO), courtesy of Lorenza Beati.

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**14. Newly hatched first-instar nymphs must obtain a blood meal soon after emergence, or they may die.**

**15. Adult lice generally survive for about 20–30 days, depending on the species.**



**16. The main types of human-infesting lice are:**

- **Head lice (*Pediculus humanus capitis*)**
- **Body lice (*Pediculus humanus humanus*)**
- **Pubic lice (*Pthirus pubis*)**

**17. Each type of louse has distinct biological and behavioural characteristics.**

## **Pediculus humanus:**

**Pediculus humanus is a parasitic insect that includes two major subspecies: the head louse (*P. humanus capitis*) and the body louse (*P. humanus corporis*). These obligate human ectoparasites feed exclusively on humans and cause severe itching, skin irritation, and discomfort.**

**Table 1.** Selected morphological and biological differences between human head and body lice.

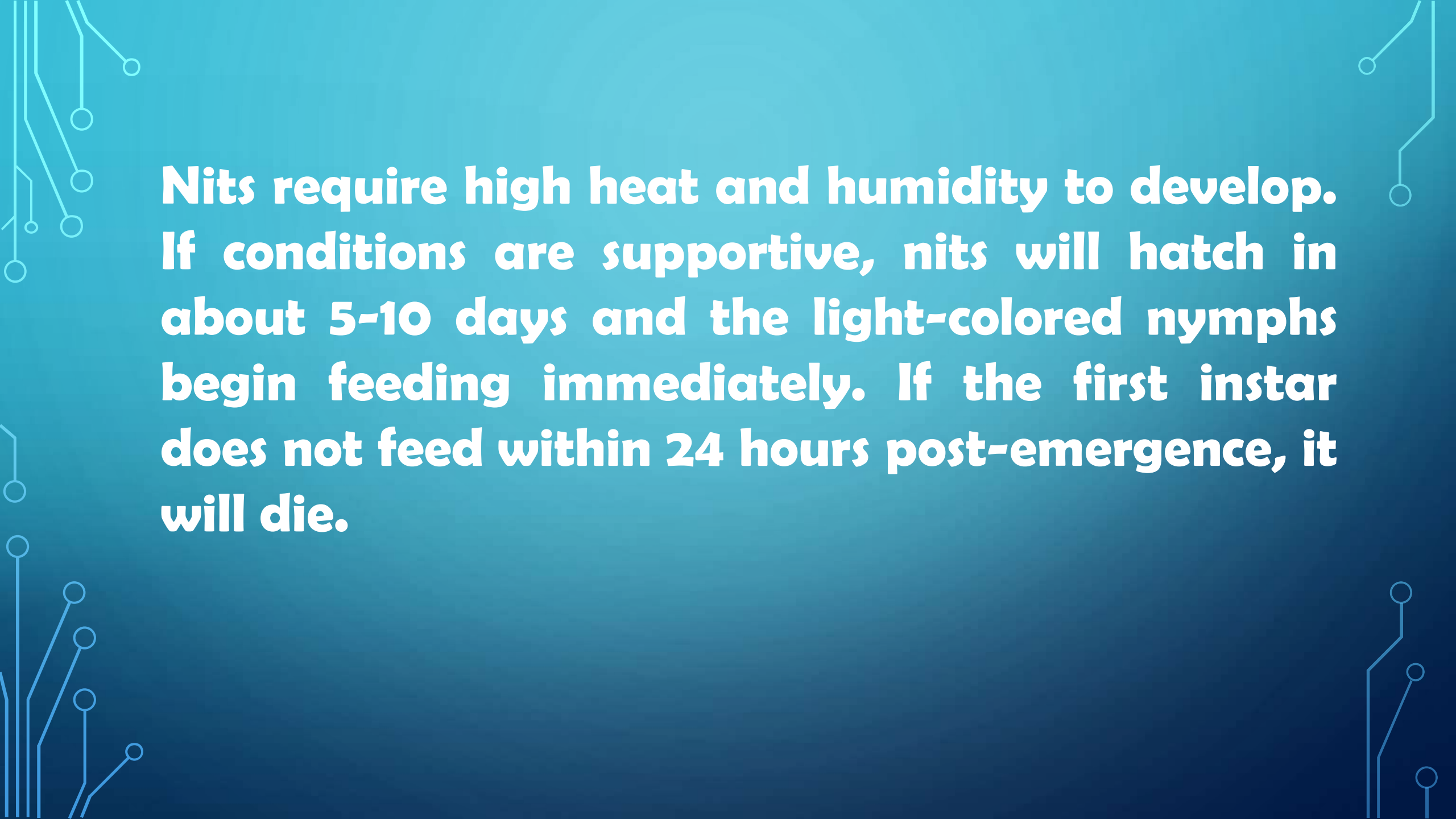
<b>CHARACTERISTIC</b>	<b>HEAD LOUSE</b>	<b>BODY LOUSE</b>
Color	Darker	Lighter
Female body length	2.4–3.3 mm	2.4–3.6 mm
Male body length	2.1–2.6 mm	2.3–3.0 mm
Antenna shape	Shorter and wider	Longer and narrower
3 <sup>rd</sup> antennal segment	As long as wide	Slightly longer than wide
Abdominal indentations	Prominent	Not prominent
Apices of paratergal plates	Extending into intersegmental membranes	Not extending into intersegmental membranes
No. eggs laid by females	4–5/day	8–12/day
Oviposition site	Base of head hairs	Clothing fibers esp. along seams
Longevity of adults	Up to 27 days	Up to 60 days
No. bloodmeals	4–10/day	1–5/day
Mitochondrial genetic clades	A, B, C	A

