



ARCHAEOGNATHA

Bristletails

The name Archeognatha, derived from the Greek "*archo*" meaning ancient and "*gnatha*" meaning jaw, refers to the primitive (monocondylic) manner in which the mandibles connect with the head capsule.

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Life History & Ecology:

Most bristletails live in grassy or wooded habitats where they are most likely to be found in leaf litter, under bark, among stones, or near the upper tidal line in coastal areas. They are most active at night, feeding as herbivores or scavengers on algae, mosses, lichens, or decaying organic matter.

Sexual maturity is reached after at least eight juvenile instars spanning up to two years. Molting continues periodically even after adulthood. The sexes are separate, but copulation does not occur. Males produce a packet of sperm (spermatophore) and leave it on the ground to be picked up by a female. Females cannot store sperm (they lack a spermatheca), and evidently acquire a new spermatophore before each bout of egg laying. Eggs are laid singly or in small groups (<30). Some species have elaborate courtship rituals to insure that females are able to locate a spermatophore.

Distribution:

Common in grassy or wooded habitats worldwide.

| | North America | Worldwide |
|---------------------------|--------------------------|------------------|
| Number of Families | 2 | 2 |
| Number of Species | 20 | ~350 |

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. Body cylindrical in shape and tapered posteriorly
2. Thorax somewhat arched dorsally
3. Compound eyes large, often touching; ocelli usually present
4. Antennae long, thread-like, and multisegmented
5. Tarsi 3-segmented
6. Abdomen with ten complete segments
7. Eleventh abdominal segment elongated to form a medial caudal filament
8. Cerci present, shorter than median caudal filament
9. Short, lateral styli (rudimentary appendages) present on abdominal segments 2-9

Economic Importance:

Bristletails are common inhabitants of forest leaf litter. They are part of the community of decomposers that break down and recycle organic nutrients. None of the Archeognatha are considered pests.

Major Families:

- **Machilidae** (Jumping Bristletails) -- most of the North American species belong to this family. They are common in the leaf litter of deciduous forests and on rocks near the seashore.

Fact File:

- Some bristletails can jump up to 10 cm (4 inches) by snapping their abdomen against the ground.
- Before molting, bristletails must fasten themselves to the substrate. If the fecal material used for cement fails to hold, the insect is unable to complete the molt and will soon die.
- Most bristletails have eversible vesicles on abdominal segments 1-7. These structures evidently help maintain the insect's water balance, probably by absorbing water from the environment.

Hot Links and Illustrations:

- [Ecowatch Archaeognatha Page](#)
- [Gordon Ramel's Thysanura Page](#)
- [Tree of Life Web Project - Archaeognatha](#)
- [Discover Life - Archaeognatha](#)

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