

Diatom 13: 83-92 (英文)

大塚泰介・辻 彰洋：何殻を数えるべきか？ I. フロラ調査の場合

Taisuke Ohtsuka and Akihiro Tuji : How many frustules should we count? I. for floristic studies.

Abstract

Necessary sample sizes for floristic studies of diatom are discussed. Three samples of epilithic diatom communities collected from different rivers were used to decide the necessary sample sizes. From each sample, 14400 frustules were counted. The species-individuals relationship of each sample was approximated to five models : Fisher's logarithmic series model, MacArthur's broken stick model, Brian's negative binomial series model, Preston's logarithmic series model and Preston's canonical lognormal model. The general lognormal model fitted best for all samples. Even after 14400 counts, the presence of taxa that did not occur in each sample was supposed, because the fitted lognormal curve is apparently truncated. Then we attempted two methods for estimating the total number of taxa from smaller samples, i.e., fitting general lognormal model and Morisita's method. It was estimated that only one-third or less taxa in the whole community occurred when the sample size was 400. Usually the total number of taxa estimated by using both methods became underestimate as the sample size decreased. It was probably caused by the concentration of each species on the permanent slide.