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**Head lice (*Pediculus humanus capitatus*)** live on the scalp and, for all practical purposes, occur only on the head.

It causes Pediculosis one of the most prevalent parasitic infestation of humans.

Adult female lice glue eggs ("nits") to the base of a hair shaft, frequently behind the ears or on the nape of the neck.

The background is a dark teal color. In the corners, there are decorative white lines that resemble a circuit board or a network diagram, with small circles at the end of the lines.

**Nits require high heat and humidity to develop. If conditions are supportive, nits will hatch in about 5-10 days and the light-colored nymphs begin feeding immediately. If the first instar does not feed within 24 hours post-emergence, it will die.**

**Development from egg to adult takes approximately 3 weeks. The adult life stage can survive for 20 or so days in ideal conditions. Head lice will infest clothing and other items that come in contact with the head (e.g., hats, shirt collars, barrettes, brushes, combs, etc.), but *they do not survive off of a person for more than about 48 hours.***

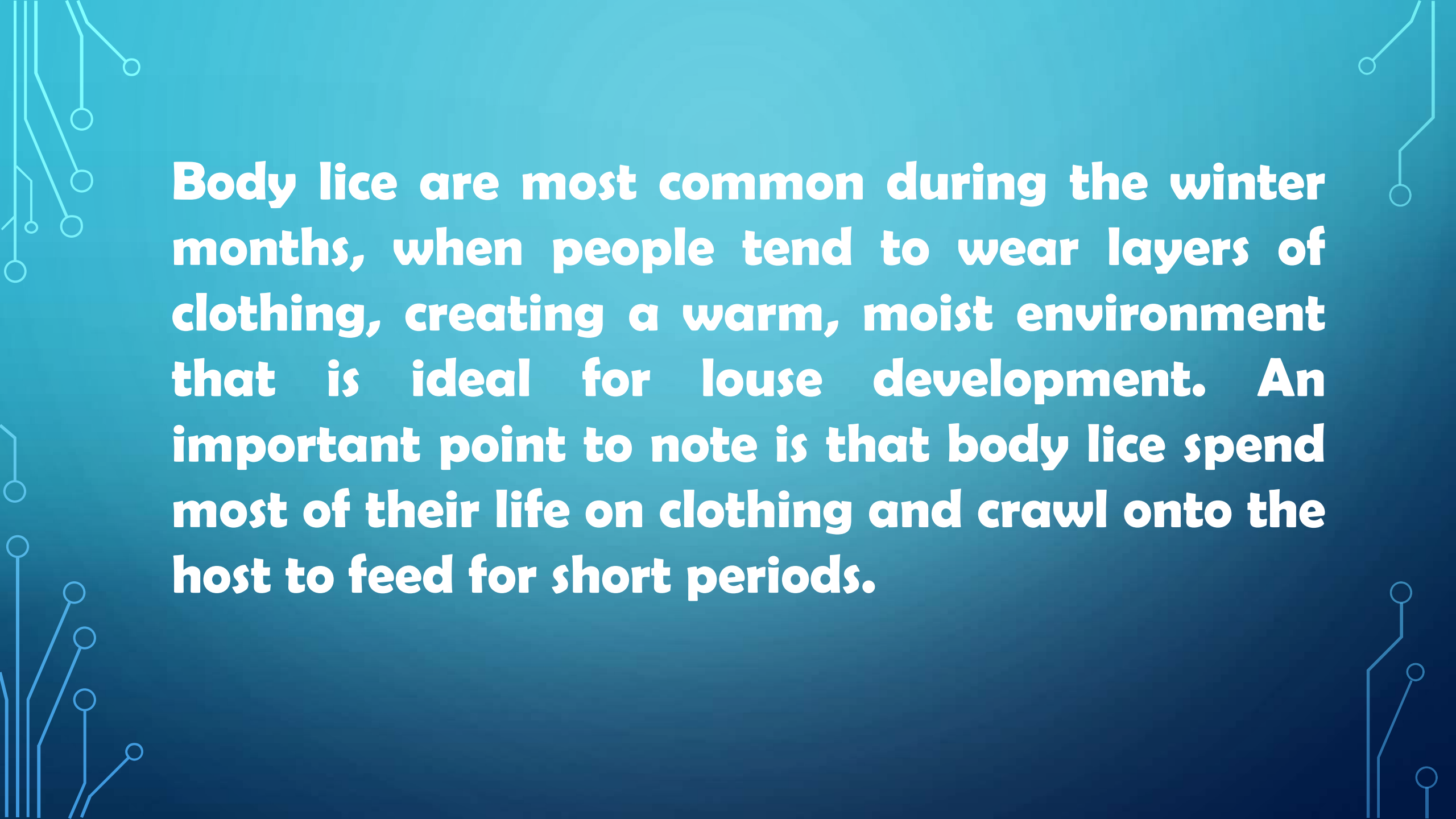
**Head lice are not known to transmit any disease organisms. However, their feeding activity irritates the scalp, causing intense itching. Secondary infections can result if the skin is broken by repeatedly scratching affected areas of the scalp**

