

PROTURA



Proturans / Coneheads

The name Protura, derived from the Greek words "*proto-*" meaning first (or original) and "*ura*" meaning tail, refers to the lack of advanced or specialized structures at the back of the abdomen.

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Life History & Ecology:

Proturans are usually regarded as the most primitive of all hexapods. They have six legs and three body regions (head, thorax, and abdomen), but they lack most of the other physical features that are common to arthropods. Most species are very small (0.5-2.0 mm) and unpigmented. They are always found in moist habitats -- usually in the humus and leaf mold of temperate deciduous forests. Both adults and immatures feed on organic matter released by decay.

Proturans do not have eyes or antennae. The front pair of legs are usually held in front of the body and apparently serve as sense organs. Newly hatched proturans have nine abdominal segments. Each time they molt, another

segment is added near the end of the abdomen until they are fully grown (and sexually mature) with 12 abdominal segments. Additional molts may occur during adulthood, but the body does not grow any longer.

Distribution:

Uncommon -- found in damp habitats usually associated with soil and leaf mold.

	North America	Worldwide
Number of Families	3	4
Number of Species	20	~500

Classification:

Ametabola

lacking metamorphosis

eggs hatch into young which are smaller than adults, but similar in appearance.

Apterygota

primitively wingless

Physical Features:

Adults and Immatures



1. Antennae absent
2. Compound eyes absent
3. Head conical, all mouthparts enclosed within the head capsule
4. Pseudoculi present on head (these may be remnants of vestigial antennae)
5. Front legs directed forward (probably sensory in function)
6. Small ventral styli located on abdominal segments 1-3
7. Abdomen with 9-12 complete segments
8. Cerci and abdominal filaments entirely absent
9. Body unpigmented, usually white or ivory in color

Economic Importance:

Proturans are primarily inhabitants of forest leaf litter. They are part of the community of decomposers that help break down and recycle organic nutrients. None of these arthropods are considered pests.

Major Families:

In North America, the Protura are represented by three families:

- **Eosentomidae** (8 species)
- **Acerentomidae** (9 species)
- **Protentomidae** (3 species)

All of these families are similar in ecology and habitat.

Fact File:

- Proturans were first discovered by Antonio Sylvestri in 1907 near Syracuse, New York. He found them in samples of leaf litter he had collected for a post-doctoral project on soil-dwelling invertebrates.
- Proturans do not have eyes or antennae. The front pair of legs are usually held in front of the body and apparently serve as sensory organs.
- Two of the three North American families of Protura lack a tracheal system. All gas exchange occurs through the integument.
- With only about 500 species worldwide, Protura is the smallest class in the phylum Arthropoda.

Hot Links and Illustrations:

- [University of Florida - Featured Creatures](#)
- [Gordon Ramel's Protura Page](#)
- [Ecowatch Protura Page](#)
- [Tree of Life Web Project - Protura](#)
- [Discover Life - Protura](#)

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