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Role of Paleontology in Zoological Sciences

Hanu Ivar*

Department of Virology, National Veterinary Research Institute, Phnom Penh, Cambodia

Commentary

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***For Correspondence:**
Hanu Ivar, Department of Virology, National Veterinary Research Institute, Phnom Penh, Cambodia

E-mail: hanuivarsfe@gmail.com

ABOUT THE STUDY

The field of palaeontology, paleobiology or zoology known as paleozoology also spelled paleozoology deals with the recovery and identification of multicellular animal remains from geological (or even archaeological) contexts as well as the use of these fossils to reconstruct ancient ecosystems and prehistoric environments.

In evolutionary theory, mapping the history of vertebrates using morphological, chronological and stratigraphic information is known as vertebrate paleozoology. Vertebrates are categorised as a subphylum of the phylum Chordata which is used to group organisms that adhere to a flexible, rod-shaped body type known as a notochord. They vary from other phyla in that only vertebrates have what we would consider to be bone but other phyla may have cartilage or tissues that resemble cartilage to form a sort of skeleton. Heterostracans, osteostracans, coelolepid agnathans, acanthodians, osteichthyan fishes, chondrichthyan fishes, amphibians, reptiles, mammals and birds are among the vertebrate classes listed in chronological order from oldest to most recent. Although there is debate over whether population size can be reliably determined from scant fossil materials.

All vertebrates are investigated under the basic evolutionary assumptions of behaviour and life process. It has not been proven scientifically where the phylum Chordata and vertebrate evolution originated. Many people think that chordates and echinoderms shared an ancestor with vertebrates before they split. The fossilised marine animal Amphioxus provides strong evidence in favour of this assertion. Amphioxus is an invertebrate because it lacks bones but it shares characteristics with vertebrates such a segmented body and a notochord. It might be inferred from this that Amphioxus is a stage between an early chordate, echinoderm or shared ancestor and vertebrates.

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In quantitative paleozoology, fossil kinds are counted rather than inventoried. In contrast to census which tries to group individual fossils to calculate the total number of species, inventory refers to a detailed log of individual fossils. This data can be used to identify the species that were most prevalent and had the largest number at a particular time or in a specific geological area. The amount of tissue in a region or from a species is referred to as biomass. It is determined by multiplying an estimated average weight based on contemporary species that are similar by the MNI. This results in an estimation of the potential weight of a species whole population. The difference in weight between children and adults, seasonal weight changes brought on by diet and hibernation and the challenge of precisely determining a creature's weight using only a skeleton reference are all issues with this measurement. A biomass may be greatly overstated or understated if the estimated time period in which the fossils were alive is wrong since it is difficult to identify the exact age of fossilised matter within a year or a decade.

Research on conservation biology makes use of paleozoological data. The term "conservation biology" refers to biological research that is done to protect, manage and conserve various species and habitats. In this instance, recent disintegrating matter rather than ancient material provided the paleozoological data that was utilised. According to the paleozoological research, it can provide the information on extinction rates, causes and "benchmark" population peaks and falls that can be used to forecast future patterns and create the most effective control strategies possible. Paleozoological information can also be used to compare a species current population and range to its historical counterparts.