**Body lice (*Pediculus humanus humanus*)**

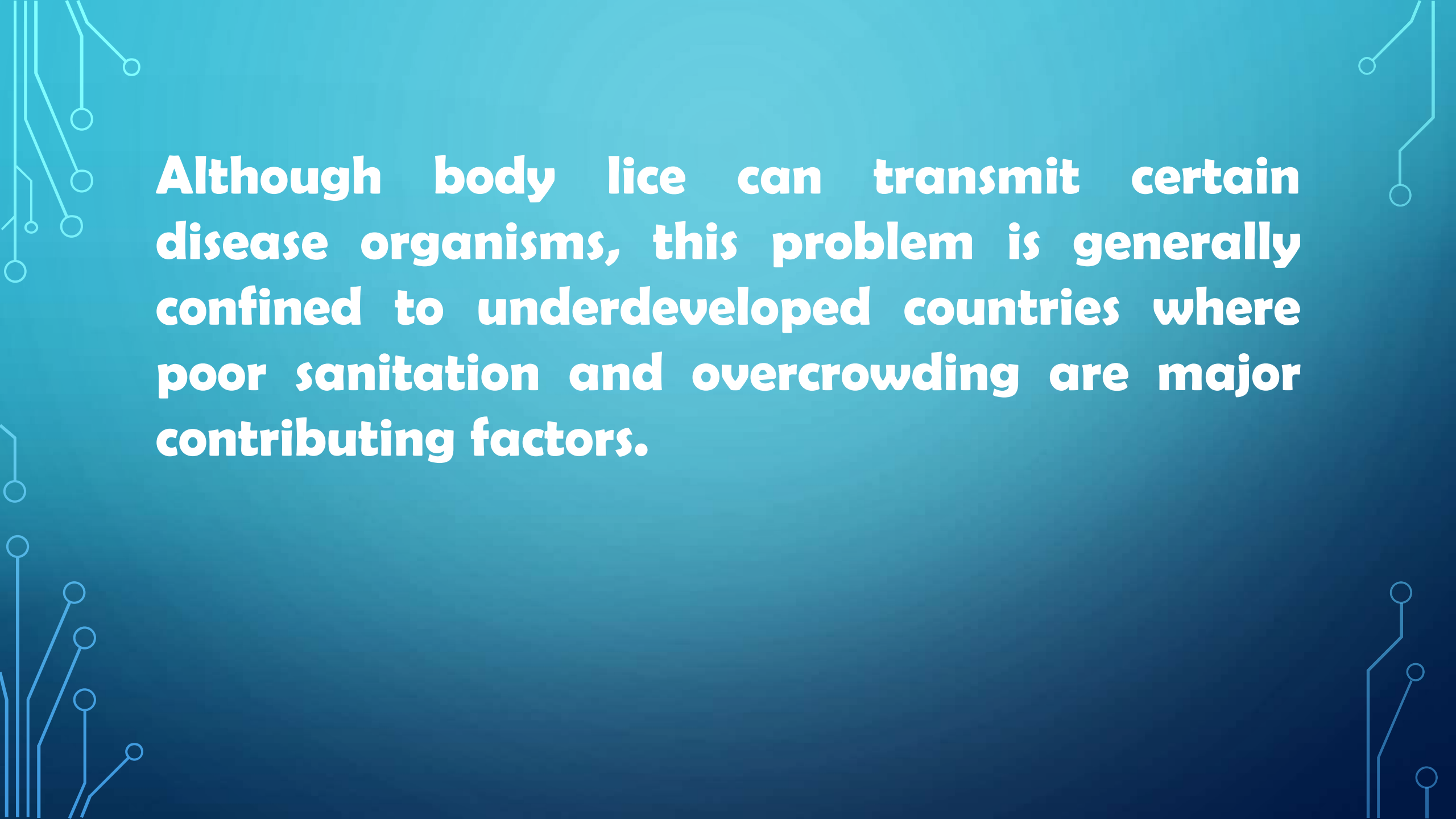
look virtually identical to head lice, but their location on people is a reasonably accurate diagnostic clue. Head lice are found almost exclusively on the scalp, whereas body lice may be found either on the body or clothing.

**Unlike head lice, body lice attach their eggs to the fibers of undergarments, particularly along inside seams and other areas of close body contact. A female body louse usually deposits 9-10 eggs per day, for a total of 270-300 eggs over her lifetime**

