

THE FOSSIL RECORD OF CATERPILLARS – THE RISE OF A UNIQUE EATING MACHINE

Haug, J.T.¹

¹Ludwig-Maximilians-Universität München, Fakultät für Biologie, Planegg-Martinsried, Germany,
joachim.haug@palaeo-evo-devo.info

Caterpillars are the larval stages of moths and butterflies (Lepidoptera), certain wasps (Hymenoptera) and certain scorpion flies (Mecoptera). In the modern fauna, the biomass of caterpillars must represent a quite important share, at least in terrestrial ecosystems. While their adult forms often are important pollinators and hence beneficial for plants, the caterpillars can cause quite severe damage and can even have a negative economical impact. Therefore, it is of advantage that myriads of other organisms, including larger animals such as birds, will readily consume large amounts of caterpillars, making caterpillars quite central pieces in the modern-day food web. Looking back in time, the specific larva type 'caterpillar' must have evolved at a certain point in the different lineages. While there are some fossils with certain caterpillar-like characters in the late Palaeozoic and few individuals in the Mesozoic, it is only in the Cenozoic when caterpillars become a more common component. I will provide an overview of the still comparably scarce fossil record of caterpillars and discuss certain interactions with other faunal components. I will especially present different fossils preserved in amber, among them some rather recent findings from the Cretaceous, unique pieces from the Eocene, first quantitative data from the Miocene, but also an individual from copal. The rise of the caterpillar and the evolutionary lineages with such larvae seems to have been coupled to losses in diversity of other lineages, painting a picture of complex cases of ecological interactions and co-evolution.