

PALEOZOLOGY : INTRODUCTION

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It is the branch of paleontology, paleobiology, or zoology dealing with the recovery and identification of multicellular animal remains from geological (or even archeological) contexts, and the use of these fossils in the reconstruction of prehistoric environments and ancient ecosystems. Paleozoology is derived from greek work i.e *palaeon* means "old" and *zoon* " means animal.

Vertebrate Paleozoology

Vertebrate paleozoology refers to the use of morphological, temporal, and stratigraphic data to map vertebrate history in evolutionary theory. Vertebrates are classified as a subphylum of Chordata, a phylum used to classify species adhering to a rod-shaped, flexible body type called a notochord.

Classes of vertebrates listed in chronological order from oldest to most recent include heterostracans, osteostracans, coelolepid agnathans, acanthodians, osteichthyan fishes, chondrichthyan fishes, amphibians, reptiles, mammals, and birds. All vertebrates are studied under standard evolutionary generalizations of behavior and life process, although there is controversy over whether population can be accurately estimated from limited fossil resources.

Evolutionary origins of vertebrates as well as the phylum Chordata have not been scientifically determined. Many believe vertebrates diverged from a common ancestor of chordates and echinoderms. This belief is well supported by the prehistoric marine creature Amphioxus. Amphioxus does not possess bone, making

it an invertebrate, but it has common features with vertebrates including a segmented body and a notochord. This could imply that *Amphioxus* is a transitional form between an early chordate, echinoderm or common ancestor, and vertebrates.

Quantitative Paleozoology

Quantitative paleozoology is a process of taking a census of fossil types rather than inventory. They differ in that inventory refers to a detailed log of individual fossils, whereas census attempts to group individual fossils to tally the total number of a species. This information can be used to determine which species were most dominant and which had the largest population at a time period or in a geological region. In the early 1930s, paleontologists Chester Stock and Hildegard Howard devised special units for quantitative paleozoology and quantitative paleontology. The first unit used, Number of Identified Species (NISP), specified exact quantity of fossils from a specific species recorded. Stock and Howard determined this unit to be problematic for quantitative purposes as an excess of a small fossil—such as teeth—could exaggerate quantity of the species. There was also an amount of confusion as to whether bone fragments should be assembled and counted as one bone or tallied individually.

Another unit commonly used in quantitative paleozoology is biomass. Biomass is defined as the amount of tissue in an area or from a species.

Conservation Biology

Paleozoological data is used in research concerning conservation biology. Conservation biology refers to biological study used for conservation, control, and preservation of various species and ecosystems. In this context, the paleozoological

data used is obtained from recently deceased decomposing matter rather than prehistoric matter.