Scientists theorise that less than 1% of species which have graced the Earth have been fossilised. This essay will explore why, and how the process of fossilisation impacts this.

A fossil is the remains of a prehistoric eukaryote that has been preserved in rock for millions of years. A fully-intact preservation of an organism is rare, and instead taphonomists rely on fragments of being; shells, bones and teeth. These structures are maintained as a result of their solidity; resistance to decomposition; and limited predatory risk. Similar metrics can be employed to determine the likelihood of entire organisms being fossilised.

A concept intrinsic to understanding the relative potential for a species to be immortalised, is how fossils form. To begin, the soft tissue decomposes through chemical and environmental processes. As a result, it is unlikely that organisms lacking in environmental resistant constructions, such as slugs, are fossilised. Subsequently, the skeleton is buried by sediment, such as sand, and, typically, water. The levels of sediment increase over time, causing a rise in pressure and hardening the soon-to-be fossil. Rock forms, surrounding the skeleton, which leaves it to dissolve. A cast is then fashioned after minerals crystallise. Eventually, after multiple mega-annums, the rock wears away to reveal the fossil.

As water provides the optimum, anoxic conditions for fossilisation, the majority of fossils formed stem from marine life as opposed to land forms. Species found in bodies of water gain the advantage of fast burials, meaning that their remains are less likely to be eaten by predators and, therefore, they are preserved. Albeit fossilizations of land forms isn't impossible, the animal's corpse would have to migrate into water or be covered by mud, sand or volcanic ash originating from a cataclysm or less violent natural disaster. This tends to be difficult, and hence accounts for the increased documentation of previous aquatic life.

Leading on from this, the biomes in which land organisms reside significantly impacts their chances of ending up in a museum. Dry environments could engender the increased risk of being consumed by scavengers, with only the animal's dust-like carcass remaining. It is also of paramount importance that the eukaryote lives in an area where a fine sediment is being continuously laid down. This means mountain life is at a significant disadvantage. Moreover, rainforest conditions, moist with an abundance of life, means that corpses decompose rapidly, and burial is unlikely.

From a statistical outlook, the greater the number of the organism, and larger the total geographical site they occupied, the more likely it is that a fossil of an animal from that species would be found. The species total lifetime should also be accounted for.

To conclude, the main factors determining whether an organism will be fossilised is: its prevalence, area of residence, access to fast burial and predatory risk. This intersectional paradigm provides an insight into why 99% of life forms are lost to time. So, what fossils make up time's funeral in reverse, and will we be a part of it?