**Insects Are Crustaceans**

The taxon **Chelicerata** includes spiders, scorpions, horseshoe crabs, ticks, and mites. **Myriapoda** are the centipedes and millipedes. Some recent studies point to the possibility that centipedes and millipedes may not actually be a monophyletic group (data not shown here). **Hexapoda** includes insects and their kin (springtails, procutans, and diplurans). **Crustacea** includes lobsters, shrimp, crabs, barnacles, and pillbugs.

**Current Thinking**

At the turn of the twentieth century W. T. Calman had proposed a close relationship between insects and crustaceans based on comparative anatomical characteristics. Although this idea has not always been favored, recent advances in molecular, neurological, and developmental biology have renewed the interest in a crustacean–insect relationship. Recent studies (see references) have been adding strong evidence that insects are actually derived from within the Crustacea – an insect ancestor and arise from within the Crustacea. Insects are nested within Crustacea. Insects are actually crustaceans!

**Life Changes Over Time**

Life evolves by descent with modification. That leads to a nested pattern of evolution (as depicted in the tree at left). A lineage always remains as part of its ancestral lineage, even though sub-lineages diverge through time. That means that insects, because they are now believed to have descended from an insect ancestor, and arise from within the Crustacea. Insects are nested within Crustacea. Insects are actually crustaceans!

**Previous Hypotheses**

The study of the evolution within the Arthropoda has been extremely active in recent years. Every imaginable phylogenetic tree has at one time or another been proposed. Four hypotheses are depicted below.

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**References**

A partial list of some recent references on crustacean/insect relationships.


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