

附錄二、本研究採用各項分析指標

Appendix II. Biodiversity indicator functions were used in this study.

指數	公式	Expression
Simpson's Index	$\lambda = 1 - \sum_{i=1}^s \left(\frac{n_i}{N} \right)^2$	ni: the number of individuals belonging to the <i>i</i> th species N: the total number of individuals belonging to the assemblage
Shannon-Wiener's Index	$H' = - \sum_{i=1}^s (n_i / N) \ln(n_i / N)$	ni: the number of individuals belonging to the <i>i</i> th species N: the total number of individuals belonging to the assemblage
Peilous' evenness Index	$J' = H' / \log S$	H': the Shannon-Wiener's Index S: the number of species belonging to the assemblage
Marfelef's Index	$R = (S-1) / \log N$	S: the number of species belonging to the assemblage N: the total number of individuals belonging to the assemblage
Bray-Curtis distance	$\delta_{jk}(i) = 100 \left y_{ij} - y_{ik} \right / \sum_{i=1}^p (y_{ij} + y_{ik})$	y_{ik} : the number of individuals belonging to the <i>i</i> th species in <i>k</i> assemblage. y_{jk} : the number of individuals belonging to the <i>i</i> th species in <i>j</i> assemblage.
Bray-Curtis Similarity	$S_{jk} = 100 \left\{ 1 - \frac{\sum_{i=1}^p y_{ij} - y_{ik} }{\sum_{i=1}^p (y_{ij} + y_{ik})} \right\}$ $= 100 \frac{\sum_{i=1}^p 2 \min(y_{ij}, y_{ik})}{\sum_{i=1}^p (y_{ij} + y_{ik})}$	y_{ik} : the number of individuals belonging to the <i>i</i> th species in <i>k</i> assemblage. y_{jk} : the number of individuals belonging to the <i>i</i> th species in <i>j</i> assemblage.
ANOSIM	$R = \frac{(\bar{r}_B - \bar{r}_W)}{\frac{1}{2} M}$	r_b = mean rank of between group dissimilarities r_w = mean rank of within group dissimilarities M : $n(n-1)/2$, n = total number of samples. R will usually fall between 0 and 1, indicating some degree of discrimination between the sites.