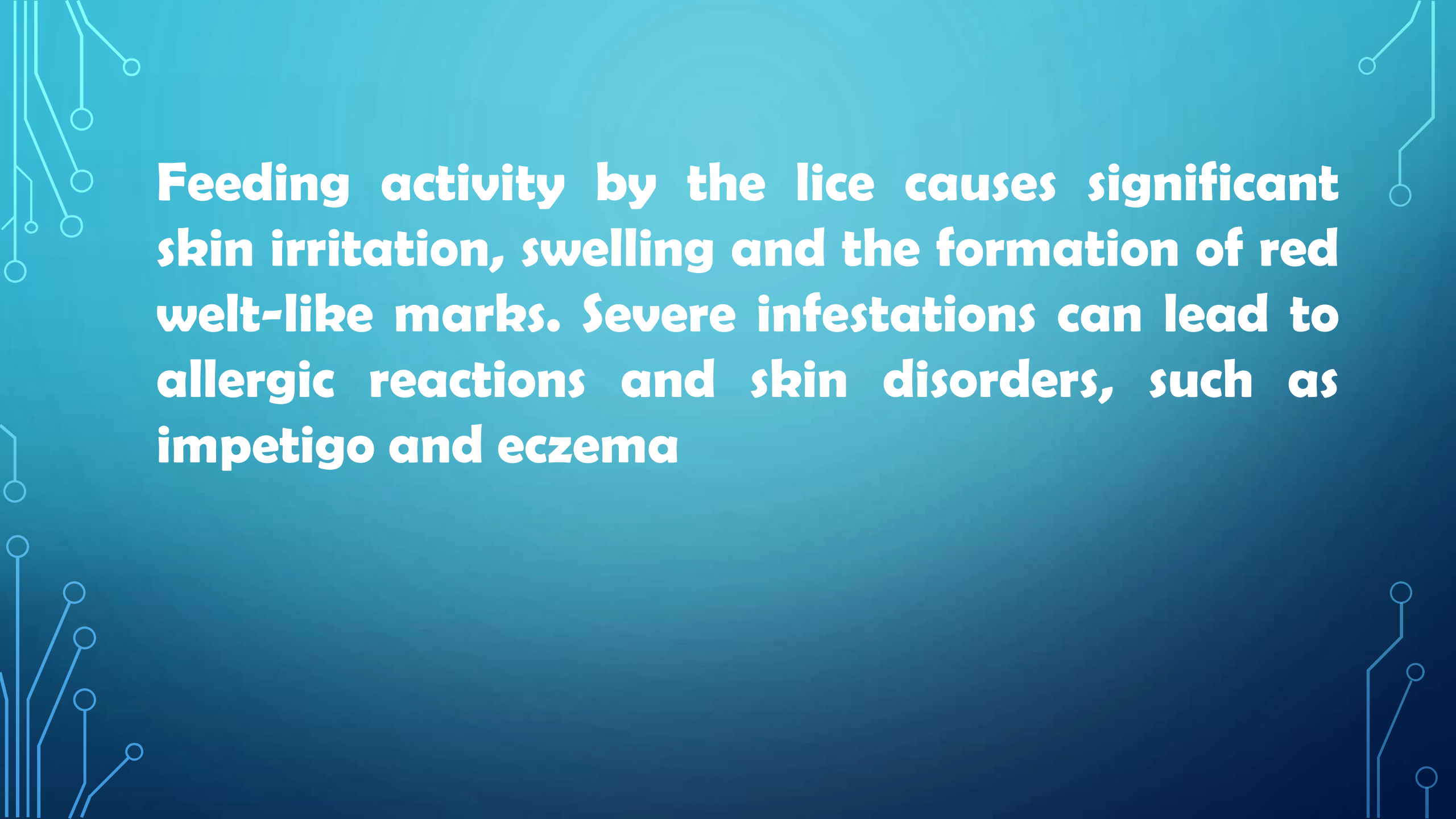
**The eggs are incubated by the person's body heat and hatch in about one week. Temperatures above 100°F or below 75°F reduce or completely stop egg hatch. Development time (egg to adult) is as short as 8-9 days if clothes stay in constant contact with the body. If clothing is removed nightly, development time may increase to 2-4 weeks.**

The background is a dark blue gradient. In the corners, there are decorative white and light blue circuit-like patterns consisting of lines and small circles, resembling a network or data flow diagram.

**Body lice are most common during the winter months, when people tend to wear layers of clothing, creating a warm, moist environment that is ideal for louse development. An important point to note is that body lice spend most of their life on clothing and crawl onto the host to feed for short periods.**

The background is a solid teal color. In the four corners, there are decorative white line-art patterns resembling circuit boards or neural networks, with lines connecting to small circles.

**Although body lice can transmit certain disease organisms, this problem is generally confined to underdeveloped countries where poor sanitation and overcrowding are major contributing factors.**

The background is a dark teal color with decorative white circuit-like lines in the corners. These lines consist of straight segments connected by small circles, resembling a network or data flow diagram. The lines are most prominent in the top-left, top-right, and bottom-left corners, with some extending towards the bottom-right corner.

**Feeding activity by the lice causes significant skin irritation, swelling and the formation of red welt-like marks. Severe infestations can lead to allergic reactions and skin disorders, such as impetigo and eczema**

**Treatment for body lice is virtually identical to the procedures for head lice. First, the infested person must be treated with pediculicides (lotions or shampoos). As in the case of head lice, body lice move rapidly from person to person upon brief contact or when clothing is shared**

## References:

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2. Biology and Control of Human Lice [Biting and Stinging Pests](#)
3. <https://content.ces.ncsu.edu/biology-and-control-of-human-lice> **Christopher Hayes** Postdoctoral Research Scholar Entomology & Plant Pathology, **Sydney Crawley** Assistant Professor and Extension Specialist (Urban and Structural Pests) Entomology and Plant Pathology, **Patricia Alder**, Training Coordinator, Entomology & Plant Pathology
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